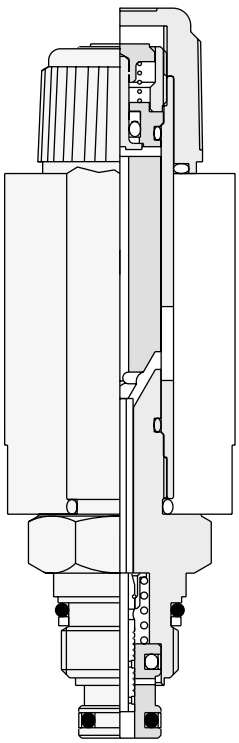
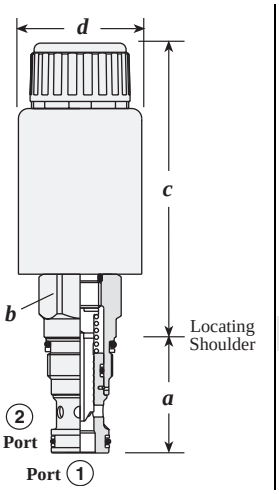
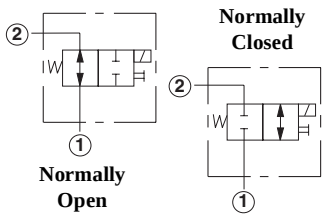
Solenoid Operated Cartridge Valves



2-POSITION, 2-WAY SPOOL DIRECTIONAL VALVE



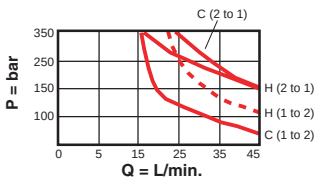


Nominal Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* a	b	c	d	*Installation Torque (Nm)*
40 L/min.	**DLDA – MHN**	T - 13A	34,9	22,4	90	38	40/50

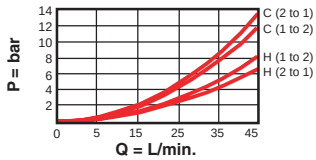
Performance Curves

DLDA-M**

Valve Performance Limits at 10% Undervoltage and Stabilized Coil Temp.



Typical Performance Pressure Differential vs. Flow



- Maximum operating pressure = 350 bar**
- Maximum Leakage at 32 cSt = 81,9 cc/min. at 210 bar
- Switching frequency = 15000 cycles/hr
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

* *For valves produced before January 1, 2004 (date code A041), the maximum operating pressure is 350 bar at port 2 and 250 bar at port 1.
NOTE: While the valve will operate reliably with pressures up to 350 bar at Port 1, solenoid tube fatigue life is reduced.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

D L D A – ★ ★ ★ – ★ ★ ★

Nominal Capacity
D 40 L/min.

Control
M Manual Override
X No Manual Override

Spool Configuration
H Normally Open
C Normally Closed

Seal
N Buna-N
V Viton

Coil Configuration*

ISO/DIN
212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

AMP® Junior Timer
612 12 VDC
624 24 VDC

Twin Lead
712 12 VDC
724 24 VDC

Deutsch
912 12 VDC
924 24 VDC
948 48 VDC

Metri-Pack
812 12 VDC
824 24 VDC

Twin Spade
524 24 VDC

Maximum Leakage (cc/min. at 210 bar at 32 cSt oil) = 80
Power (Watts) = 22
Operating Voltage Tolerance = ± 10%
Typical response Time (ms) = 50

* *See page 167 for Solenoid Connector Options*

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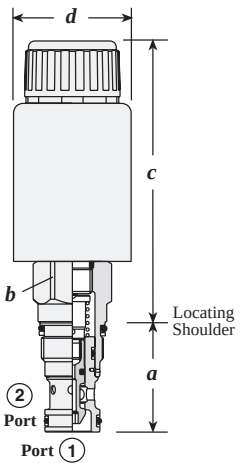
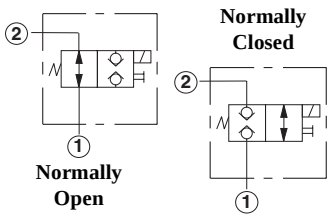
DIRECT ACTING, 2-POSITION, 2-WAY POPPET DIRECTIONAL VALVE



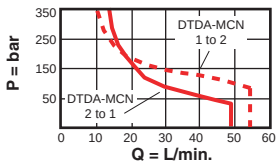


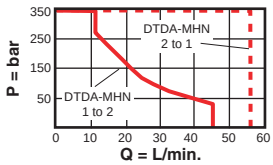
Nominal Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c	d	Installation Torque (Nm)
40 L/min.	**DTDA – MHN**	T - 13A	34,9	22,4	90	38	40/50

