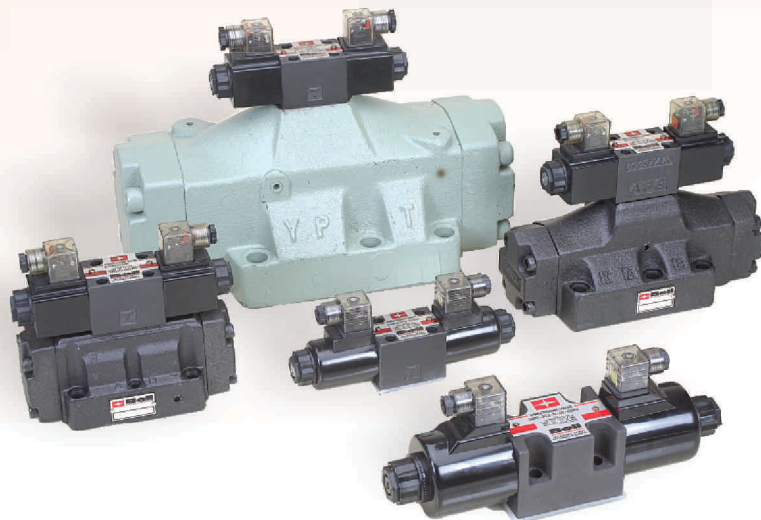


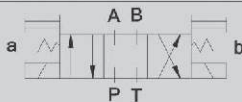
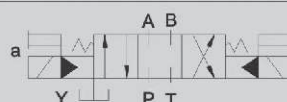
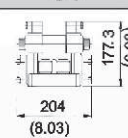
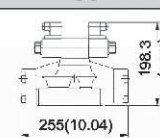
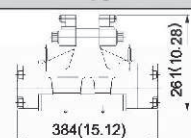
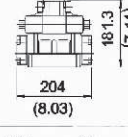
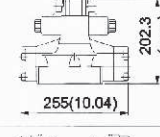
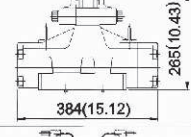
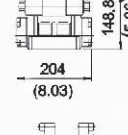
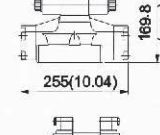
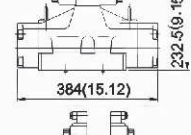
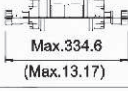
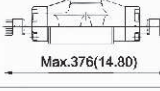
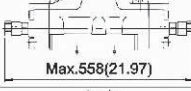
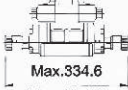
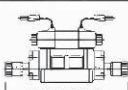
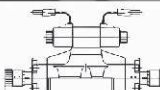
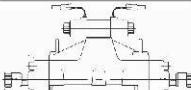
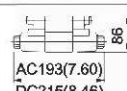
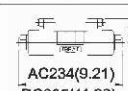
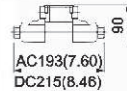
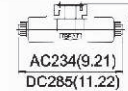
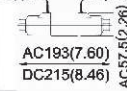
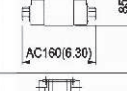
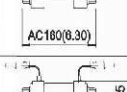
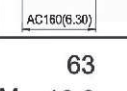
Directional Valves



SOLENOID VALVE FAMILIES

DIMENSIONS : MILLIMETERS(INCHES)

B1

MODEL TYPE	SOLENOID OPERATED DIRECTIONAL CONTROL VALVES		SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL CONTROL VALVES				
							
	01	03	04	06	10		
DSHG-N-**			 177.3 (6.98) 204 (8.03)	 198.3 (7.81) 255(10.04)	 261(10.28) 384(15.12)		
DSHG-**			 181.3 (7.14) 204 (8.03)	 202.3 (7.96) 255(10.04)	 285(10.43) 384(15.12)		
DSHG-Y-**			 148.8 (5.86) 204 (8.03)	 169.8 (6.69) 255(10.04)	 232.5(9.15) 384(15.12)		
DSHG-N-RW			 Max.334.6 (Max.13.17)	 Max.376(14.80)	 Max.558(21.97)		
DSHG-RW			 Max.334.6 (Max.13.17)	 Max.376(14.80)	 Max.558(21.97)		
DSHG-Y-RW			 Max.334.6 (Max.13.17)	 Max.376(14.80)	 Max.558(21.97)		
DSG-N-**	 86 (3.39) AC193(7.60) DC215(8.46)	 100 (3.94) AC234(9.21) DC285(11.22)					
DSG-**	 90 (3.54) AC193(7.60) DC215(8.46)	 106 (4.17) AC234(9.21) DC285(11.22)					
DSG-Y-**	 95 (3.74) AC193(7.60) DC215(8.46) AC57.5(2.26) DC55.5(2.18)	 106 (4.17) AC234(9.21) DC285(11.22) AC73.3(2.88) DC72(2.83)					
DSGX-N-**	 85 (3.35) AC180(6.30)						
DSGX-**	 90 (3.54) AC180(6.30)						
DSGX-Y-**	 85 (3.35) AC180(6.30)						
Max. Flow : ℓ/min			63	120	300	500	1100
: U.S.GPM			16.6	31.7	79.3	132	291

315
(4500)

Max. Pressure: bar(p.s.i.)

200
(2900)

**DESCRIPTIONS & INSTRUCTIONS**☐ **HIGH FLOW**

The high flow rate 63 *l/min* (16.6 gpm) of the DSG-(N)-01 valves corresponds to conventional 03 valves.

DSG-(N)-03 is capable of controlling oil flow up to 120 *l/min*. (31.7 gpm)

DSHG-(N)-04 are capable of controlling oil flow up to 300 *l/min*. (79.3 gpm)

DSHG-(N)-06 are capable of controlling oil flow up to 500 *l/min*. (132 gpm)

And DSHG-(N)-10 are capable of controlling oil flow up to 1000 *l/min*. (291 gpm)

[Flow rate is a little different between different spool type.]

☐ **HIGH PRESSURE**

The DSG-(N)-01/03 solenoid valves, DSHG-(N)-04/06/10 Max operating pressure up to 315 bar(4500 PSI).

☐ **LONG SERVICE LIFE**

Durable Life: Durability to 50 million spool shifts.(Average)

Life Of Sealing : No oil leaks due to use of no-dynamic seals.

☐ **POWERFUL QUIET WET ARMATURE SOLENOID.**

Totally enclosed molded coil. Specially treated pressure resistant inner tube(SUS304). High grade steel cored(C2503) coil with wet solenoid. All moving parts are immersed in operating oil and muffled to provide low noise operation.

☐ **NO OIL LEAKAGE**

Special design of over-ride pins and seals prevent oil leakage.

☐ **LOW PRESSURE DROP**

See technical data of pressure drop for details. (P-25)

☐ **HIGH BACKPRESSURE ALLOWED IN TANK (DRAIN) LINE.**

The DSG-(N)-01/03 can be used with back pressure up to 160 bars(2300 PSI) on the tank port "T".

