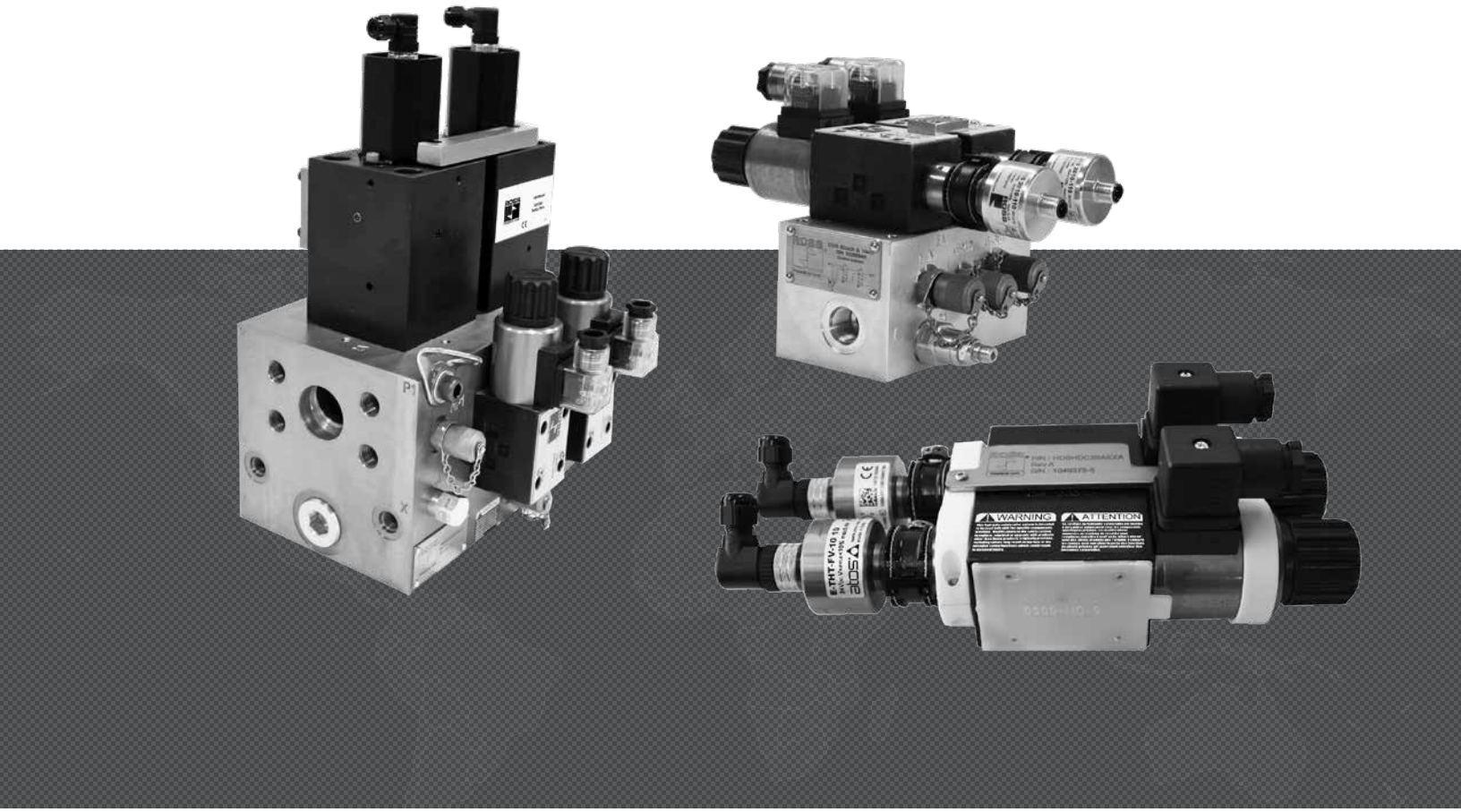
HYDRAULIC SAFETY VALVES



ROSS CONTROLS

BLOCK & BLEED HBB SERIES REDUNDANT VALVE SYSTEMS – KEY FEATURES

- Blocks hydraulic supply pressure and bleeds downstream pressure back to tank
- Includes relief valve on inlet
- Flow up to 50 gpm
- Body Sizes D03, D05, and D07
- Port Sizes SAE-8, SAE-12, and 1¼ Code 61 Flange
- Tamper-resistant design prevents unauthorized personnel from altering the valve

