Standard Assemblies

TECHNICAL PRODUCT INFORMATION
DIRECT MOTOR MOUNTED ASSEMBLIES
Char-Lynn S Series

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 for more product information.

DIRECT ACTING

Function
Single Cross-Port Relief A to B

Function
Single Cross-Port Relief B to A

Function
Dual Cross-Port Relief

Function
Single Counterbalance on A

Function
Single Counterbalance on B

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>SAE 10</td>
<td>CBCA-LAN-ZDV</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Single Counterbalance on B with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAE 10</td>
<td>CBCA-LAN-ZDY</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Dual Counterbalance

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<th>Parts</th>
<th>Assembly Model Code*</th>
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</thead>
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<tr>
<td>SAE 10</td>
<td>CBCA-LAN-YTA</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Dual Counterbalance with Shuttle

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAE 10</td>
<td>CBCA-LAN-XTS</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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>SAE 10</td>
<td>FDBA-LAN-XWT</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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

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

FULLY ADJUSTABLE

| Ports | Function | Single Flow Control Bleed-Off |

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

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.
**Standard Assemblies: Direct Motor Mounted: Char-Lynn 2000 Series Motors**

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

**T-10A / T-2A Cavities**

**DIRECT ACTING**

**Function**
- Dual Cross-Port Relief

**Ports**
- VA, VB

**Assembly**
- Model Code: RDDA-L’N-YWA

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**PILOT RATIO 3:1**

**Function**
- Single Counterbalance on A

**Ports**
- VA, VB

**Assembly**
- Model Code: CBEA-LAN-ZPG

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**
- Single Counterbalance on B

**Ports**
- VA, VB

**Assembly**
- Model Code: CBEA-LAN-ZPI

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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

**Ports**
- VA, VB

**Assembly**
- Model Code: CBEA-LAN-ZPM

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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**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 for more product information.

PILOT RATIO 3:1

Function

Single Counterbalance on B with Shuttle

Parts

- VA, VB
- Model Code: CBEA-LAN-ZPO

Assembly

- SAE 12
- *Add modifier S to order Ductile Iron for pressure rating over 3000 psi.

Function

Dual Counterbalance

Parts

- VA, VB
- Model Code: CBEA-LAN-YTC

Assembly

- SAE 12
- *Add modifier S to order Ductile Iron for pressure rating over 3000 psi.

Function

Dual Counterbalance with Shuttle

Parts

- VA, VB
- Model Code: CBEA-LAN-XYS

Assembly

- SAE 12
- *Add modifier S to order Ductile Iron for pressure rating over 3000 psi.

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

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.

Design Concepts and Features

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.

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.
**Standard Assemblies: Direct Motor Mounted: Danfoss (OMP/OMR Series)**

**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.

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**DIRECT ACTING**

**PILOT RATIO 3:1**

**Function**

- Single Cross-Port Relief A to B

**Ports**

- V1, V2

**Gauge Port**

- A to B

**Assembly Model Code**

- RDDA-LN-WVY

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**

- Single Cross-Port Relief B to A

**Ports**

- V1, V2

**Gauge Port**

- B to A

**Assembly Model Code**

- RDDA-LN-WVS

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**

- Dual Cross-Port Relief

**Ports**

- V1, V2

**Gauge Port**

- A to B

**Assembly Model Code**

- RDDA-LN-WVP

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**

- Single Counterbalance on A

**Ports**

- V1, V2

**Assembly Model Code**

- CBCA-LAN-WZH

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**

- Single Counterbalance on B

**Ports**

- V1, V2

**Assembly Model Code**

- CBCA-LAN-WZE

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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**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.
Standard Assemblies: Direct Motor Mounted: Danfoss (OMP/OMR Series)

SINGLE / DUAL COUNTERBALANCE APPLICATIONS (SHUTTLES)

T-11A Cavity

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

PILOT RATIO 3:1

Function
Single Counterbalance on A with Shuttle

Ports
V1, V2

Assembly
Model Code*

SAE10
CBCA-LAN-WZS

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Single Counterbalance on B with Shuttle

Ports
V1, V2

Assembly
Model Code*

SAE10
CBCA-LAN-WZP

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Dual Counterbalance

Ports
V1, V2

Assembly
Model Code*

SAE10
CBCA-LAN-WZL

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Dual Counterbalance with Shuttle

Ports
V1, V2

Assembly
Model Code*

SAE10
CBCA-LAN-WZV

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function
Shuttle Only

Ports
V1, V2

Assembly
Model Code*

SAE10
CSAA-BXN-WZY

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

NOTES: Page 50 for cartridge models CB**,*** show performance curves, technical tips, and options. See page 229 for technical information about bolt-on packages.
Standard Assemblies: Direct Motor Mounted: Danfoss (OMP/OMR Series)

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

Parts
V1, V2

Assembly Model Code
SAE10
FDCB-LAN-WZB

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

Function

Dual Flow Control
Meter-out on A and B

Parts
V1, V2

Assembly Model Code
SAE10
FDCB-LAN-WXH

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

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

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

#### DIRECT ACTING

**Function**

<table>
<thead>
<tr>
<th>Ports</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>SAE 12 RDDA-L’N-WLV</td>
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</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

**Function**

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<th>Ports</th>
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<tbody>
<tr>
<td>V1, V2</td>
<td>SAE 12 RDDA-L’N-WMV</td>
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</table>

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**Function**

<table>
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<th>Ports</th>
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<tbody>
<tr>
<td>V1, V2</td>
<td>SAE 12 RDDA-L’N-WLY</td>
</tr>
</tbody>
</table>

*Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.

#### PILOT RATIO 3:1

**Function**

- Single Cross-Port Relief A to B

**Function**

- Single Cross-Port Relief B to A

**Function**

- Dual Cross-Port Relief

**Function**

- Single Counterbalance on A

**Function**

- Single Counterbalance on B

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**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.
Standard Assemblies: Direct Motor Mounted: Danfoss (OMT Series)

SINGLE / DUAL COUNTERBALANCE APPLICATIONS (SHUTTLES)

T-2A Cavity

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

PILOT RATIO 3:1

Function

<table>
<thead>
<tr>
<th>Single Counterbalance on A with Shuttle</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBEA-LAN-WKP</td>
</tr>
</tbody>
</table>

*Add modifier \( S \) to order Ductile Iron for pressure rating over 3000 psi.

Function

<table>
<thead>
<tr>
<th>Single Counterbalance on B with Shuttle</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parts</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2</td>
<td>CBEA-LAN-WKS</td>
</tr>
</tbody>
</table>

*Add modifier \( S \) to order Ductile Iron for pressure rating over 3000 psi.

Function

<table>
<thead>
<tr>
<th>Dual Counterbalance</th>
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<tr>
<th>Parts</th>
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<td>V1, V2</td>
<td>CBEA-LAN-WKV</td>
</tr>
</tbody>
</table>

*Add modifier \( S \) to order Ductile Iron for pressure rating over 3000 psi.

Function

<table>
<thead>
<tr>
<th>Dual Counterbalance with Shuttle</th>
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</thead>
</table>

<table>
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<tr>
<th>Parts</th>
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<tbody>
<tr>
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<td>CBEA-LAN-WKY</td>
</tr>
</tbody>
</table>

*Add modifier \( S \) to order Ductile Iron for pressure rating over 3000 psi.

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