

TECHNICAL PRODUCT INFORMATION

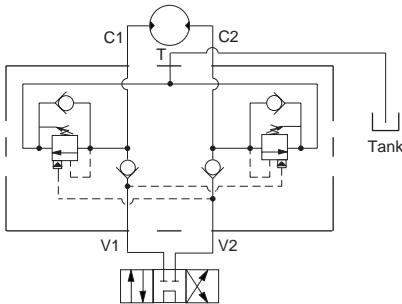
CUSHION LOCK VALVES

Applications

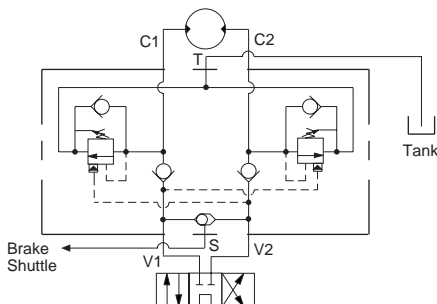
The cushion lock circuit is used to control the acceleration, and deceleration of reciprocating or rotary reversing circuits. Most slewing type circuits have inertia loads and it is important that there is a facility to ensure that during operation there is good control of the motion. The cushion lock provides this type of control using counterbalance valves as both a relief for acceleration and providing a braking resistance during deceleration.

Sun offers four basic types of cushion lock valves:

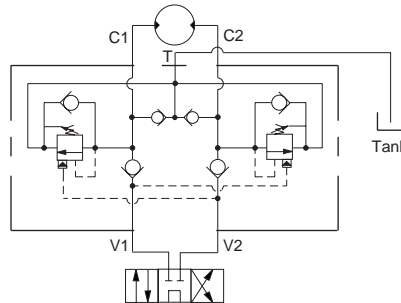
1. The basic dual counterbalance valve assembly with the check valves in supply lines and separate tank return line.



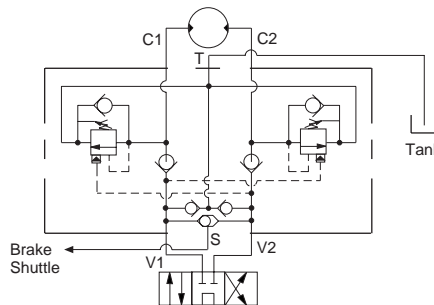
2. The basic assembly as above but with a shuttle valve to release a spring-applied mechanical brake.



3. The assembly that incorporates the same features as version 1. but with additional anti-cavitation check valves from the external tank line to the service lines.



4. The assembly as in version 3. but with a shuttle valve to release a spring-applied mechanical brake.



Design Concepts and Features

The use of counterbalance valves provides smooth control of the motion because the valves are modulating load control valves.

The valves are also seated so provide good load locking capability, although on most motor applications a mechanical brake supplements this because there is always leakage across the motor.

A wide range of pilot ratios and pressure ratings are available for the counterbalance valves to enable the most suitable valves to be selected for the application.

The check valves used for anti-cavitation have low cracking pressure of 0,4 bar to create the least resistance.

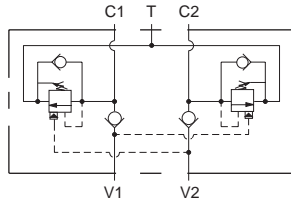
The valves are also available in CETOP sandwiches or could be made in custom manifolds to suit a particular application.

Standard Assemblies: Cushion Lock Valves

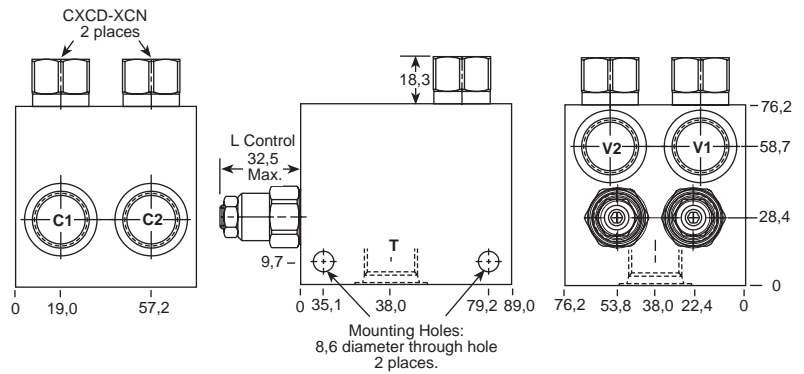
**DUAL LOAD CONTROL APPLICATIONS
(TWO CAVITY WITH CHECKS)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-60 L/min. Cavity T-11A