DSHG-(N)-04/06/10 permissible backpressure, internal drain 160 bars(2300 PSI),

and 210 bar (3000 PSI) for external drain type. Pipe the return back to tank below the oil level.

☐ **INDICATOR LIGHTS (LEDS)**

Solenoid indicator lights are standard, all DSG-01/03 (terminal box type), DSG-N-01/03 (DIN type) with all voltages, ensuring easy testing and maintenance at a glance.

DIN connector meet CE, IP 65, DIN 40050, ISO 6952 water proof standard.

(AC: Red led., DC: Yellow led. RAC: Green led.)

☐ **COIL**

Insulation high voltage test : 1500 V/min. (1800 V/sec.)

Double insulation wiring, hermetically sealed for moisture-resistance. Insulation class : H

Maximum allowable coil temperature: +150C (+300F)

Do not exceed permissible voltage range of the coil used.

Do not supply electric power to the AC solenoid unless the coil is mounted to the valve.

DIN type coil with 360 possible orientation.

No-spring type (DSHG-2N*-04/06/10) one of the coil should be energized continuously to avoid malfunction.

On double solenoid valves, do not energize both at the same time as it will result in coils burning out.

☐ **HI-TENSILE CAST IRON (FC 30)**

Bodies are of high tensile cast iron with large shell cored passages. Spool bores are precision honed with accurately machined land locations.

☐ **SPOOLS**

Spoos are hardened alloy steel(SCM21), precision ground and incorporate balancing grooves. All spoos are interchangeable with valve body simplifying maintenance. Many options in spool type selection.

☐ **3 STANDARD ELECTRICAL CONNECTIONS TYPE, VARIOUS COIL VOLTAGES.**

There are 3 types (DIN, Terminal Box, SWP) for standard electrical connection and variety of AC,DC & RAC coil voltages. Coil voltages. AC:AC100V/AC110V/AC200V/AC220V/AC240V (50/60HZ) DC:DC12/24/36/48

RAC:RAC100V/AC110V/AC200V/AC220V/AC240V

☐ **HYDRAULIC SHOCKLESS TYPE (S)- LOW NOISE TYPE**

The DC/RAC type solenoid valves with a cushion device, results in a smooth com- mutation from a position to another position (smooth start and stop performance). This will greatly reduce the noise which comes from changing over and vibrating pipes.

The optional stroke limiter (RW/RA/RB) can be 1/4., 1/3., 1/2 micro adjustments search for the best soft smooth cushion. When the stroke limiter is screwed in, the main spool stroke becomes shorter and flow rate becomes lower.The max adjustment range details as follow.

DSGX-(N)-01-DC/RAC: max. 1.4 mm

DSG-(N)-01-DC/RAC: max. 1.4 mm

DSG-(N)-03-DC/RAC: max. 2.2 mm

DSHG-(N)-04-AC/DC/RAC: max. 7 mm

DSHG-(N)-06-AC/DC/RAC: max. 12 mm

☐ **SPECIAL TYPE, (VOLTAGES) ARE AVAILABLE.**

(A) Shockless + shifting time adjustable. (B) Stroke limiter adjustable.(RA/RB/RW types)

(C) Lead wire type (SWP connector terminals) for marine, mobile parts.

(D) Explosion proof (flame proof) type. (E) Surgeless (Surge Killer) type.

(F) Sparkless (Spark Killer) type. (G) Water proof type. (H) Vibration proof type.

(I) AC24., DC 14.50., DC28., DC36., DC 48., DC110 (J) Viton seals were available.

Consult local agent for details.

☐ **ASSEMBLY INSTALLATION**

The no-spring valves (DSHG-2N-04/06/10 TYPE) shall mounted with longitudinal axis horizontal as they work under impulse.

Spring centered (3C*), spring offset (2B*) and detented (2D*) valves have no orientation limitation. The DSG-(N)-01/03 & DSHG-(N)-04/06/10 mounting surface dimensions conform to ISO 4401, Hydraulic fluid power-Four-port directional control valves-Mounting surface. The installation surface should be finer than 6.3 S.

☐ **SUBPLATE & MANIFOLDS**

Comprehensive range of sub-plates, multi-station manifolds and stackable modules.

☐ **MOUNTING BOLTS + ACCESSORIES.**

Hexagonal socket head cap screw (Metric or American fixing bolts), and DIN connector + led as standard with no extra cost.

Ordering Code

DSG - 3C2 - N - 01 - D2 - 30 - RW - *P*D

Series No	Spool Type	Type of Ele. Conduit	Valve Size	Coil Voltage	Design No	Special Kits	Pilot and Drain
DSGX	3C94(-01)	N: DIN Type	(DSG-) 01 (NFPA-D03)	(N-01-) AC/DC	30 DIN 912 bolts	RW(RA/RB) Stroke Limiter 01/03 04/06	*P Pilot Plug (1/16, 1/8, 1/4)
DSG(-N-01)	3C60(-03)	None: Box Type	(DSG-) 03 (NFPA-D05)	(N-03-) AC/DC	3090 UNC bolts (North America)	V: Viton Seal	*D Drain Plug (1/16, 1/8, 1/4)
DSG(-N-03)	3C5(-04)	Y: Lead-Wire	(DSHG-) 04 (NFPA-D07)	(01-) AC/DC		Orifice Plug 0.8/0.1/1.2 mm	
DSHG(-0*)	3C3(-06)		(DSHG-) 06 (NFPA-D08)	(03-) AC/DC	C: Check Valve P Port (5 bar)	C: Check Valve P Port (5 bar) Fig-1	
DHG(-0*)	3C60(-10)		DSHG-10 (NFPA-D10)	(Y-01/03-) DC	Fig-1	RAC Type Shockless Rectifier built-in	

COIL TYPE POWER SOURCE VOLTAGE

AC	A1:	AC100V(50/60Hz)	AC110V(60Hz)	DC	D1:DC12V	D2:DC24V	D3:DC36V
	A2:	AC200V(50/60Hz)	AC220V(60Hz)		D4:DC48V	D5:DC60V	D6:DC72V
	A3:	AC110V(50Hz)			D14.5:DC14.5V	D28:DC28V	
	A4:	AC220V(50Hz)		RECTIFIED	R1:RAC100	R2:RAC200	
	A5:	AC240V(50Hz)			R3:RAC110	R4:RAC220	

For voltages other than specified, consult HYKING for details.

VALVE SIZE

01-(1/8") 03-(3/8") 04-(1/2") 06-(3/4") 10-(1-1/4")

ELECTRICAL CONDUIT CONNECTION

N: DIN connector with light, DIN 43650.ISO6952.
Y: SWP connector.
None: Terminal box type with indicator lamp.