BLOCK & STOP HBH SERIES REDUNDANT VALVE SYSTEMS – KEY FEATURES

- Stops cylinder motion and holds the cylinder in position in the event of loss of supply pressure and/or electrical power
- Holds a vertical load in the event of loss of supply pressure or electrical power
- Flow up to 145 gpm
- Two Body Sizes, D25 and D32
- Port Sizes 11/2 and 2, Code 62 Flange
- Tamper-resistant design prevents unauthorized personnel from altering the valve

DUAL BLOCK & STOP HDBH SERIES REDUNDANT VALVE SYSTEM – KEY FEATURES

- Stops cylinder motion in the event of loss of electrical power
- Nominal flow up to 5 gpm
- Body Sizes D03
- Sandwich style mounting between manifold and directional valve
- Tamper-evident design

The HBB Series valves are redundant 3/2 valve systems designed to meet the needs and requirements of safe hydraulic block and bleed applications. These valve systems are equipped with inductive position switches for external monitoring by an electrical safety control system.

CE *(Certifications pending)*

Choose your options (in red) to configure your valve system model number.

HBB	D	D	11	108S	B	A	E	X	B
Series	Valve Type: Double	Material Type: Ductile Iron			Seal Type: Buna-N	Voltage: 24 volts DC	Monitoring: External	Communication: None	Revision Level

Pressure Relief Valve Settings (psi)**		
Maximum System Operating Pressure	**Relief Valve Factory Preset**	
1000	**1100**	**11**
1500	1700	17
2000	2200	22
2500	2800	28
3000	3300	33
3500	3900	39
4000	4400	44
4500	5000	50
5000	5500	55
No Pressure Relief Valve		XX
For system parameters outside of this range, please contact ROSS.)		

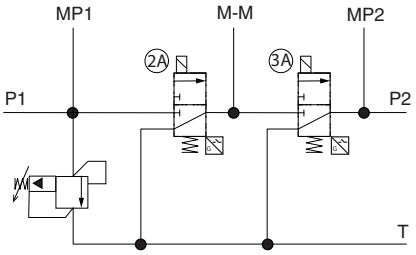
Body Size	Flow Rate	Port Size	Port Thread/Type	
D03	**0 to 10 gpm**	**SAE-8**	**SAE**	**108S**
D05	0 to 20 gpm	SAE-12	SAE	212S
D07	0 to 50 gpm	1¼	Code 61 Flange	371F

Body Size	Weight lb (kg)
D03	22.7 (10.3)
D05	53.4 (24.2)
D07	131.9 (59.8)

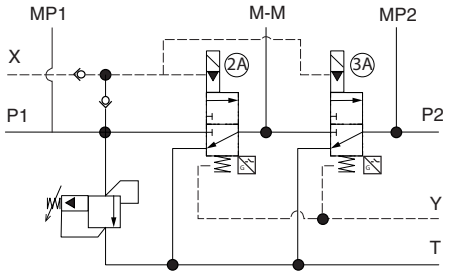
** If your system already incorporates a means of pressure relief, select No Pressure Relief Valve.

Schematics

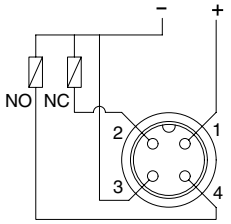
Body Size D03, D05 Direct Solenoid Operated with Pressure Relief Valve



Body Size D07 Solenoid Pilot Operated with Pressure Relief Valve



Wiring Diagram
Inductive Position Switch Connector



1 = Supply +24 volts DC
2 = Output Signal NC
3 = Ground
4 = Output Signal NO

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool type
Actuation (Solenoid- 2 per system)	One solenoid per valve element Solenoids must be operated synchronously
	Body Size D03, D05: Direct Solenoid Operated, spring return **Body Size D07:** Solenoid Pilot Operated, spring return
Mounting	**Type:** Base **Orientation:** Any, preferably horizontal
Solenoids	Version as per VDE 0580; Rated for continuous duty Electrical connection according to EN 175301-803 Form A Enclosure rating according to DIN 400 50 IP 65
Standard Voltages	24 volts DC
Power Consumption (each solenoid)	**Body Size D03, D07:** 30 watts **Body Size D05:** 36 watts

Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Maximum Current (each switch)	400mA maximum
Temperature Range (recommended)	**Ambient:** -4° to 160°F (-20° to 71°C) **Media:** -4° to 140°F (-20° to 60°C)
Flow Media	**Hydraulic Fluids:** Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMDA 24568
Inlet Pressure	5000 psi (344 bar) maximum
Construction Material	**Valve Body & Manifold:** Ductile Iron **Spool:** Steel **Seals:** Buna-N

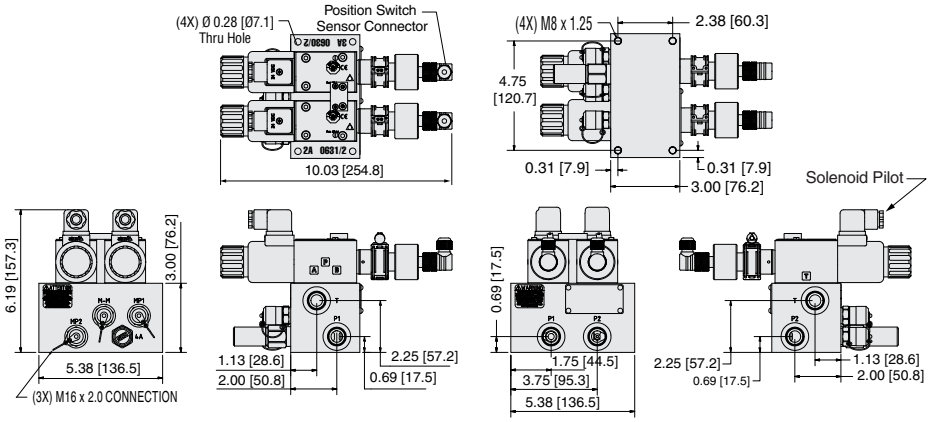
These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

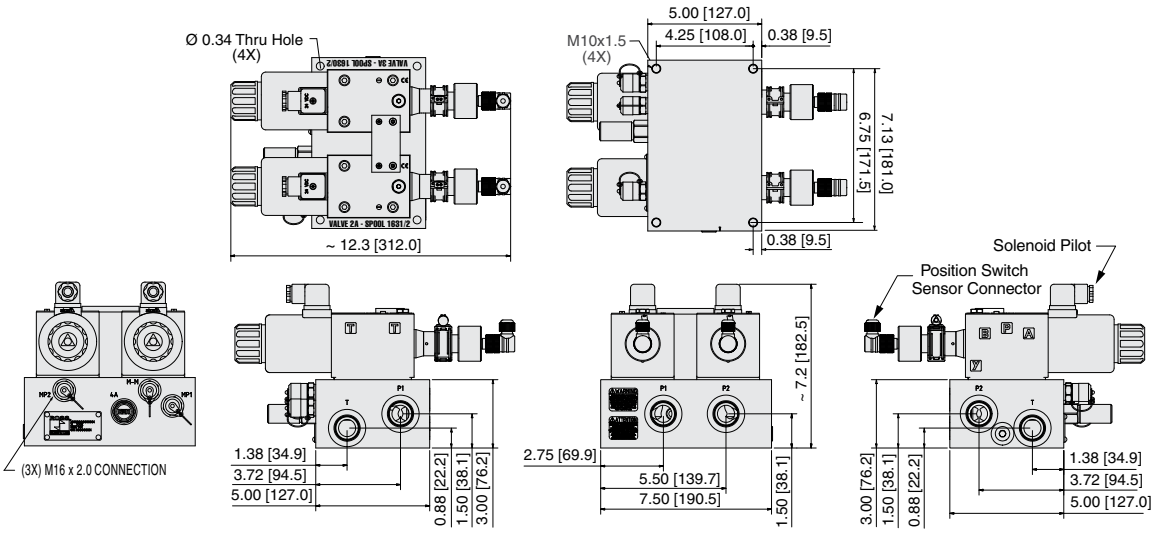
Body Size D03

Ports List	
ID	Name
P1	SAE # 8
P2	SAE # 8
T	SAE # 8
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6