Performance Curves

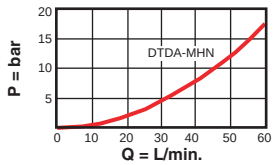
DTDA-M*N

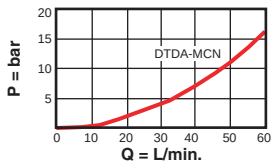
Valve Performance Limits at 10% Undervoltage and Stabilized Coil Temperature





Typical Performance Pressure Differential vs. Flow





- Maximum operating pressure = 350 bar**
- Maximum Leakage at 32 cSt = 10 drops/min.
- Switching frequency = 15000 cycles/hr.
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

** For valves produced before January 1, 2004 (date code A041), the maximum operating pressure is 350 bar at port 2 and 250 bar at port 1. NOTE: While the valve will operate reliably with pressures up to 350 bar at Port 1, solenoid tube fatigue life is reduced.

OPTION ORDERING INFORMATION **Model Codes printed in Red are Preferred Versions and most readily available**

D T D A – ★ ★ ★ – ★ ★ ★

Nominal Capacity
D 40 L/min.

Control
M Manual Override
X No Manual Override

Spool Configuration
H Normally Open
C Normally Closed

Seal
N Buna-N
V Viton

Coil Configuration*

ISO/DIN
212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

AMP® Junior Timer
612 12 VDC
624 24 VDC

Twin Lead
712 12 VDC
724 24 VDC

Deutsch
912 12 VDC
924 24 VDC
948 48 VDC

Metri-Pack
812 12 VDC
824 24 VDC

Twin Spade
524 24 VDC

Power (Watts) = 22
Operating Voltage Tolerance = ± 10%
Typical response Time (ms) = 50

* *See page 167 for Solenoid Connector Options*

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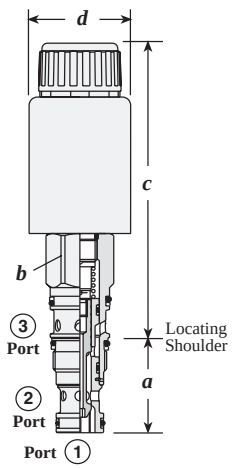
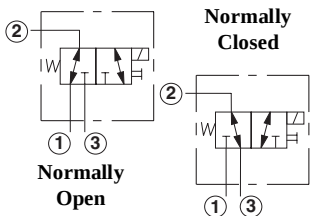
2-POSITION, 3-WAY SPOOL DIRECTIONAL VALVE



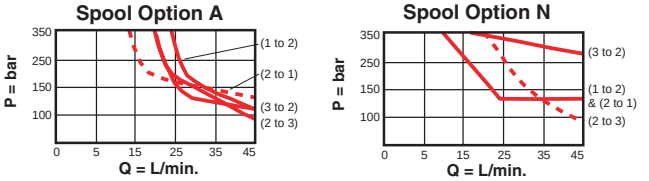


Nominal Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c	d	Installation Torque (Nm)
40 L/min.	**DMDA – MNN**	T - 11A	34,9	22,4	109	38	40/50

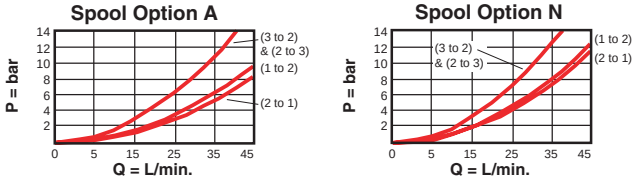
Performance Curves

DMDA-MNN

Valve Performance Limits at 10% Undervoltage and Stabilized Coil Temperature



Typical Performance Pressure Differential vs. Flow



- Maximum operating pressure = 350 bar**
- Maximum Leakage at 32 cSt = 81,9 cc/min.@210 bar
- Switching frequency = 15000 cycles/hr
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

**For valves produced before January 1, 2004 (date code A041), the maximum operating pressure is 350 bar at ports 2 and 3 and 250 bar at port 1.
NOTE: While the valve will operate reliably with pressures up to 350 bar at Port 1, solenoid tube fatigue life is reduced.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

D MDA – ✶ ✶ ✶ – ✶ ✶ ✶

Nominal Capacity
D 40 L/min.