SPOOL TYPES

SERIES NUMBER

DSG: Solenoid operated directional valves, subplate mounting.
DSGX: Solenoid operated directional valves, mini type.
DSGH: Solenoid controlled pilot operated directional valves.
DHG: Hydraulic Operated Directional Valves.

PILOT/DRAIN CONNECTION (DSHG ONLY)

1P1D: Internal pilot, internal drain
1P2D: Internal pilot, external drain
2P1D: External pilot, internal drain
2P2D: External pilot, external drain

MODEL WITH SPECIAL KITS (OPTION - Omit If Not Required)

C: Check Valve P Port (5 bar) V: Viton seals
S: Shockless type RB: Stroke limiter "B" stroke
RA: Stroke limiter "A" stroke SK: Surgeless (Surge Killer)
RW: Stroke limiter "A+B" stroke WP: Water proof type.
PK: Sparkless (Spark Killer) type. VP: Vibration proof type.

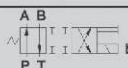
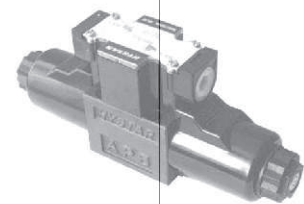
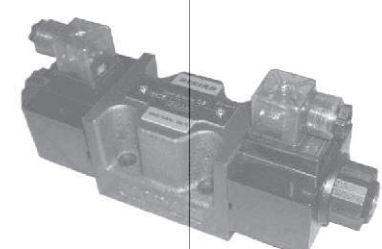
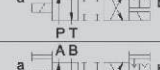
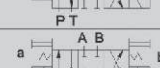
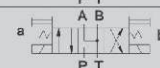
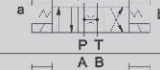
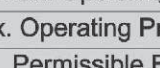
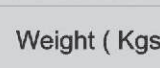
DESIGN NO

30: with DIN 912 bolts
3090: with UNC (North American) bolts

Design number is changed from 20 to 30 (2090 to 3090).
N (DIN Types), all parts are interchangeable with 20(2090)

Terminal box type equipped with new conduit box design, reference page 35 for details.

MODEL NO SPECIFICATIONS (DSG-01/03 Solenoid Operated Directional Valves)

Spool Type & Graphic Symbols		Rated Flow Capacity -Maximum Flow Capacity												
SYMBOLS	MODEL NO	DSG (X) - 01 (1/8")						DSG - 03 (3/8")						
		AC		RAC		DC		AC		RAC		DC		
		A1	A2	R1	R2	D1	D2	A1	A2	R1	R2	D1	D2	
	DSG-2B2- **													
	DSG-2B3- **													
	DSG-2B8- **													
	DSG-2D2- **													
	DSG-2D3- **													
	DSG-3C2- **													
	DSG-3C3- **													
	DSG-3C4- **													
	DSG-3C40- **													
	DSG-3C7- **													
	DSG-3C9- **													
	DSG-3C10- **													
	DSG-3C11- **													
	DSG-3C12- **													
	DSG-3C5- **	30~63 lpm (10.3~16.6USgpm)						70~120 lpm (18.5~31.7USgpm)						
	DSG-3C6- **													
	DSG-3C60- **													
Max. Operating Pressure (P.A.B) (bar)		315 (4500 PSI)												
Max. Operating Pressure 3C5/3C6 Types (bar)		250 (3600 PSI)												
Permissible Back Pressure (T) (bar)		160 (2300 PSI)												
Weight (Kgs)	Double Solenoid	1.9	2.0				4.0				4.8			
	Single Solenoid	1.5	1.6				3.3				3.8			
Switching Frequency (times/min)		280	120		280		240		120		240			
Hydraulic Fluids		Use Hydraulic Fluids Equivalent to ISO VG32 or VG46												
Operating Temperature Range Recommended (°C)		-15 ~ +70 (+5 ~ +160 °F)												
Operating Viscosity (cSt)		15 ~ 400 (80 ~ 1800SSU)												
Filtration		25 Microns Absolute or Finer												

DSGX series mini. type solenoid valves.

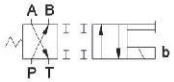
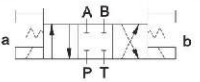
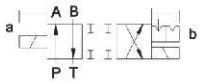
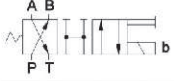
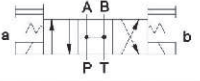
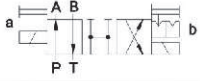
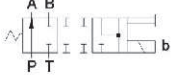
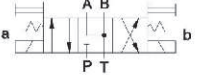
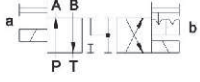
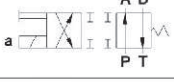
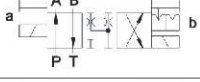
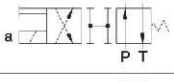
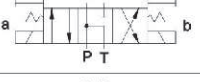
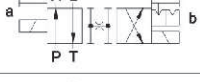
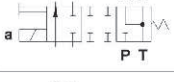
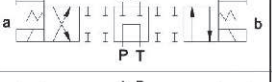
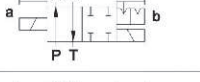
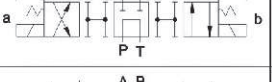
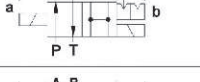
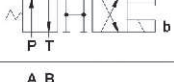
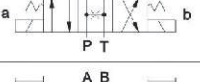
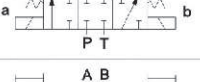
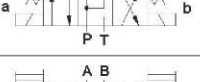
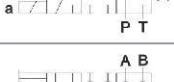
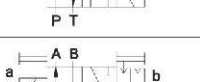
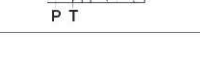
Max. pressure (P.A.B) : 200bar (2900PSI), 3C5/3C6 spool types : 160bar (2300PSI).

