### Sandwich Assemblies

**ISO 05 / CETOP 5 RELIEF VALVES**
(SIDE PORTED SUBPLATE / REAR PORTED SUBPLATE / SIDE PORTED SUBPLATE WITH GASKET MOUNTED TANK PORT)

## T-10A Cavity

### PILOT OPERATED

<table>
<thead>
<tr>
<th>Ports</th>
<th>Assembly Model Code*</th>
<th>P, T, B, A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPTF</td>
<td>RPEC-LAN-FSC</td>
<td>.44 diameter through hole, 4 places.</td>
</tr>
<tr>
<td>SAE-10</td>
<td>RPEC-LAN-FSK</td>
<td></td>
</tr>
</tbody>
</table>

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

### DIRECT ACTING

<table>
<thead>
<tr>
<th>Ports</th>
<th>Assembly Model Code*</th>
<th>P, T, B, A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPTF</td>
<td>RDDA-LAN-FSC</td>
<td>.44 diameter through hole, 4 places.</td>
</tr>
<tr>
<td>SAE-10</td>
<td>RDDA-LAN-FSK</td>
<td></td>
</tr>
</tbody>
</table>

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

### NOTES:
- Page 2 for cartridge models RP*C-*** and RD*A-*** show performance curves, technical tips, and options.
- See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits.
- Model Codes printed in red are Preferred Products and are readily available.

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Go to www.sunhydraulics.com for more product information and pricing.
Sandwich Assemblies

ISO 05 / CETOP 5 RELIEF VALVES

T-10A Cavity

All sandwich bodies shown below are 2.50” wide

<table>
<thead>
<tr>
<th>PILOT OPERATED</th>
<th>DIRECT ACTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Function</td>
</tr>
<tr>
<td></td>
<td>P to T</td>
</tr>
</tbody>
</table>

Assembly
Model Code®

**RPEC-LAN-CBE**

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

Assembly
Model Code®

**RPEC-LAN-CBF**

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

Assembly
Model Code®

**RPEC-LAN-CBG**

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

Assembly
Model Code®

**RPEC-LAN-CBI**

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

Assembly
Model Code®

**RPEC-LAN-CBD**

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

Function

**A to T**

Assembly
Model Code®

**RDDA-LAN-CBF**

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

Function

**B to T**

Assembly
Model Code®

**RDDA-LAN-CBG**

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

Function

**A to B and B to A**

(Cross-port)

Assembly
Model Code®

**RDDA-LAN-CBI**

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

Function

**A and B to T**

Assembly
Model Code®

**RDDA-LAN-CBD**

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

NOTES:

Page 2 for cartridge models RP*C-*** and RD*A-*** show performance curves, technical tips, and options.

See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits.

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

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Sandwich Assemblies

ISO 05 / CETOP 5 RELIEF VALVES

**T-10A Cavity/T-2A Cavity**

**PILOT OPERATED**

Assembly Model Code:

RPEC-LAN-CBH

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

**Vent Port**

Assembly Model Code:

RVEA-LAN-BBC

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

**Assembly Model Code:**

XRED-LAN-HA

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

**XRED-LAN-CA**

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

**DIRECT ACTING**

Function

A to B

B to A

---

Function

P to T (Externally Vented)

Function

P to T (Normally Open, Solenoid Vented)

Function

P to T (Normally Closed, Solenoid Vented)

NOTES: Page 2 for cartridge models RP*C-***, RD*A-*** and page 12 for cartridge model RV*A-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits.

Go to www.sunhydraulics.com for more product information.
Sandwich Assemblies
ISO 05 / CETOP 5 SEQUENCE VALVES

T-2A Cavity

PILOT OPERATED

DIRECT ACTING

Assembly Model Code:
RSFC-LAN-BBW

Assembly Model Code:
RSFC-LAN-BB4

Assembly Model Code:
RSFC-LAN-BB5

Assembly Model Code:
SXEA-LAN-BBW

Assembly Model Code:
SXEA-LAN-BB4

Assembly Model Code:
SXEA-LAN-BB5

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

Function
Into P

Function
Into A (Reverse Free Flow Check)

Function
Into B (Reverse Free Flow Check)

Function
Out of A (Reverse Free Flow Check)

Function
Out of B (Reverse Free Flow Check)

Notes:
Page 20 for cartridge model RS*C-*** and SX*A-*** and page 102 for CX*D-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information.