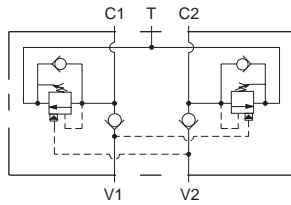


Ports C1, C2, V1, V2	Port T	Assembly Model Code*
3/8" BSPP	1/2" BSPP	CBC*-L*N-EMU
1/2" BSPP	1/2" BSPP	CBC*-L*N-EMV

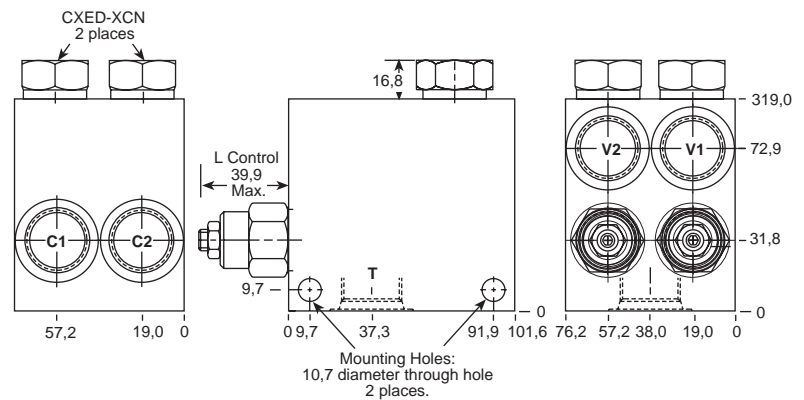


*Add modifier /S to order SG Iron for pressure rating over 210 bar.

0-120 L/min. Cavity T-2A



Ports C1, C2, V1, V2	Port T	Assembly Model Code*
1/2" BSPP	3/4" BSPP	CBE*-L*N-BMV
3/4" BSPP	3/4" BSPP	CBE*-L*N-BMW



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

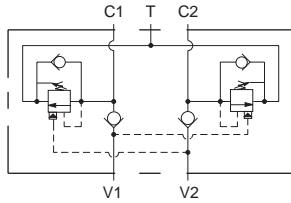
NOTES: Page 50 for cartridge model CB**.* and page 102 for CX*D-*** shows performance curves, technical tips, and options. See page vii for technical information about line mount bodies including SAE flange pattern specifications. Consult the Sun Factory for other port sizes available in the bodies shown above. Go to www.sunhydraulics.com for more product information.

Standard Assemblies: Cushion Lock Valves

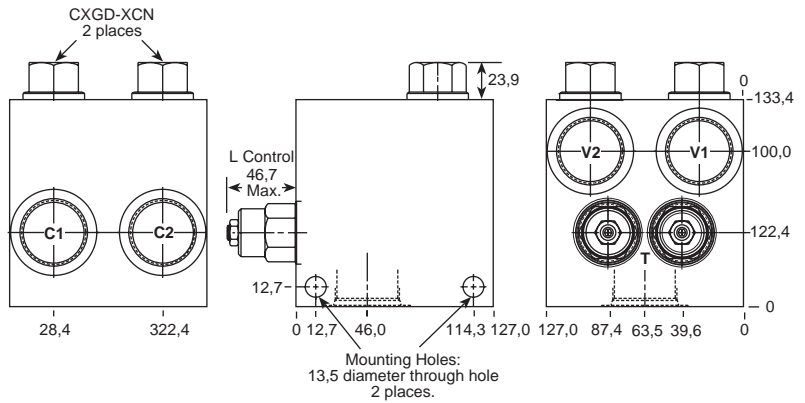
**DUAL LOAD CONTROL APPLICATIONS
(TWO CAVITY WITH CHECKS)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-240 L/min. Cavity T-17A

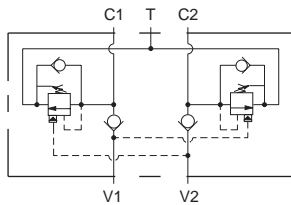


Ports C1, C2, V1, V2	Port T	Assembly Model Code*
1" BSPP	1 1/4" BSPP	CBG*-L*N-HMX
1 1/4" BSPP	1 1/4" BSPP	CBG*-L*N-HMY