Control
M Manual Override
X No manual Override

Spool Configuration
A Normally Open Ports 2 to 1
N Normally Open Ports 2 to 3

Seal
N Buna-N
V Viton

Coil Configuration*

ISO/DIN
212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

AMP® Junior Timer
612 12 VDC
624 24 VDC

Twin Lead
712 12 VDC
724 24 VDC

Deutsch
912 12 VDC
924 24 VDC
948 48 VDC

Metri-Pack
812 12 VDC
824 24 VDC

Twin Spade
524 24 VDC

Maximum Leakage (cc/min. at 210 bar at 32 cSt oil) = 80
Power (Watts) = 22
Operating Voltage Tolerance = ± 10%
Typical response Time (ms) = 30-50

* *See page 167 for Solenoid Connector Options*

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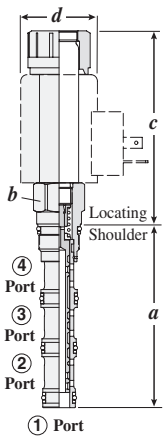
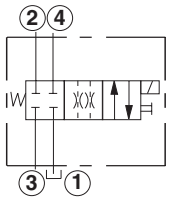
2-POSITION, 4-WAY SPOOL DIRECTIONAL VALVE





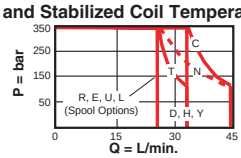
Normally Closed

Nominal Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* a	b	c	d	*Installation Torque (Nm)*
28-45 L/min.	**DNDA – MCN**	T - 31A	34,9	22,4	90	38	40/50

Performance Curves

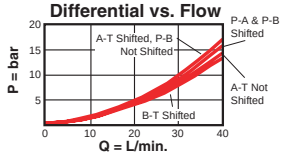
DNDA-MCN

Valve Performance Limits at 10% Undervoltage and Stabilized Coil Temperature



Note: Performance limits are derived with 4-way operation and symmetrical flow. For valve applications where either asymmetrical flow or 3-way operation are present, these performance limits may be reduced.

Typical Performance Pressure Differential vs. Flow



- Maximum operating pressure = 350 bar**
- Maximum Leakage at 32 cSt = 163 cc/min. at 210 bar
- Switching frequency = 15000 cycles/hr
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

**For valves produced before January 1, 2004 (date code A041), the maximum operating pressure is 350 bar at ports 2, 3 and 4 and 250 bar at port 1. NOTE: While the valve will operate reliably with pressures up to 350 bar at Port 1, solenoid tube fatigue life is reduced.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

D N D A – ★ ★ ★ – ★ ★ ★

Nominal Capacity

D 28-45 L/min.

Control

M Manual Override

X No manual Override

Spool Configuration

C 

D 

E 

H 

L 

N 

R 

T 

U 

Y 

Seal

N Buna-N

V Viton

Coil Configuration*

ISO/DIN

212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

AMP® Junior Timer

612 12 VDC
624 24 VDC

Twin Lead

712 12 VDC
724 24 VDC

Deutsch

912 12 VDC
924 24 VDC
948 48 VDC

Metri-Pack

812 12 VDC
824 24 VDC

Twin Spade

524 24 VDC

* See page 167 for Solenoid Connector Options

Maximum Leakage (cc/min. at 210 bar at 32 cSt oil) = 163
Power (Watts) = 22
Operating Voltage Tolerance = ± 10%
Typical response Time (ms) = 30-50

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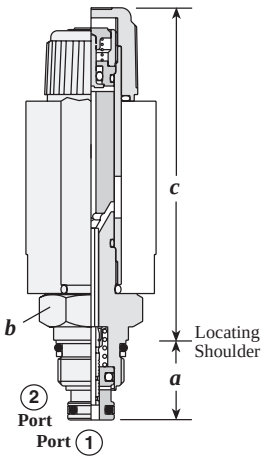
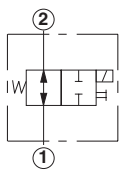
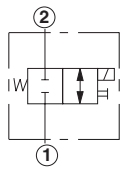
2-POSITION, 2-WAY SPOOL DIRECTIONAL VALVE – PILOT CAPACITY





Normally Open DAAA-MHN

Normally Closed DAAA-MCN

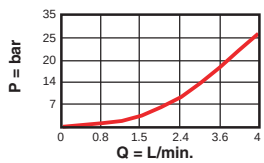


Nominal Capacity	*Typical Cartridge Model Code*	*Cavity*	*Cartridge Dimensions* *a*	*b*	*c* M	*c* C	*d*	*Installation Torque (Nm)*
1 L/min.	**DAAA – MCN**	T - 8A	19,1	22,4	75	80	31	35/40
1 L/min.	**DAAA – MHN**	T - 8A	19,1	22,4	75	80	31	35/40
1 L/min.	**DAAC – MCN**	T - 8A	19,1	22,4	75	80	31	35/40
1 L/min.	**DAAC – MHN**	T - 8A	19,1	22,4	75	80	31	35/40