Permissible Back Pressure (T) : 100bar (1430PSI)

Weight : Double Solenoid : 1.6kgs., Single Solenoid : 1.1kgs

Solenoid Valves

LIST OF SPOOL FUNCTIONS (DSG-01/03)

SPRING OFFSET 2 POSITION	GRAPHIC SYMBOLS (STANDARD)	SPRING CENTERED 3 POSITION	GRAPHIC SYMBOLS (STANDARD)	NO SPRING DETENTED 2 POSITION	GRAPHIC SYMBOLS (STANDARD)
2A2		3C2		2D2	
2A3		3C3		2D3	
2A14		3C4		2D4	
2A2L		3C40		2D40	
2A3L		3C5		2D7	
2A14L		3C6		2D2A	
2B2		3C60		2D3A	
2B3		3C7		2D4A	
2B8		3C8		2D40A	
2B29		3C9		2D5A	
2B2L		3C10		2D60A	
2B3L		3C11		2D7A	
2B8L		3C12		2D9A	
2B29L		3C25		2D10A	
		3C29		2D11A	
		3C48		2D12A	
		3C94			

B1



Bell
HYDROMATICS

Solenoid Valves

LIST OF SPECIAL TWO POSITION VALVES (DSG-01/03)

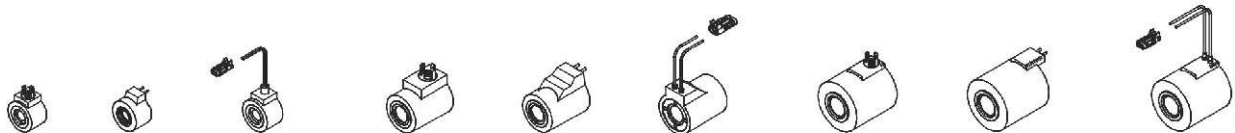
SPRING OFFSET 2 POSITION	GRAPHIC SYMBOLS		SPRING OFFSET 2 POSITION	GRAPHIC SYMBOLS	
	STANDARD	(ALTERNATED)		STANDARD	(ALTERNATED)
2B2A(L)			2B2B(L)		
2B3A(L)			2B3B(L)		
2B4A(L)			2B4B(L)		
2B40A(L)			2B40B(L)		
2B5A(L)			2B5B(L)		
2B6A(L)			2B6B(L)		
2B60A(L)			2B60B(L)		
2B7A(L)			2B7B(L)		
2B8A(L)			2B8B(L)		
2B9A(L)			2B9B(L)		
2B10A(L)			2B10B(L)		
2B11A(L)			2B11B(L)		
2B12A(L)			2B12B		
2B25A(L)			2B25B(L)		
2B29A(L)			2B29B(L)		
2B48A(L)			2B48B(L)		

NOTE : Standard Model No. + L = Alternate Model.
For example, 2B2A is Standard Model, 2B2AL is Alternate Model.

B1

SOLENOID SPECIFICATIONS

AC/DC CURRENT		AC				DC			
						RECTIFIED INSIDE			
VOLTAGE (V)		AC110V		AC220V		R110V	R220V	DC12	DC24
FREQUENCY (Hz)		50	60	50	60	50/60	50/60		
DSGX (01) 1/8"	Starting current (A)	0.56	0.50	0.27	0.25	-	-	-	-
	Holding current (A)	0.12	0.12	0.56	0.52	0.068	0.038	0.44	0.22
	Holding electrical power (W)	-	-	-	-	5.0	5.0	5.0	5.0
DSG (01) 1/8"	Starting current (A)	2.38	2.33	1.19	1.17	-	-	-	-
	Holding current (A)	0.40	0.45	0.20	0.23	0.30	0.15	2.2	1.1
	Holding electrical power (W)	-	-	-	-	26	26	26	26
DSG (03) 3/8"	Starting current (A)	5.37	5.03	2.69	2.52	-	-	-	-
	Holding current (A)	0.70	0.75	0.30	0.35	0.48	0.24	3.16	1.57
	Holding electrical power (W)	-	-	-	-	38	38	38	38
Permissible voltage		95~120		200~235		95~120	200~235	11.0~13.2	22~26.4
Insulation resistance (M Ω)		100 or above (500V)							



VALVES RESPONSE CAPACITY

Unit : Times/Second

Model	Working Direction	Spring Centered Type (3C*)	No Spring Type (2D*)	Spring Offset Type (2B*)
DSGX-01 AC	Energization	0.01~0.02	0.01~0.02	0.01~0.02
	Spring back	0.015~0.05	-----	0.015~0.05
DSGX-01 DC/RAC	Energization	0.02~0.05	0.02~0.05	0.02~0.05
	Spring back	0.015~0.05	-----	0.015~0.05
DSG-01-AC	Energization	0.01~0.02	0.01~0.02	0.01~0.02
	Spring back	0.015~0.05	-----	0.015~0.05
DSG-01-DC/RAC	Energization	0.02~0.05	0.02~0.05	0.02~0.05
	Spring back	0.015~0.05	-----	0.015~0.05
DSG-03-AC	Energization	0.005~0.025	0.010~0.020	0.01~0.02
	Spring back	0.005~0.030	-----	0.010~0.030
DSG-03-DC/RAC	Energization	0.030~0.090	0.030~0.090	0.030~0.050
	Spring back	0.020~0.050	-----	0.020~0.040

1) Above response time test condition base on follow terms.

DSG-01 based on 140 bar (2000 psi) , 30 lpm (7.9 USgpm)

DSG-03 based on 140 bar (2000 psi) , 45 lpm (11.9 USgpm)

2) Changeover response time changes a little by the test condition (pressure, flow, viscosity.....etc.).

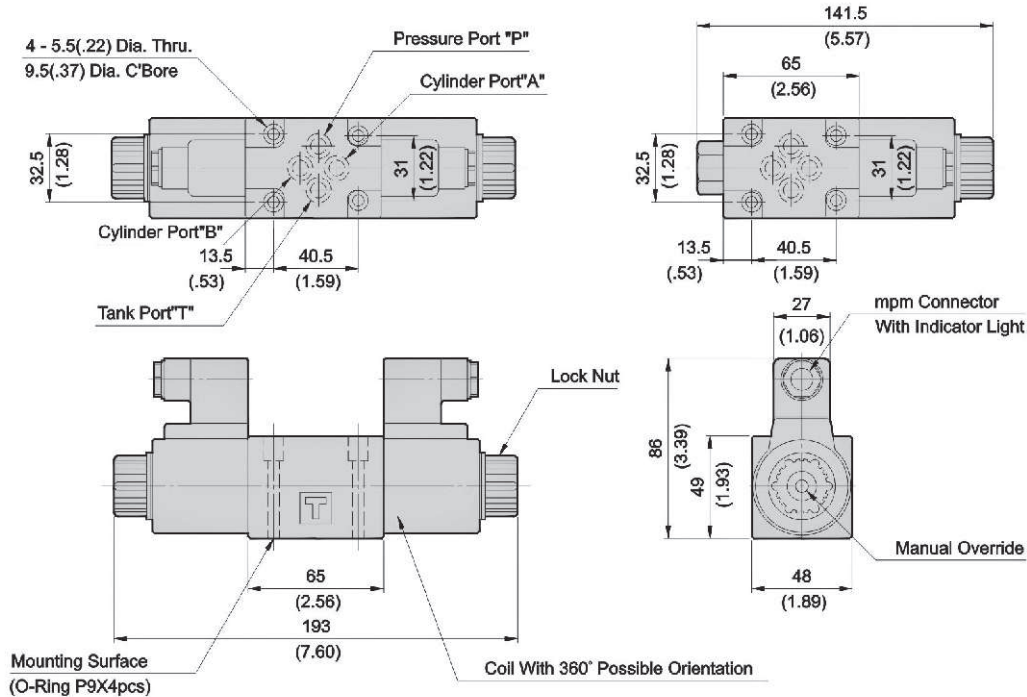
Solenoid Valves

DIMENSIONS

MILLIMETERS(INCHES)