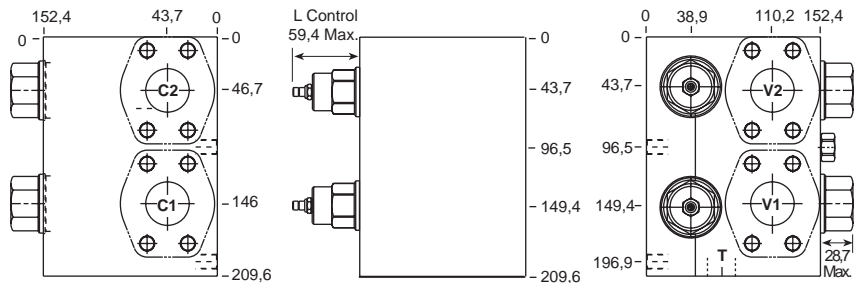


*Add modifier **/S** to order
Ductile Iron for pressure rating
over.

0-480 L/min. Cavity T-19A



Ports C1, C2 V1, V2	Port T	Assembly Model Code*
1 1/2" SAE C61 1 1/2" SAE C61	1 1/2" SAE C61	YCJD-L*N-AR/M
1 1/2" SAE C61 1 1/2" SAE C61	1 1/2" SAE C61	YCJD-L*N-GR/M
1 1/2" SAE C61 1 1/2" SAE C61	1 1/2" SAE C61	YCJD-L*N-HR/M



Model Code	Pilot Ratio
YCJD-L*N-AR/M	3:1
YCJD-L*N-GR/M	4.5:1
YCJD-L*N-HR/M	10:1

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

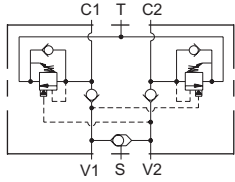
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Standard Assemblies: Cushion Lock Valves

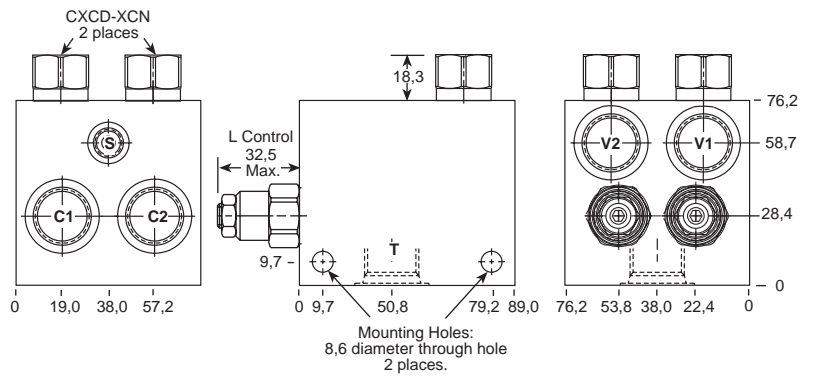
**DUAL LOAD CONTROL APPLICATIONS
(TWO CAVITY WITH CHECKS AND SHUTTLE)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-60 L/min. Cavity T-11A

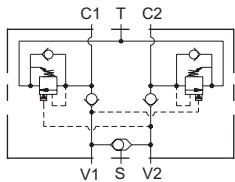


Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
3/8" BSPP	1/2" BSPP	1/4" BSPP	CBC*-L*N-ENU
1/2" BSPP	1/2" BSPP	1/4" BSPP	CBC*-L*N-ENV

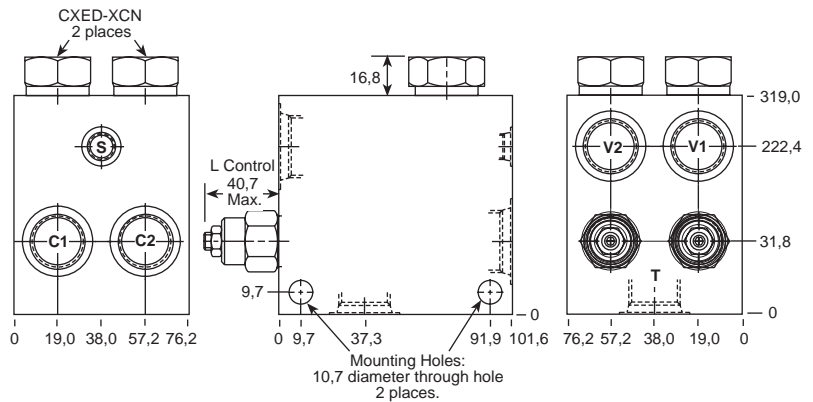


*Add modifier /S to order SG Iron for pressure rating over 210 bar.

