Standard Assemblies

Applications

The gerotor type gear motor is used on a large number of mobile and industrial applications. It is often necessary to incorporate valves in the circuit with the motor to control the flow and pressure. It may also be necessary to incorporate load control valves in the circuit.

It is possible to mount line mounted valves into the pipework feeding the motor, but Sun offers a large range of valves that can be bolted directly onto the motor interface. This eliminates pipework and provides the control directly at the motor.

The use of Sun cartridge valves in these assemblies means that in the event of a problem, it is a simple task to replace the cartridge rather than have to replace the complete valve.

On the smaller size motors the same gasket mounted face is used by at least four different manufacturers of this type of motor. The list below provides a quick cross-reference.

Manufacturer (general motor type with gasket mounted interface)
Eaton (S Type)
White (RS 06 and RS 46)
Parker/Ross/Nichols/Prince (TA, TB, TD, NE, 110A, 130S, 400S)

On the specification in this catalogue for the smaller size of motor, we are using the Eaton reference number type as they are probably the largest manufacturer.

For the larger size of motors we are only showing the Eaton reference of 2000 series and 4000 series.

Design Concepts and Features

The valve assemblies shown for all sizes of motor are counterbalance valves and cross line relief valves. The counterbalance valves provide load holding and load control while the cross line relief valves provide over pressure protection. The Sun counterbalance valves provide excellent control with low hysteresis and minimum leakage. The relief valves are fast acting with minimum overshoot for excellent protection.

On the smaller sizes of motor, Sun also offers flow control, which can accurately control the motor speed. The type of valve offered is a pressure compensated flow control valve but for more basic flow control a simple restrictor valve can also be used. Sun also has a further expanded range of bolt on valve assemblies. Consult the Sun factory or your local distributor for further information.
### Standard Assemblies: Direct Motor Mounted Assemblies: Char-Lynn S Series Motors

**SINGLE / DUAL CROSS-PORT RELIEF AND SINGLE COUNTERBALANCE APPLICATIONS**

#### T-10A / T-11A Cavities

Go to [www.sunhydraulics.com](http://www.sunhydraulics.com) for more product information.

### DIRECT ACTING

**Function**

- Single Cross-Port Relief
- A to B

**Ports** 1, 2

**Assembly** RDDA-L’N*ZFL

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Rotate manifold for relief direction required. Relieves from 1 to 2.

- L Control: 0.5 Max
- 74.7
- 48.5
- 18.3
- 0

### PILOT RATIO 3:1

**Function**

- Single Cross-Port Relief
- A to B

**Ports** 1, 2

**Assembly** RDDA-L’N-ZFL

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Rotate manifold for relief direction required. Relieves from 1 to 2.

- L Control: 0.5 Max
- 74.7
- 48.5
- 18.3
- 0

### Dual Cross-Port Relief

**Function**

**Ports** A, B

**Assembly** RDDA-L’N-YVB

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

### Single Counterbalance on A

**Function**

**Ports** 1, 2

**Assembly** CBCA-LAN-ZDL

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

### Single Counterbalance on B

**Function**

**Ports** 1, 2

**Assembly** CBCA-LAN-ZDM

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

### NOTES:

Page 2 for cartridge model RD*A-*** and page 50 for CB**-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Standard Assemblies: Direct Motor Mounted Assemblies: Char-Lynn S Series Motors

SINGLE / DUAL COUNTERBALANCE AND DUAL FLOW CONTROL APPLICATIONS

T-11A / T-13A Cavities

Go to www.sunhydraulics.com for more product information.

FULLY ADJUSTABLE PRESSURE COMPENSATED WITH FREE FLOW CHECK

PILOT RATIO 3:1

Function

Single Counterbalance on A with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA, VB</td>
<td>CBCA-LAN-ZDW</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Single Counterbalance on B with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA, VB</td>
<td>CBCA-LAN-ZDZ</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Dual Counterbalance

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA, VB</td>
<td>CBCA-LAN-YTV</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Dual Counterbalance with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA, VB</td>
<td>CBCA-LAN-XTT</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Dual Flow Control Meter-out on A and B

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA, VB</td>
<td>FDBA-LAN-XWV</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES: Page 126 for cartridge model FD**,*** and page 50 for CB**,*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Standard Assemblies: Direct Motor Mounted: Char-Lynn S Series Motor

SINGLE FLOW CONTROL APPLICATIONS

T-13A Cavity

FULLY ADJUSTABLE

Function

Single Flow Control Bleed-Off

Ports

VA VB

MB MA

VA VB

Assembly Model Code:

NFCC-LCN-ZGB

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES: Page 110 for cartridge models NF***,*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.