Performance Curves

DAA*-M*N

Pressure vs. Flow



- Maximum operating pressure = 350 bar
- Maximum Leakage at 32 cSt = 10 drops/min.
- Switching frequency = 15000 cycles/hr.
- Cartridge can be installed directly into a cavity in some Sun pilot operated and ventable cartridges to provide electrically operated pilot control functions.
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

D A A ✶ – ✶ ✶ ✶ – ✶ ✶ ✶

Nominal Capacity

A 1 L/min.

Control

M Manual Override

C Concealed Override

Version

A Standard

C Canadian Standards Association Certified 240 bar max.

Spool Configuration

H Normally Open

C Normally Closed

Seal

N Buna-N

V Viton

Coil Configuration*

ISO/DIN

206 6 VDC
212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

SAE J858

506 6 VDC
512 12 VDC
524 24 VDC

Twin Lead

706 6 VDC
712 12 VDC
724 24 VDC

Diameter Effective Orifice (mm) = 1,1
Operating Voltage Tolerance = ± 10%
Power (Watts) = 12
Typical response Time (ms) = 30

* *See page 167 for Solenoid Connector Options*

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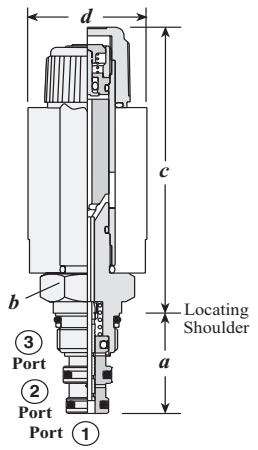
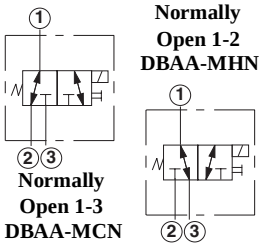
2-POSITION, 3-WAY SPOOL DIRECTIONAL VALVE – PILOT CAPACITY



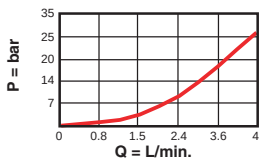


Nominal Capacity	Typical Cartridge Model Code	Cavity	Cartridge Dimensions a	b	c M	c C	d	Installation Torque (Nm)
1 L/min.	**DBAA – MCN**	T - 9A	27,7	22,4	75	80	31	35/40
1 L/min.	**DBAA – MHN**	T - 9A	27,7	22,4	75	80	31	35/40
1 L/min.	**DBAC – MCN**	T - 9A	27,7	22,4	75	80	31	35/40
1 L/min.	**DBAC – MHN**	T - 9A	27,7	22,4	75	80	31	35/40

Performance Curves

DBA*-M*N

Pressure vs. Flow



- Maximum operating pressure = 350 bar
- Maximum Leakage at 32 cSt = 10 drops/min.
- Switching frequency = 15000 cycles/hr
- Proper installation of solenoid valves requires an extra deep socket to clear the solenoid tube. Sockets are available from Snap On tools (P/N SIML280) or Sun Hydraulics (P/N 998-100-006). See www.sunhydraulics.com for details.

OPTION ORDERING INFORMATION

Model Codes printed in Red are Preferred Versions and most readily available

D B A ✶ – ✶ ✶ ✶ – ✶ ✶ ✶

Nominal Capacity

A 1 L/min.

Control

M Manual Override

C Concealed Override

Version

A Standard

C Canadian Standards Association Certified 240 bar max.

Spool Configuration

H Normally Open Ports 1 to 2

C Normally Open Ports 1 to 3

Seal

N Buna-N

V Viton

Coil Configuration*

ISO/DIN

206 6 VDC
212 12 VDC
224 24 VDC
211 115 VAC
223 230 VAC

SAE J858

506 6 VDC
512 12 VDC
524 24 VDC

Twin Lead

706 6 VDC
712 12 VDC
724 24 VDC

** See page 167 for Solenoid Connector Options*

Diameter Effective Orifice (mm) = 1,1
Operating Voltage Tolerance = ± 10%
Power (Watts) = 12
Typical response Time (ms) = 30

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NOTES