DSG-N-01-AC

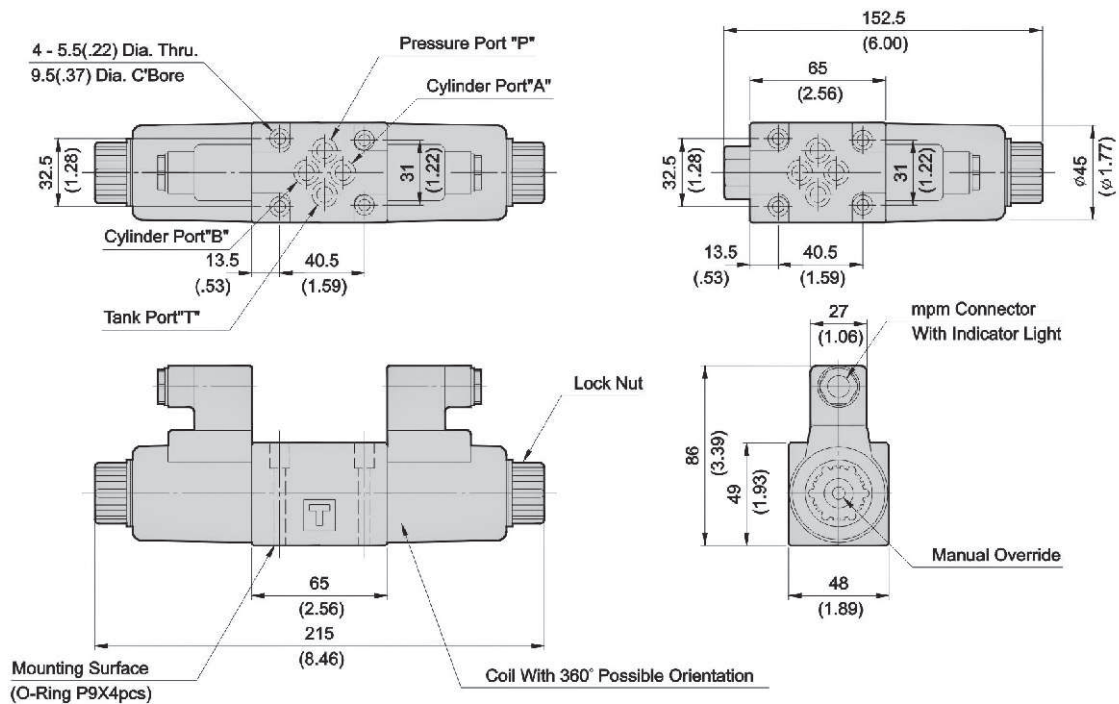
MOUNTING SURFACE:DSG-01-CETOP3
ISO 03-NFPAD03



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M5 X45LgX4pcs	5-7 Nm	30
Soc. Hd. Cap Screw	10-24UNCX1-3/4"LgX4pcs	43-60 in.lbs	3090

DSG-N-01-DC/RAC

MOUNTING SURFACE:DSG-01-CETOP3
ISO 03-NFPAD03



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M5 X45LgX4pcs	5-7 Nm	30
Soc. Hd. Cap Screw	10-24UNCX1-3/4"LgX4pcs	43-60 in.lbs	3090