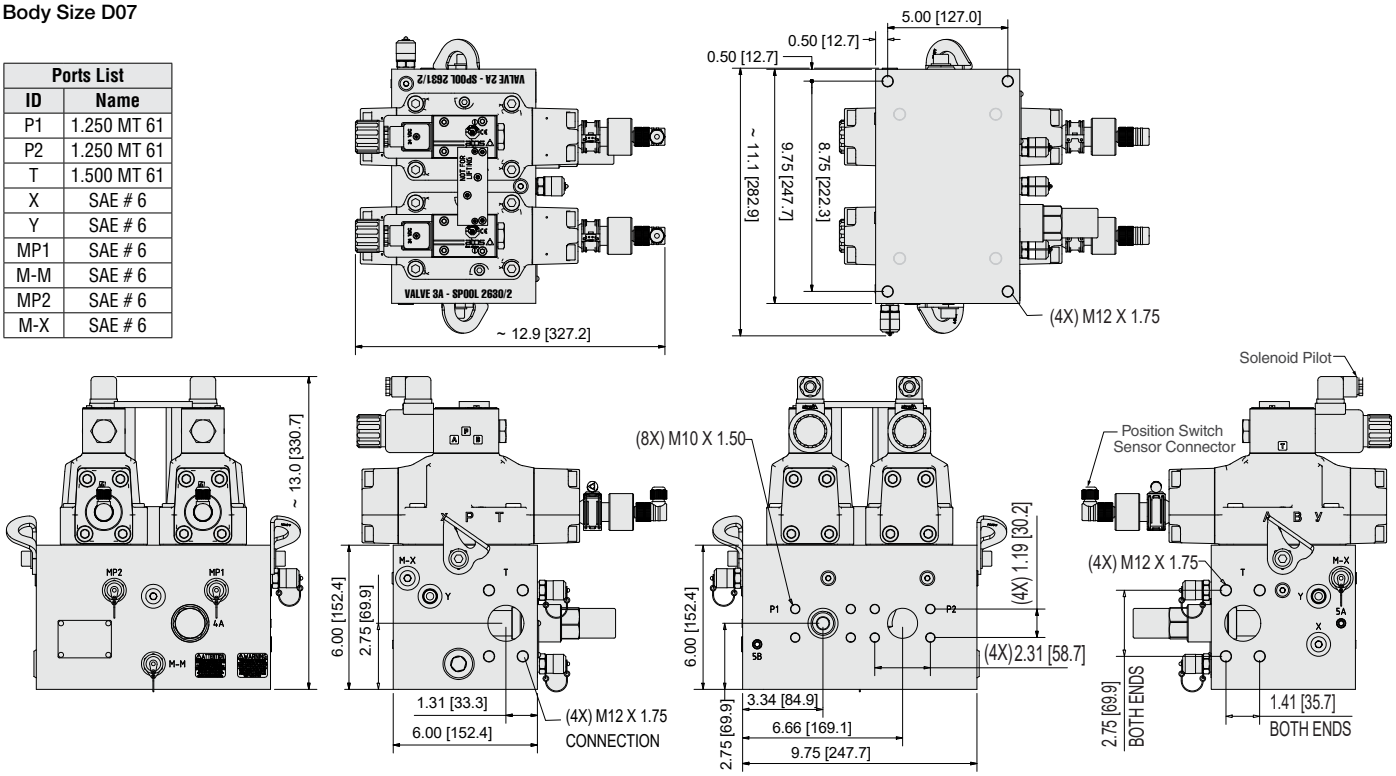
Body Size D05

Ports List	
ID	Name
P1	SAE # 12
P2	SAE # 12
T	SAE # 12
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6



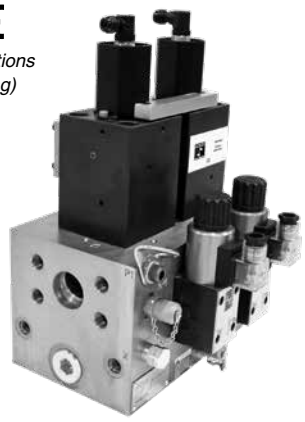
Body Size D07

Ports List	
ID	Name
P1	1.250 MT 61
P2	1.250 MT 61
T	1.500 MT 61
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6



The HBH Series valves are redundant blocking valve systems designed for critical applications where safe block and stop is required for hydraulically controlled cylinders. These valve systems are equipped with inductive position switches for external monitoring by an electrical safety control system.