0-120 L/min. Cavity T-2A



Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1/2" BSPP	3/4" BSPP	1/4" BSPP	CBE*-L*N-BNV
3/4" BSPP	3/4" BSPP	1/4" BSPP	CBE*-L*N-BNW



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

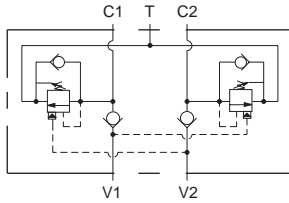
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Standard Assemblies: Cushion Lock Valves

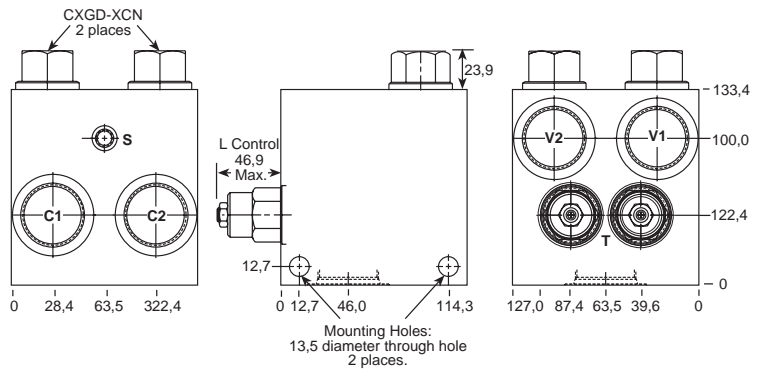
**DUAL LOAD CONTROL APPLICATIONS
(TWO CAVITY WITH CHECKS WITH SHUTTLE)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-240 L/min. Cavity T-17A

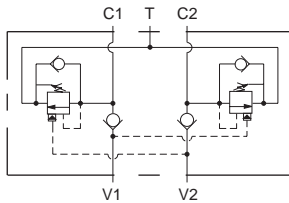


Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1" BSPP	1 1/4" BSPP	1/4" BSPP	CBG*-L*N-HNX
1 1/4" BSPP	1 1/4" BSPP	1/4" BSPP	CBG*-L*N-HNY

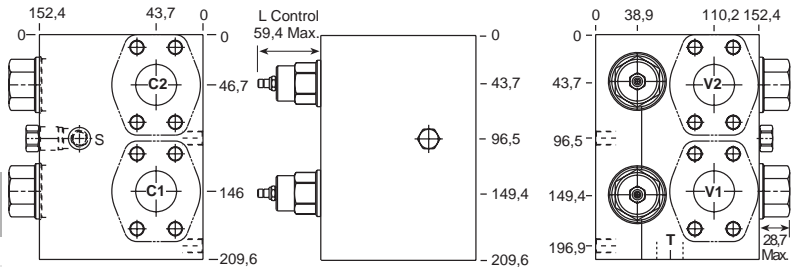


*Add modifier **/S** to order Ductile Iron for pressure rating over .

0-480 L/min. Cavity T-19A



Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJH-L*N-AR/M
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJH-L*N-GR/M
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJH-L*N-HR/M