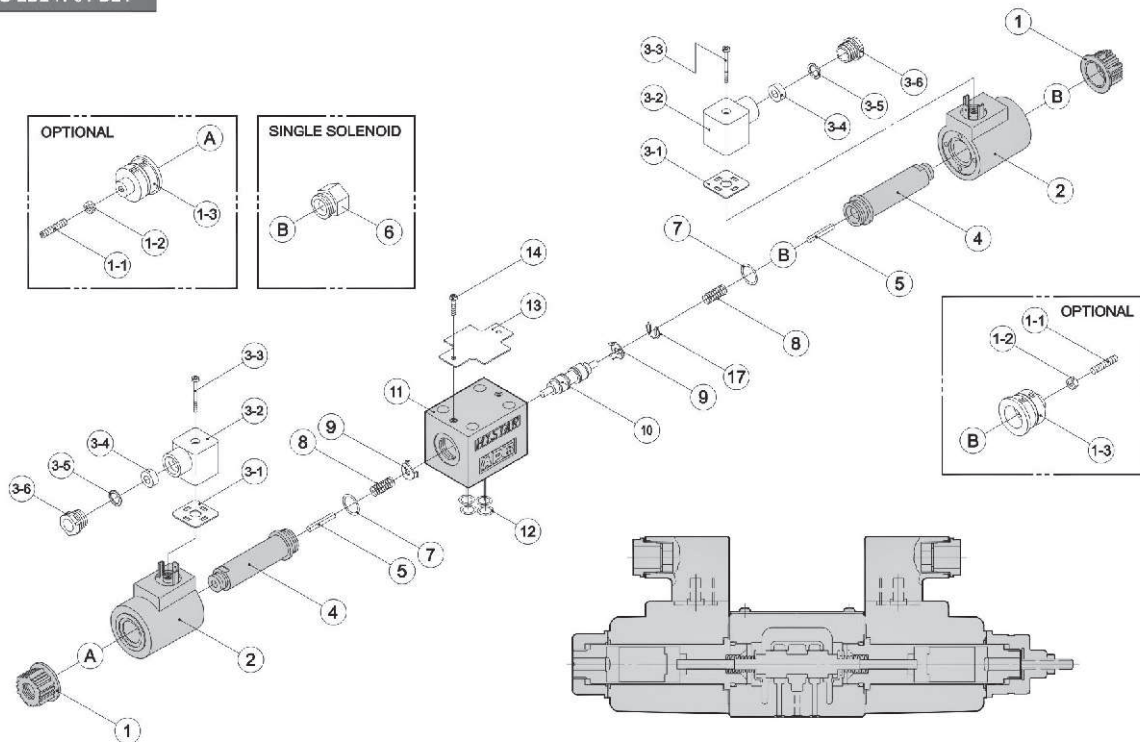
Bell
HYDROMATICS

Solenoid Valves

B1

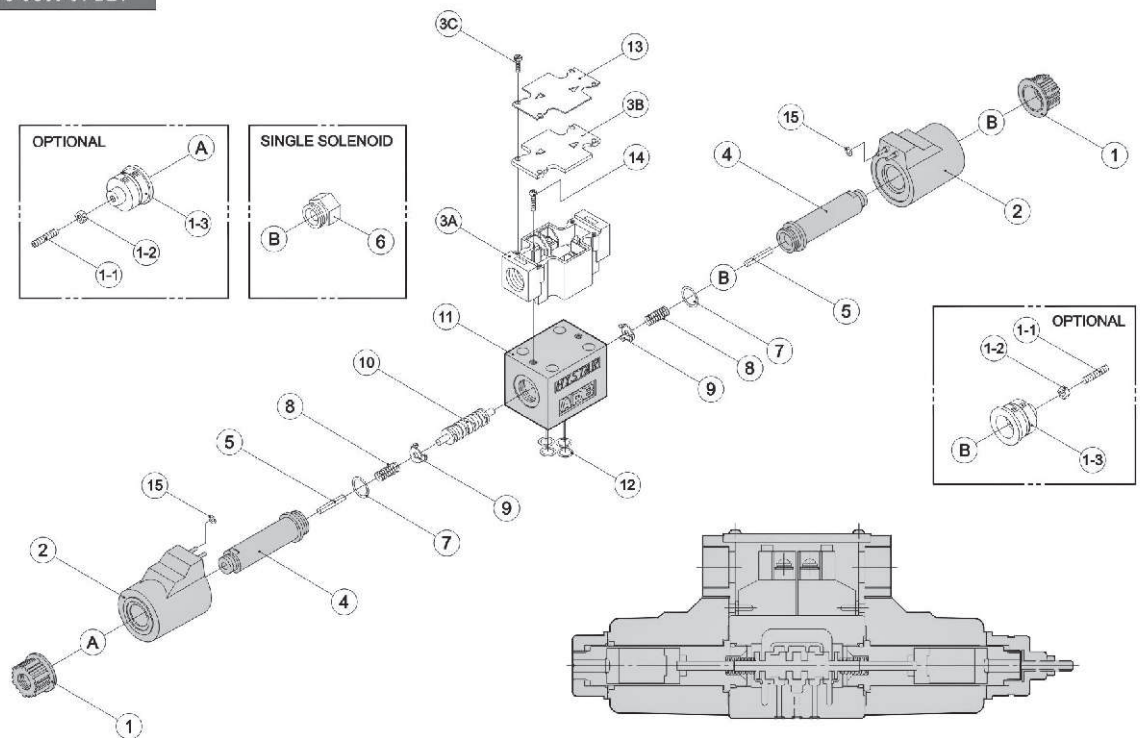
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DSG-2D2-N-01-D24