CE *(Certifications pending)*



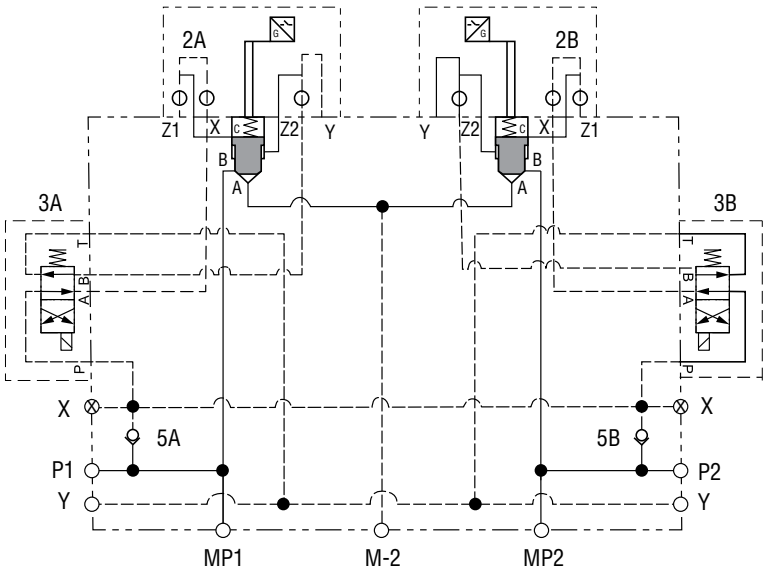
Choose your options (in red) to configure your valve system model number.

HBH	D	D	XX	682F	B	A	E	X	A
Series	Valve Type: Double	Material: Ductile Iron	Pressure Relief: No Pressure Relief Valve		Seal Type: Buna-N	Voltage: 24 volts DC	Monitoring: External	Communication: None	Revision Level

Body Size	Flow Rate	Port Size	Port Thread/Type	
D25	0 to 90 gpm	1-1/2	Code 62 Flange	682F
		2	Code 62 Flange	692F
D32	0 to 145 gpm	2	Code 62 Flange	792F

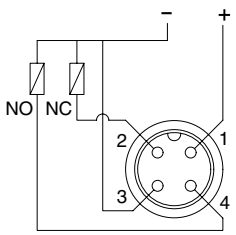
ISO Size	Weight lb (kg)
D25	112.3 (50.9)
D32	142.8 (64.8)

Schematic



Wiring Diagram

Inductive Position Switch Connector



1 = Supply +24 volts DC
2 = Output Signal NC
3 = Ground
4 = Output Signal NO

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool type
Actuation	One solenoid per valve element Solenoids must be operated synchronously
	Solenoid Pilot Operated, spring return
Mounting	**Type:** Base **Orientation:** Any, preferably horizontal
Solenoids	Version as per VDE 0580. Rated for continuous duty. Electrical connection according to EN 175301-803 Form A. Enclosure rating according to DIN 400 50 IP 65.
Standard Voltages	24 volts DC
Power Consumption (each solenoid)	30 watts