Model Code	Pilot Ratio
YCJH-L*N-AR/M	3:1
YCJH-L*N-GR/M	4.5:1
YCJH-L*N-HR/M	10:1

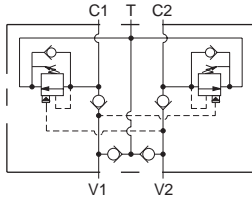
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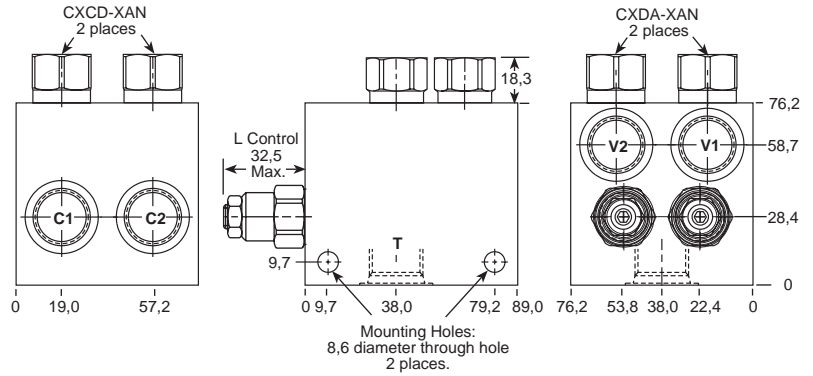
**DUAL LOAD CONTROL APPLICATIONS
(TWO CAVITY WITH ANTI-CAVITATION CHECKS)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-60 L/min. Cavity T-11A

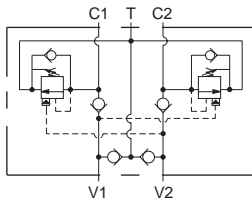


Ports C1, C2, V1, V2	Port T	Assembly Model Code*
3/8" BSPP	1/2" BSPP	CBC*-L*N-EPU
1/2" BSPP	1/2" BSPP	CBC*-L*N-EPV

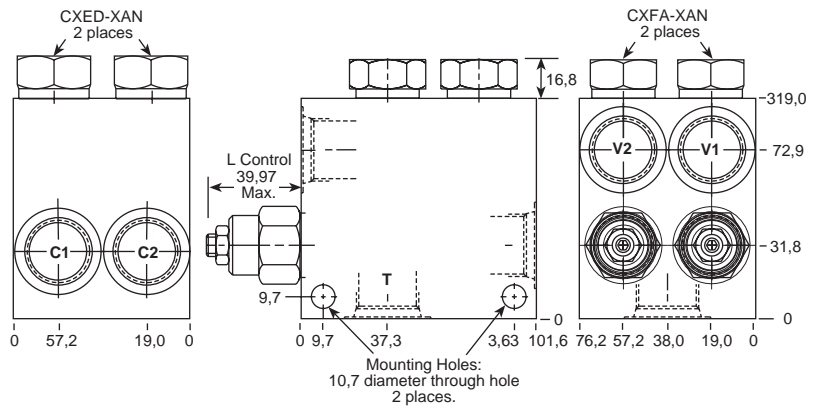


*Add modifier /S to order SG Iron for pressure rating over 210 bar.

0-120 L/min. Cavity T-2A



Ports C1, C2, V1, V2	Port T	Assembly Model Code*
1/2" BSPP	3/4" BSPP	CBE*-L*N-BPV
3/4" BSPP	3/4" BSPP	CBE*-L*N-BPW



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

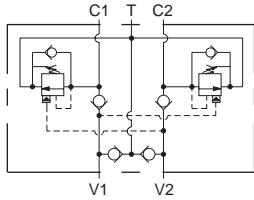
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Standard Assemblies: Cushion Lock Valves

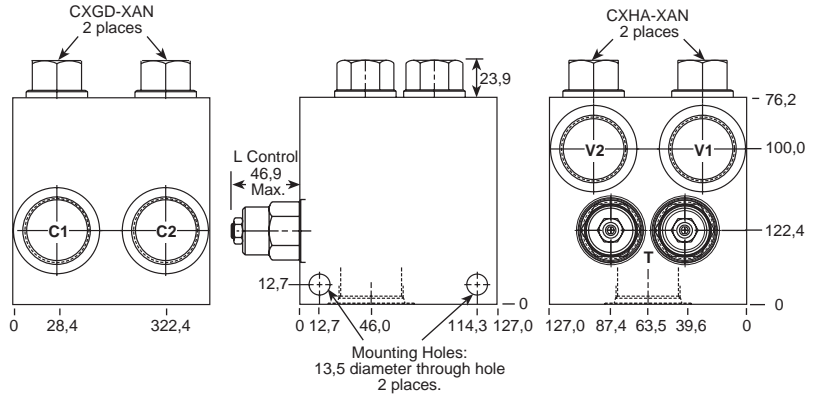
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(TWO CAVITY WITH ANTI-CAVITATION CHECKS)**