Go to www.sunhydraulics.com for more product information.
Standard Assemblies: Direct Motor Mounted: Char-Lynn 2000 Series Motors

DUAL CROSS-PORT RELIEF AND SINGLE COUNTERBALANCE APPLICATIONS

T-10A / T-2A Cavities

Go to www.sunhydraulics.com for more product information.

### DIRECT ACTING

**Function**
Dual Cross-Port Relief

**Ports**
VA, VB

**Assembly Model Code**
RDDA-L’N-VZM

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

### PILOT RATIO 3:1

**Function**
Single Counterbalance on A

**Ports**
VA, VB

**Assembly Model Code**
CBEA-LAN-ZNM

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**
Single Counterbalance on B

**Ports**
VA, VB

**Assembly Model Code**
CBEA-LAN-ZNN

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**
Single Counterbalance on A with Shuttle

**Ports**
VA, VB

**Assembly Model Code**
CBEA-LAN-ZNQ

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES: Page 2 for cartridge model RD*A-*** and page 50 for CB**-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
**Standard Assemblies: Direct Motor Mounted: Char-Lynn 2000 Series Motors**

**SINGLE / DUAL COUNTERBALANCE APPLICATIONS**

**T-2A Cavity**

Go to [www.sunhydraulics.com](http://www.sunhydraulics.com) for more product information.

**PILOT RATIO 3:1**

<table>
<thead>
<tr>
<th>Function</th>
<th>Single Counterbalance on B with Shuttle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts</td>
<td>VA, VB</td>
</tr>
<tr>
<td>Assembly</td>
<td>Model Code*</td>
</tr>
<tr>
<td>3/4” BSPP</td>
<td>CBEA-LAN-ZNR</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

<table>
<thead>
<tr>
<th>Function</th>
<th>Dual Counterbalance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts</td>
<td>VA, VB</td>
</tr>
<tr>
<td>Assembly</td>
<td>Model Code*</td>
</tr>
<tr>
<td>3/4” BSPP</td>
<td>CBEA-LAN-YTF</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

<table>
<thead>
<tr>
<th>Function</th>
<th>Dual Counterbalance with Shuttle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts</td>
<td>VA, VB</td>
</tr>
<tr>
<td>Assembly</td>
<td>Model Code*</td>
</tr>
<tr>
<td>3/4” BSPP</td>
<td>CBEA-LAN-XYT</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

**NOTES:** Page 50 for cartridge model CB**,*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Standard Assemblies: Direct Motor Mounted: Char-Lynn 4000 Series Motors

DUAL CROSS-PORT RELIEF AND DUAL COUNTERBALANCE APPLICATIONS

T-10A / T-2A Cavities

Go to www.sunhydraulics.com for more product information.

DIRECT ACTING

PILOT RATIOS 3:1

Function
Dual Cross-Port Relief

Function
Dual Counterbalance on A and B

Function
Dual Counterbalance on A and B with Shuttle

*Add modifier T to order SG Iron for pressure rating over 210 bar.

NOTES: Page 2 for cartridge model RD*A-*** and page 50 for CB**-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Applications

The Danfoss gerotor type gear motor is used on a large number of mobile and industrial applications. It is often necessary to incorporate valves in the circuit with the motor to control the flow and pressure. It is also sometimes necessary to incorporate load control valves in the circuit.

It is possible to mount line-mounted valves into the pipework feeding the motor but Sun offers a large range of valves that can be bolted directly onto the motor interface. This eliminates pipework and provides the control directly at the motor.

The use of Sun cartridge valves in these valve assemblies means that in the event of a problem it is a simple task to replace the cartridge rather than have to replace the complete valve.

We are showing a range of bolt-on valve assemblies for the two most common ranges of Danfoss motors, the OMP/OMR range and the OMT range.

Design Concepts and Features

The valve assemblies shown for all sizes of motor are counterbalance valves and cross line relief valves. The counterbalance valves provide load holding and load control while the cross line relief valves provide protection from over pressurisation. The Sun counterbalance valves provide excellent control with low hysteresis and minimum leakage. The relief valves are fast acting with minimum overshoot for excellent protection.