ASSEMBLY

DSG-3C60-01-D24





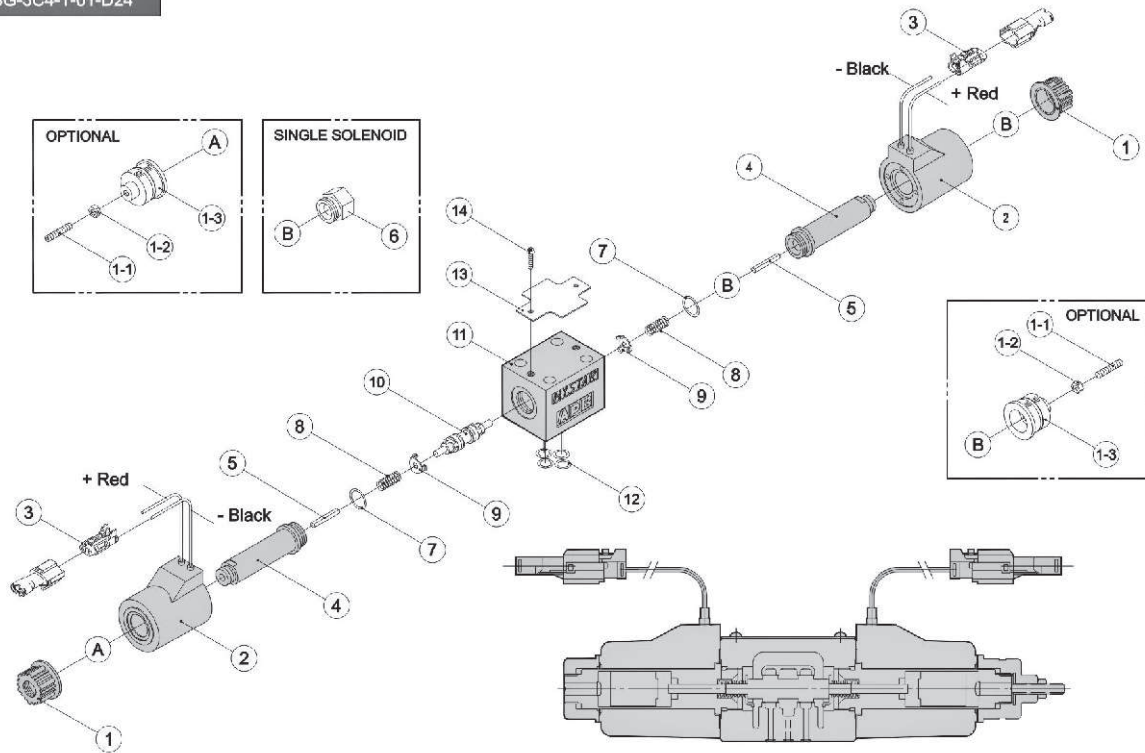
Bell
HYDROMATICS

Solenoid Valves

B1

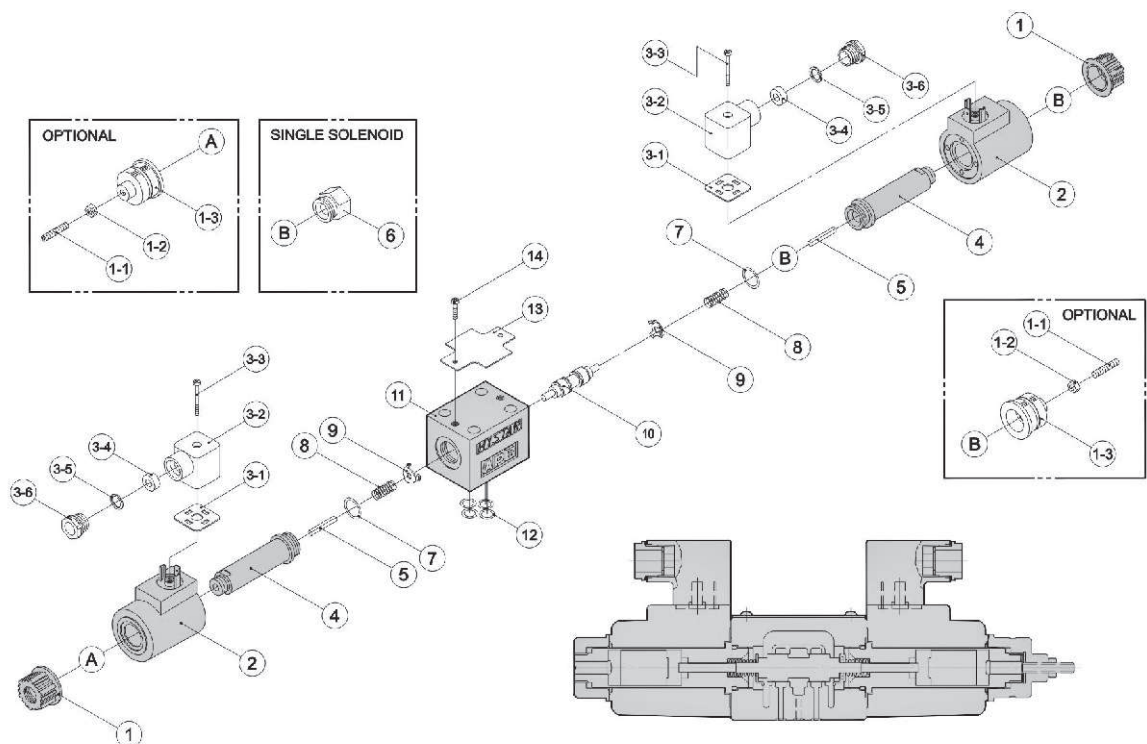
ASSEMBLY

DSG-3C4-Y-01-D24



ASSEMBLY

DSG-3C2-N-01-D24



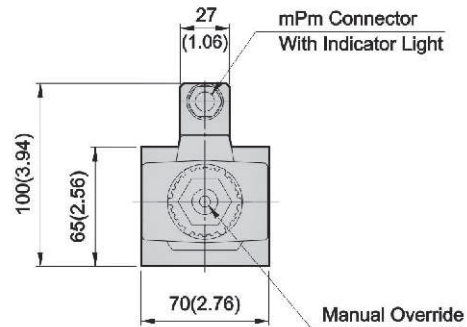
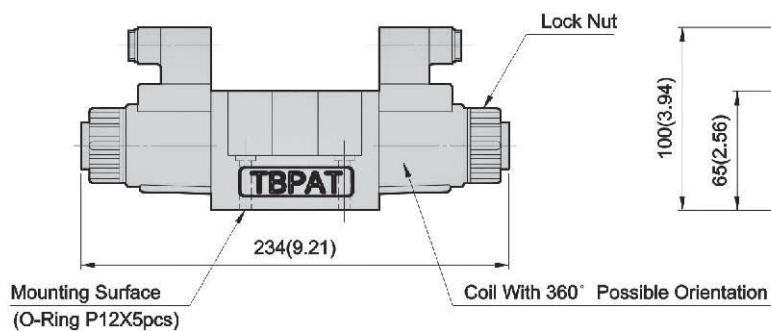
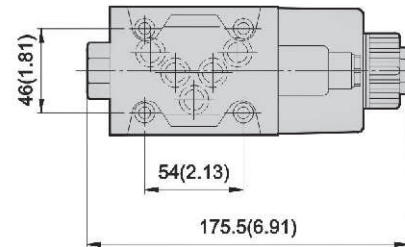
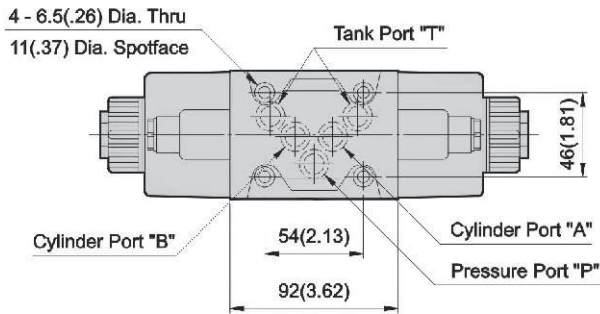
Solenoid Valves

DIMENSIONS

MILLIMETERS(INCHES)

DSG-N-03-AC

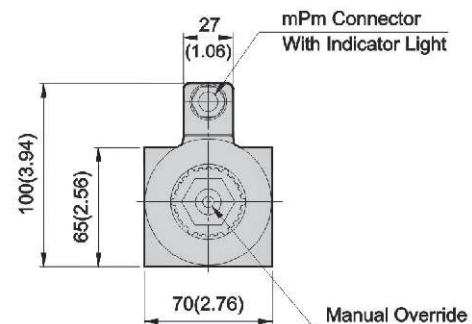
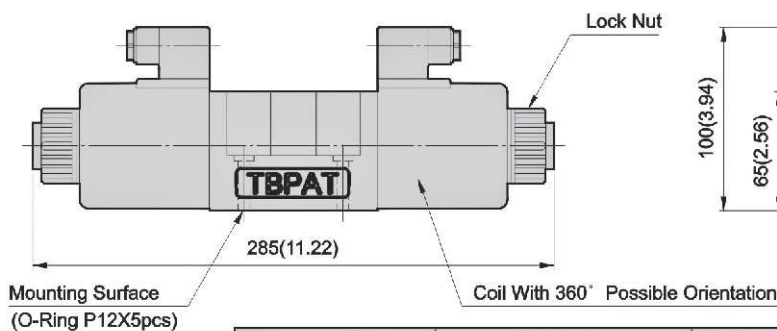
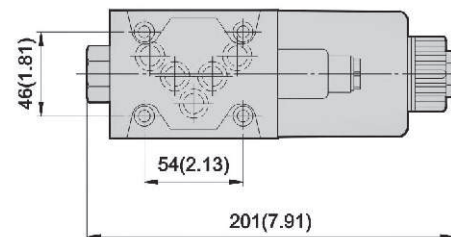
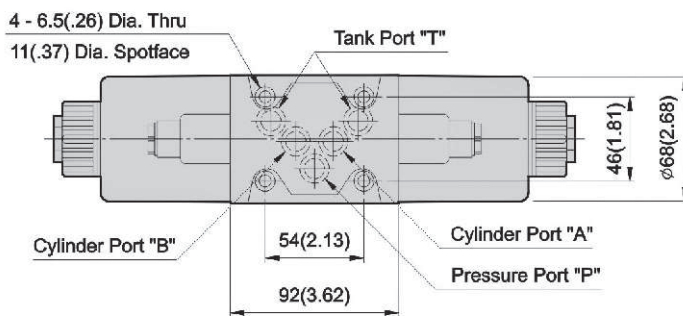
MOUNTING SURFACE:DSG-03-CETOP5
ISO 05-NFPAD05



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M6 X35LgX4pcs	12-15 Nm	30
Soc. Hd. Cap Screw	1/4-20UNCX1-1/2"LgX4pcs	105-130 in.lbs	3090

DSG-N-03-DC/RAC

MOUNTING SURFACE:DSG-03-CETOP5
ISO 05-NFPAD05



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M6 X35LgX4pcs	12-15 Nm	30
Soc. Hd. Cap Screw	1/4-20UNCX1-1/2"LgX4pcs	105-130 in.lbs	3090