Model Codes printed in red are Preferred Products and are readily available.
## Sandwich Assemblies

### ISO 05 / CETOP 5 REDUCING VALVES

#### T-2A Cavity

All sandwich bodies shown below are 2.50” wide

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>Function</th>
<th>Model Code*</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBFB-LAN-BBP</td>
<td>On P Drained to T</td>
<td>PBFB-LAN-BBA</td>
<td>On A Drained to B</td>
</tr>
<tr>
<td>PBFB-LAN-BBB</td>
<td>On B Drained to A</td>
<td>PBFB-LAN-BB2</td>
<td>On A Drain to T (Reverse Flow Check)</td>
</tr>
<tr>
<td>PBFB-LAN-BB3</td>
<td>On B Drain to T (Reverse Flow Check)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**NOTES:** Page 34 for cartridge model PB*B-*** and page 102 for cartridge model CX*A-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studies. Go to [www.sunhydraulics.com](http://www.sunhydraulics.com) for more product information. Model Codes printed in red are Preferred Products and are readily available.
**Sandwich Assemblies**

**ISO 05 / CETOP 5 REDUCING / RELIEVING VALVES**

**T-2A Cavity**

All sandwich bodies shown below are 2.50” wide

**PILOT OPERATED**

**Function**

On P, Tank to T

**DIRECT ACTING**

**Function**

On A, Tank to T (Reverse Free Flow Check)

**Function**

On B, Tank to T (Reverse Free Flow Check)

**PPFB-LAN-BBP**

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

**PPFB-LAN-BB2**

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

**PPFB-LAN-BB3**

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

**NOTES:** Page 42 for cartridge models PP*B-*** and PR*B-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information.

Model Codes printed in red are Preferred Products and are readily available.
Sandwich Assemblies
ISO 05 / CETOP 5 COUNTERBALANCE VALVES

**PILOT RATIOS**

3:1 (CBEA), 1.5:1 (CBEB), 2:1 (CBEY)

**PILOT RATIOS**

2.3:1 (CBEL), 4.5:1 (CBEG), 10:1 (CBEH)

### Function

**On A**, Pilot from **B**

**Assembly**

CBE*-LHN-BBA

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

**Assembly**

CBE*-LHN-BBB

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

**Assembly**

CBE*-LHN-BBY

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

### Cushion Lock Circuit

**On A and B** (Cross-Piloted)

**Assembly**

CBE*-LHN-BBS

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

### Function

**On B**, Pilot from **A**

**Assembly**

CBE*-LJN-BBB

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

**Assembly**

CBE*-LJN-BBY

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

### Function

**On A and B (Cross-Piloted)**

**Assembly**

CBE*-LJN-BBS

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.*

### Cushion Lock Circuit

**On A and B**

**Assembly**

CBE*-LJN-BBS

*The 4th digit of the Model Code must be entered to specify counterbalance pilot ratio. 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 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits.
- Go to [www.sunhydraulics.com](http://www.sunhydraulics.com) for more product information.
- Model Codes printed in red are Preferred Products and are readily available.
Sandwich Assemblies

ISO 05 / CETOP 5 PILOT-TO-OPEN CHECK VALVES

T-2A Cavity

All sandwich bodies shown below are 2.50” wide

PILOT OPERATED

Function

On A, Pilot from B

Assembly

Model Code:

CKEB-XCN-BBA

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

Function

On B, Pilot from A

Assembly

Model Code:

CKEB-XCN-BBB

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

Function

On A and B (Cross-piloted)

Assembly

Model Code:

CKEB-XCN-BBY

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

NOTES: Page 78 for cartridge model CK**-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information. Model Codes printed in red are Preferred Products and are readily available.
Sandwich Assemblies

ISO 05 / CETOP 5 CHECK VALVES

T-5A Cavity

All sandwich bodies shown below are 2.50” wide

**FREE FLOW PORT 1 TO 2**

Function

On P

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>CXFA-XCN-DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1 to 2</td>
<td>T-5A Cavity</td>
</tr>
</tbody>
</table>