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-240 L/min. Cavity T-17A

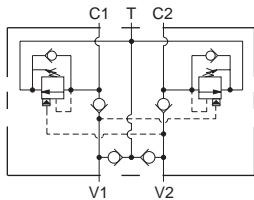


Ports C1, C2, V1, V2	Port T	Assembly Model Code*
1" BSPP	1 1/4" BSPP	CBG*-L*N-HPX
1 1/4" BSPP	1 1/4" BSPP	CBG*-L*N-HPY

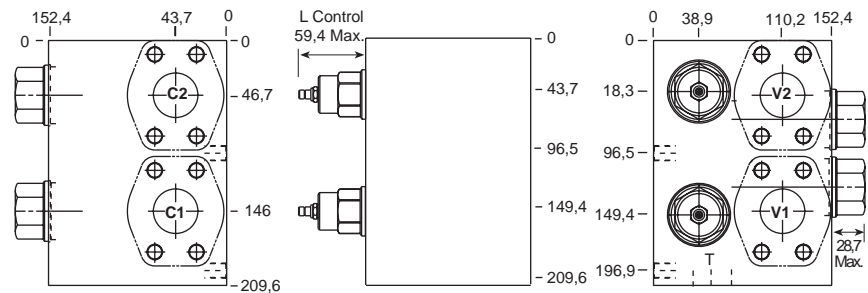


*Add modifier /S to order
Ductile Iron for pressure rating
over.

0-480 L/min. Cavity T-19A



Ports C1, C2, V1, V2	Port T	Assembly Model Code*
1 1/2" SAE C61	1 1/2" SAE C61	YCJE-L*N-AR/M
1 1/2" SAE C61	1 1/2" SAE C61	YCJE-L*N-GR/M
1 1/2" SAE C61	1 1/2" SAE C61	YCJE-L*N-HR/M



Model Code	Pilot Ratio
YCJE-L*N-AR/M	3:1
YCJE-L*N-GR/M	4.5:1
YCJE-L*N-HR/M	10:1

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

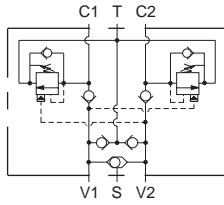
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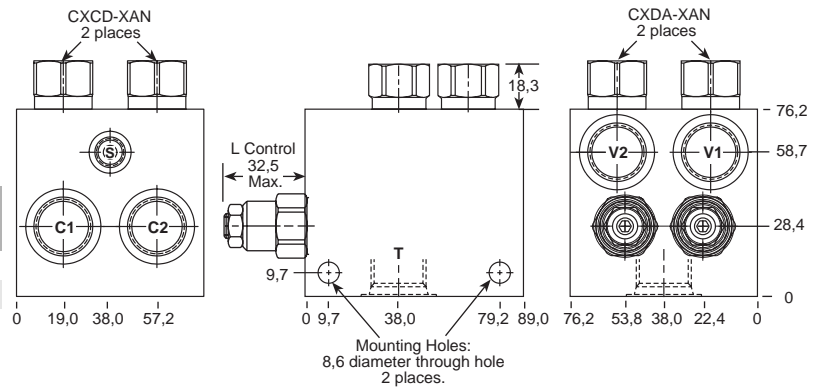
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(TWO CAVITY WITH ANTI-CAVITATION CHECKS AND SHUTTLE)**

PILOT RATIOS
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0-60 L/min. Cavity T-11A

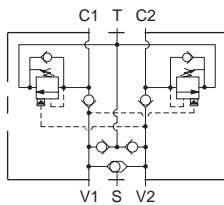


Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
3/8" BSPP	1/2" BSPP	1/4" BSPP	CBC*-L*N-EQU
1/2" BSPP	1/2" BSPP	1/4" BSPP	CBC*-L*N-EQV