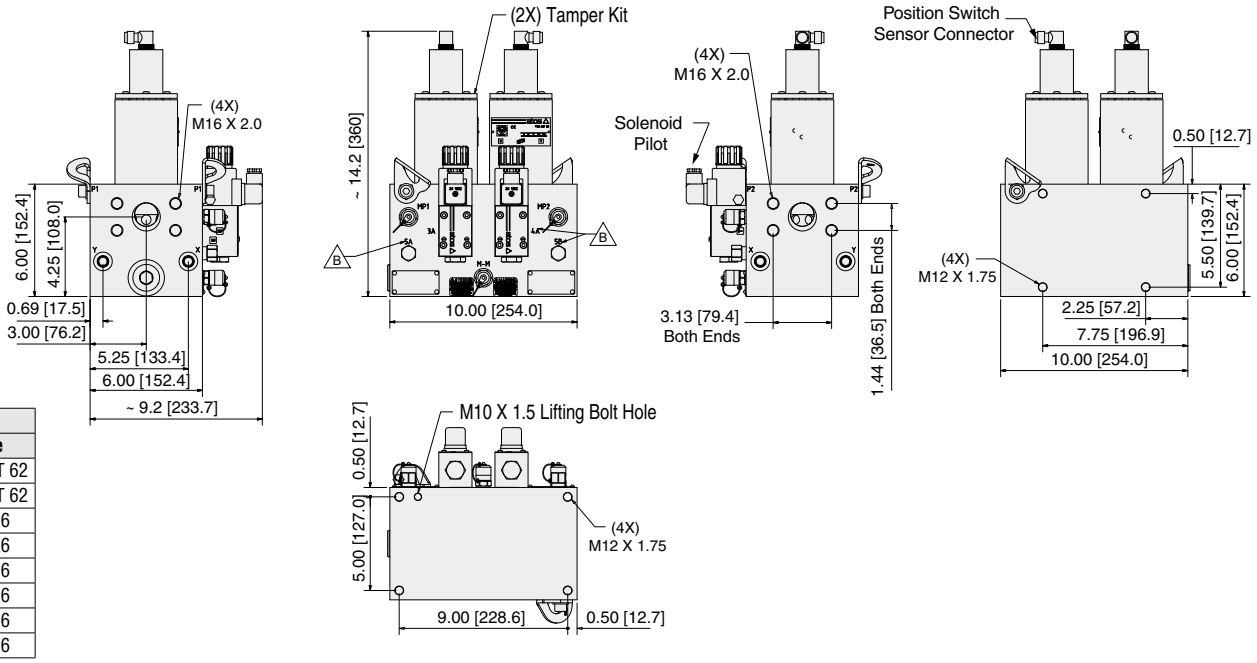
Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Maximum Current (each switch)	400mA maximum
Temperature Range (recommended)	**Ambient:** -4° to 160°F (-20° to 71°C) **Media:** -4° to 140°F (-20° to 60°C)
Flow Media	**Hydraulic Fluids:** Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMDA 24568
Inlet Pressure	5000 psi (344 bar) maximum
Construction Material	**Valve Body & Manifold:** Ductile Iron **Spool:** Steel **Seals:** Buna-N