Function

On A, Free Flow Out of Valve
On B, Free Flow Into Valve

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>CXFA-XCN-DBK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1 to 2</td>
<td>T-5A Cavity</td>
</tr>
</tbody>
</table>

Function

On A, Free Flow Into Valve
On B, Free Flow Out of Valve

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>CXFA-XCN-DBJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1 to 2</td>
<td>T-5A Cavity</td>
</tr>
</tbody>
</table>

Function

T to A and B

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>CXFA-XAN-DBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1 to 2</td>
<td>T-5A Cavity</td>
</tr>
</tbody>
</table>

Function

 vrij

NOTES: Page 102 for cartridge models CX*A-*** and CX*D-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information. Model Codes printed in red are Preferred Products and are readily available.
**Sandwich Assemblies**

**ISO 05 / CETOP 5 FLOW CONTROL VALVES**

**T-5A Cavity**

<table>
<thead>
<tr>
<th>Function</th>
<th>Meter-In P</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>NFDC-LAN-DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

**FULLY ADJUSTABLE NEEDLE WITH REVERSE FREE FLOW CHECK**

| Note: No Check with NFDC Model |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>NCEB-LAN-DBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>NCEB-LAN-DBB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>NCEB-LAN-DBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>NCEB-LAN-DBY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

**FULLY ADJUSTABLE PRESSURE COMPENSATED WITH FREE FLOW CHECK**

<table>
<thead>
<tr>
<th>Function</th>
<th>Meter-In A and B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>FDCB-LAN-DBB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>FDCB-LAN-DBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>FDCB-LAN-DBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

| Note: Pressure Compensated Symbol Not Shown |

<table>
<thead>
<tr>
<th>Assembly Model Code*</th>
<th>FDCB-LAN-DBY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add modifier /S to order Ductile Iron for pressure rating over 3000 psi.</td>
<td></td>
</tr>
</tbody>
</table>

**Function**

<table>
<thead>
<tr>
<th>Meter-Out A</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Meter-In B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bleed-Off A to T</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bleed-Off B to T</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Meter-In A and B</th>
</tr>
</thead>
</table>

**NOTES:**

Page 10 for cartridge models NFDC-*** and NCEB-***; and page 12 for FDCB-*** show performance curves, technical tips, and options. See page 14 for technical information about sandwich bodies, including ISO interface patterns, mounting instructions, studs, and studs. Model Codes printed in red are Preferred Products and are readily available.
Sandwich Assemblies

ISO 05 / CETOP 5 FLOW CONTROL VALVES

T-13A Cavity

FULLY ADJUSTABLE NEEDLE

All sandwich bodies shown below are 2.50” wide

Function

Meter A to B

Meter B to A

Assembly Model Code*

NFCC-LCN-DBS

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

NOTES: Page 110 for cartridge models NF*C-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information.
Sandwich Assemblies

ISO 05 / CETOP 5 FLOW CONTROL VALVES
(RAPID ADVANCE AND FEED ASSEMBLIES)

T-5A Cavity

**FIXED ORIFICE TUNABLE, PRESSURE COMPENSATED**

**FULLY ADJUSTABLE, PRESSURE COMPENSATED WITH FREE FLOW CHECK**

<table>
<thead>
<tr>
<th>Function</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter-Out T, Solenoid Normally Closed</td>
<td>X3DD-LAN-CA</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter in P, Solenoid Normally Closed</td>
<td>X2DD-LAN-CA</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter-Out A, Solenoid Normally Closed</td>
<td>X6DD-LAN-CA</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Assembly Model Code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter-In A, Solenoid Normally Closed</td>
<td>X4DD-LAN-CA</td>
</tr>
</tbody>
</table>

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

NOTES: Page 110 for cartridge models NF*C-*** and NC*B-*** show performance curves, technical tips, and options. See page 140 for technical information about sandwich bodies including ISO interface patterns, mounting instructions, studrods, and studkits. Go to www.sunhydraulics.com for more product information.