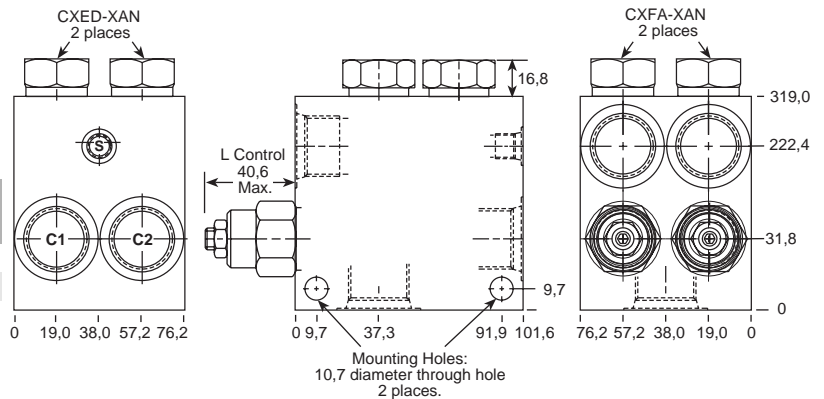


*Add modifier /S to order SG Iron for pressure rating over 210 bar.

0-120 L/min. Cavity T-2A



Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1/2" BSPP	3/4" BSPP	1/4" BSPP	CBE*-L*N-BQV
3/4" BSPP	3/4" BSPP	1/4" BSPP	CBE*-L*N-BQW



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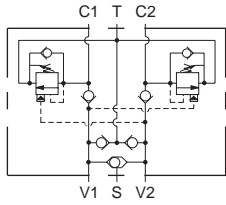
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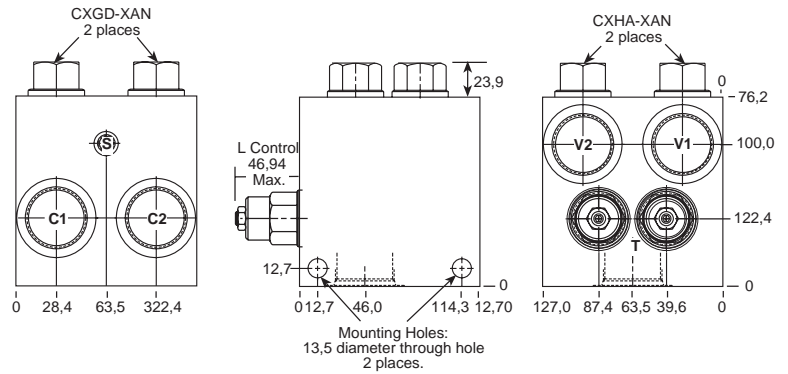
DUAL LOAD CONTROL APPLICATIONS (TWO CAVITY WITH ANTI-CAVITATION CHECKS AND SHUTTLE)

PILOT RATIOS
1.5:1, 2:1, 2.3:1, 3:1, 4.5:1, 10:1

0-240 L/min. Cavity T-17A

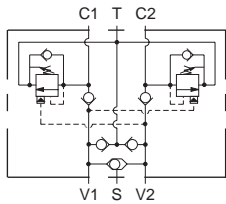


Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1" BSPP	1 1/4" BSPP	1/4" BSPP	CBG*-L*N-HQX
1 1/4" BSPP	1 1/4" BSPP	1/4" BSPP	CBG*-L*N-HQY

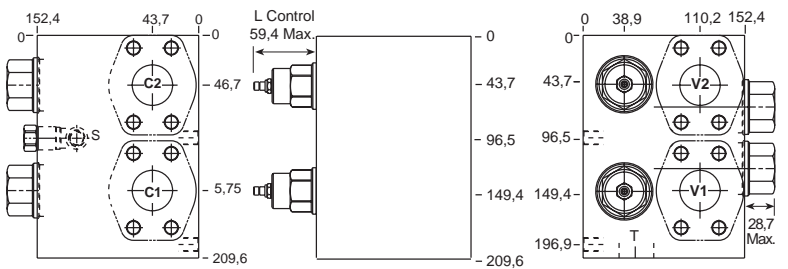


*Add modifier **/S** to order Ductile Iron for pressure rating over .

0-480 L/min. Cavity T-19A



Ports C1, C2, V1, V2	Port T	Port S	Assembly Model Code*
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJG-L*N-AR/M
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJG-L*N-GR/M
1 1/2" SAE C61	1 1/2" SAE C61	1/4" BSPP	YCJG-L*N-HR/M



Model Code	Pilot Ratio
YCJG-L*N-AR/M	3:1
YCJG-L*N-GR/M	4.5:1
YCJG-L*N-HR/M	10:1

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

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