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

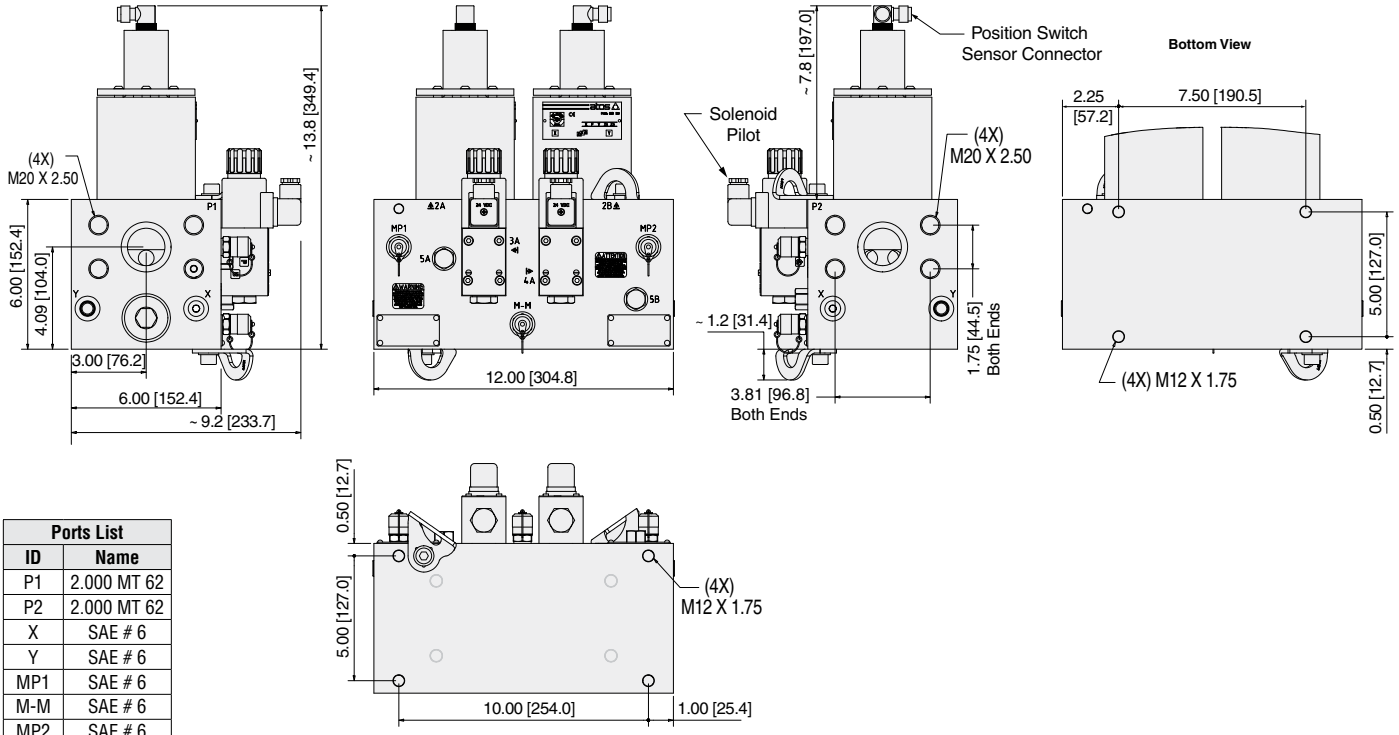
Body Size D25

Valve Dimensions – inches (mm)



Ports List	
ID	**Name**
P1	1.500 MT 62
P2	1.500 MT 62
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6

Body Size D32



Ports List	
ID	**Name**
P1	2.000 MT 62
P2	2.000 MT 62
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6

Hydraulic Redundant Valve Systems
Designed for External Monitoring

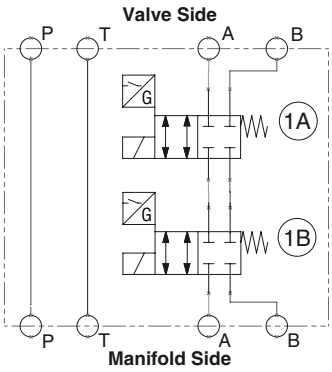
HDBH Series
Dual Block & Stop

The HDBH Series system is a redundant, dual blocking valve system designed for critical applications where safe stopping is required for hydraulically controlled actuators. This valve system is equipped with inductive position switches for external monitoring by an electrical safety control system. The HDBH is a D03 sized (ISO 4401, size 06) system designed to be sandwich-style mounted (interposed) between a D03 manifold and a directional valve. Spacer kits are available to help avoid interference with other valves on the manifold.

CE
(Certifications pending)

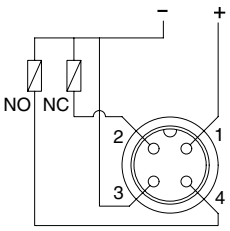
Valve Model Number	HDBHDC3BAEXA

Schematic



Wiring Diagram

Inductive Position Switch Connector



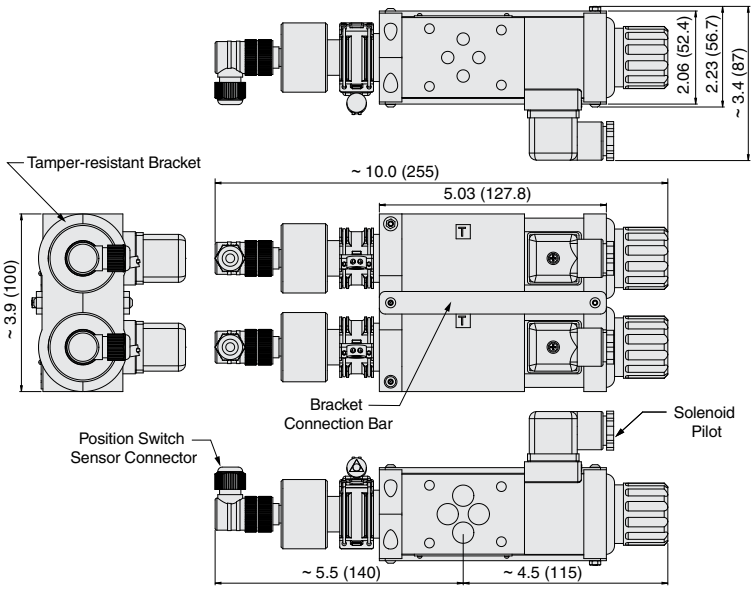
1 = Supply +24 volts DC
2 = Output Signal NC
3 = Ground
4 = Output Signal NO