On the smaller sizes of motor, Sun also offers flow control, which can accurately control the motor speed. The type of valve offered is a restrictor type control valve but for more accurate flow control a pressure compensated valve can also be used. Sun also has a further expanded range of bolt on valve assemblies. Consult your local Sun company or distributor for further information.
**DIRECT ACTING**

<table>
<thead>
<tr>
<th>Ports</th>
<th>Gauge</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>1/4 BSPP</td>
<td>RDDA-L-N-WVT</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**

Single Cross-Port Relief A to B

**PILOT RATIO 3:1**

<table>
<thead>
<tr>
<th>Ports</th>
<th>Gauge</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>1/4 BSPP</td>
<td>RDDA-L-N-WVQ</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**

Dual Cross-Port Relief

**Function**

Single Counterbalance on A

**Notes:** Page 2 for cartridge models RD*A-*** and page 50 for CB**-*** show performance curves, technical tips, and options.

See page 229 for technical information about bolt-on packages.
T-11A Cavity

Function
Single Counterbalance on A with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBCA-LAN-WZR</td>
</tr>
</tbody>
</table>

PILOT RATIO 3:1

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function
Single Counterbalance on B with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBCA-LAN-WZN</td>
</tr>
</tbody>
</table>

Function
Dual Counterbalance

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBCA-LAN-WZK</td>
</tr>
</tbody>
</table>

Function
Dual Counterbalance with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBCA-LAN-WZU</td>
</tr>
</tbody>
</table>

Function
Shuttle Only

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CSAA-BXN-WZX</td>
</tr>
</tbody>
</table>

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES:
Page 50 for cartridge models CB**,*** show performance curves, technical tips, and options.
See page 229 for technical information about bolt-on packages.
DUAL FLOW CONTROL APPLICATIONS

T-5A Cavity

FULLY ADJUSTABLE PRESSURE COMPENSATED FLOW CONTROL WITH REVERSE FREE FLOW CHECK:

Function
Dual Flow Control
Meter-in on A and B

Function
Dual Flow Control
Meter-out on A and B

NOTES: Page 126 for cartridge models FD*B-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Standard Assemblies: Direct Motor Mounted: Danfoss (OMT Series)

SINGLE / DUAL CROSS-PORT RELIEF AND SINGLE COUNTERBALANCE APPLICATIONS

T-10A / T-2A Cavities

DIRECT ACTING

Function

Single Cross-Port Relief A to B

Ports V₁, V₂

Assembly Model Code

3/4” BSPP RDDA-L*N-WLW

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

PILOT RATIO 3:1

Function

Single Cross-Port Relief B to A

Ports V₁, V₂

Assembly Model Code

3/4” BSPP RDDA-L*N-WMW

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Dual Cross-Port Relief

Ports V₁, V₂

Assembly Model Code

3/4” BSPP RDDA-L*N-WLZ

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Single Counterbalance on A

Ports V₁, V₂

Assembly Model Code

3/4” BSPP CBEA-LAN-WKJ

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

Function

Single Counterbalance on B

Ports V₁, V₂

Assembly Model Code

3/4” BSPP CBEA-LAN-WKL

*Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES: Pages 2 for cartridge models RD*A-*** and page 50 for CB**-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
**T-2A Cavity**

**Function**
- **Single Counterbalance on A with Shuttle**

**Parts**
- V1, V2

**Assembly Model Code**
- CBEA-LAN-WKQ

**Notes:** Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**
- **Single Counterbalance on B with Shuttle**

**Parts**
- V1, V2

**Assembly Model Code**
- CBEA-LAN-WKT

**Notes:** Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**
- **Dual Counterbalance**

**Parts**
- V1, V2

**Assembly Model Code**
- CBEA-LAN-WKW

**Notes:** Add modifier /S to order SG Iron for pressure rating over 210 bar.

**Function**
- **Dual Counterbalance with Shuttle**

**Parts**
- V1, V2

**Assembly Model Code**
- CBEA-LAN-WKZ

**Notes:** Add modifier /S to order SG Iron for pressure rating over 210 bar.

NOTES: Page 50 for cartridge model CB**-*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.

Go to www.sunhydraulics.com for more product information.