Standard Specifications

Construction Design	Spool type
Actuation	One solenoid per valve element Solenoids must be operated synchronously
	Direct solenoid operated, spring return
Mounting	**Type:** Sandwich-style mounted (interposed) between base/manifold and directional valve **Footprint:** ISO 4401, size 06 (D03)
Solenoids	Version as per VDE 0580. Rated for continuous duty. Electrical connection according to EN 175301-803 Form A Enclosure rating according to DIN 400 50 IP 65
Standard Voltages	24 volts DC
Power Consumption (each solenoid)	30 watts

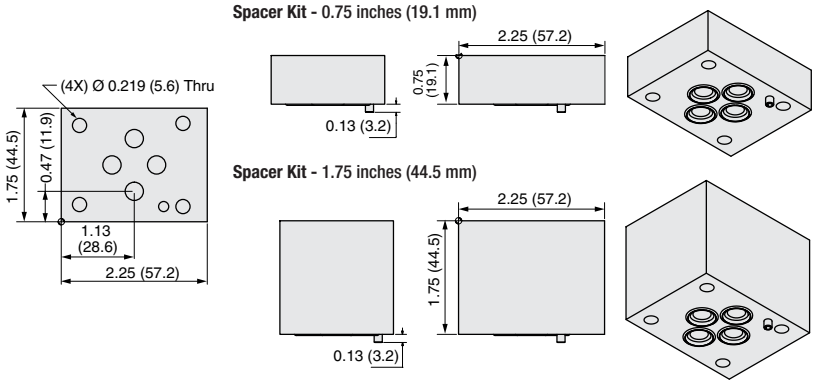
Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Maximum Current (each switch)	400mA maximum
Temperature Range (recommended)	**Ambient:** -22° to 160°F (-30° to 70°C) **Media:** -4° to 140°F (-20° to 60°C)
Flow Media	**Hydraulic Fluids:** Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMDA 24568
Pressure	**Ports P, A, B:** 5000 psi (344 bar) **Port T:** 3000 psi (210 bar)
Construction Material	**Valve Body:** Cast Steel **Spool:** Steel **Seals:** Buna-N
Functional Safety Data	MTTFd: 150 years

Dimensions – inches (mm)



Weight lb (kg)
15.0 (6.80)

	Type	Height	Model Number
Spacer Kits	Ductile	0.75 in (19.1 mm)	2548B25
		1.75 in (44.5 mm)	2549B25



	Connection Type	Connector Option	Connector Form	Fitting Connection	Cord Type/Termination		Length meters (feet)	Cord Diameter	Model Number		Cord Quantity
					End 1	End 2			Without Light	Lighted Connector 24 Volts DC	
Connectors & Cord Sets 	Solenoid	Connector Only	EN 175301-803 Form A	–	–	–	–	–	937K87	936K87-W	–
				1/2" NPT conduit	–	–	–	–	723K77	724K77-W	–
		Prewired Connector	EN 175301-803 Form A	–	Connector	Flying leads	2 (6.5)	6-mm	721K77	720K77-W	1
								10-mm	371K77	383K77-W	1
							5 (16.4)	–	2243H77	–	2
							10 (32.8)	–	2244H77	–	2
	Sensor	Prewired Connector	M12 5-pin, straight A-coded	–	Female	Flying leads	5 (16.4)	–	2644B77	–	2
					Female	Male	5 (16.4)	–	2645B77	–	2
					Female	Flying leads	10 (32.8)	–	2370B77	–	2
					Female	Male	10 (32.8)	–	2371B77	–	2
	CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.										

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