B1



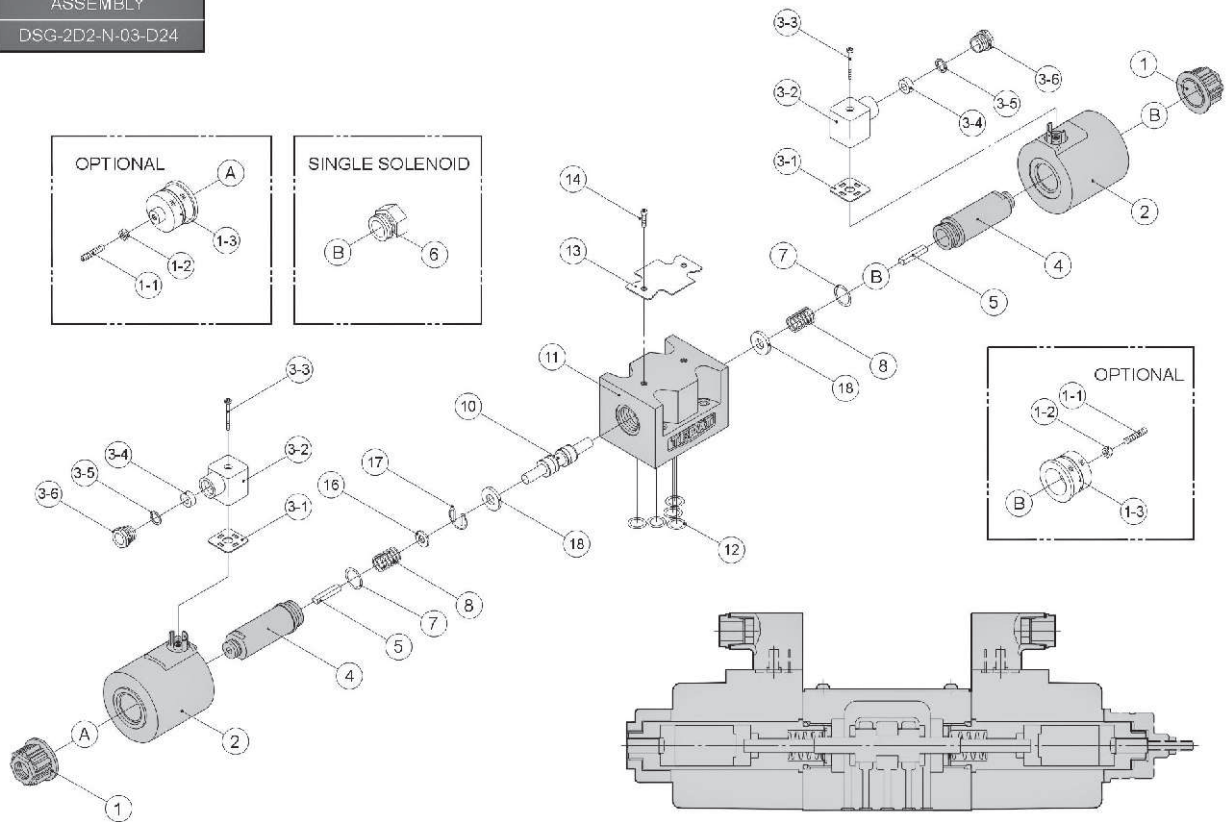
Bell
HYDROMATICS

Solenoid Valves

B1

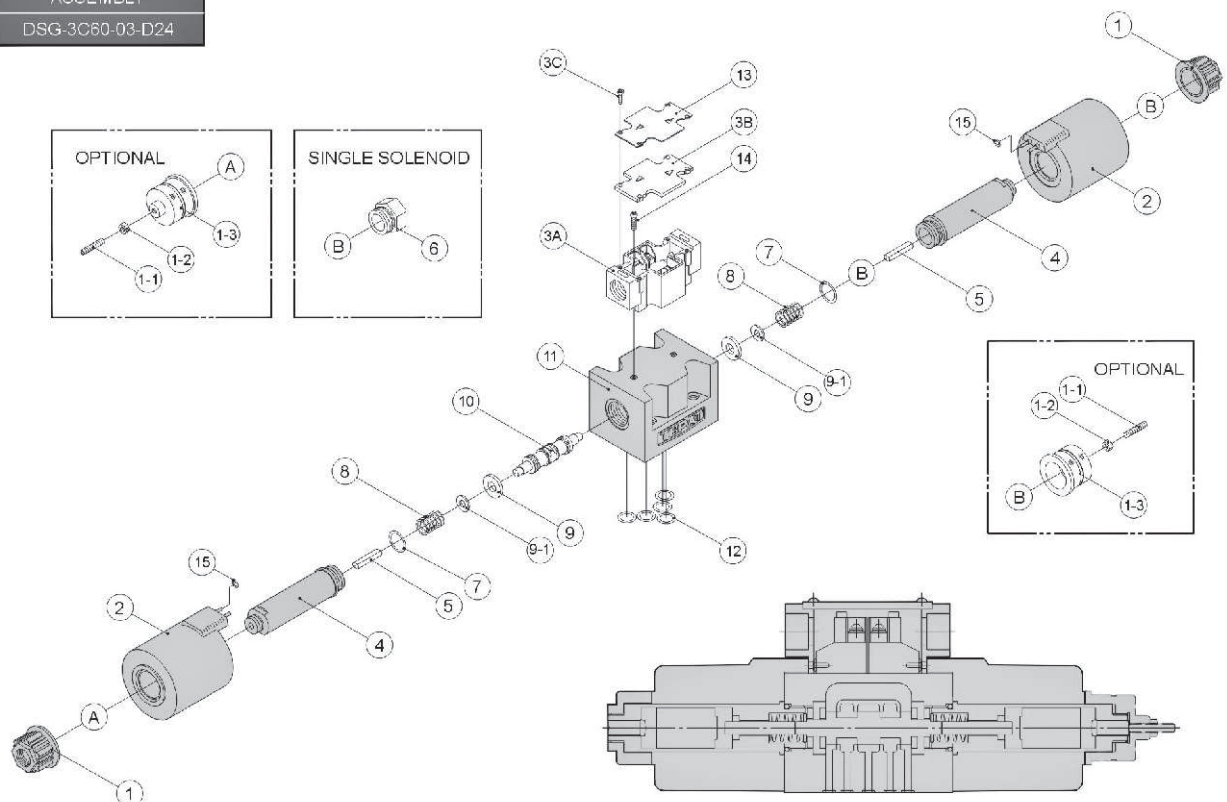
ASSEMBLY

DSG-2D2-N-03-D24



ASSEMBLY

DSG-3C60-03-D24





Bell
HYDROMATICS

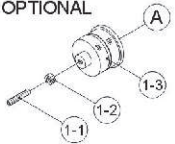
Solenoid Valves

B1

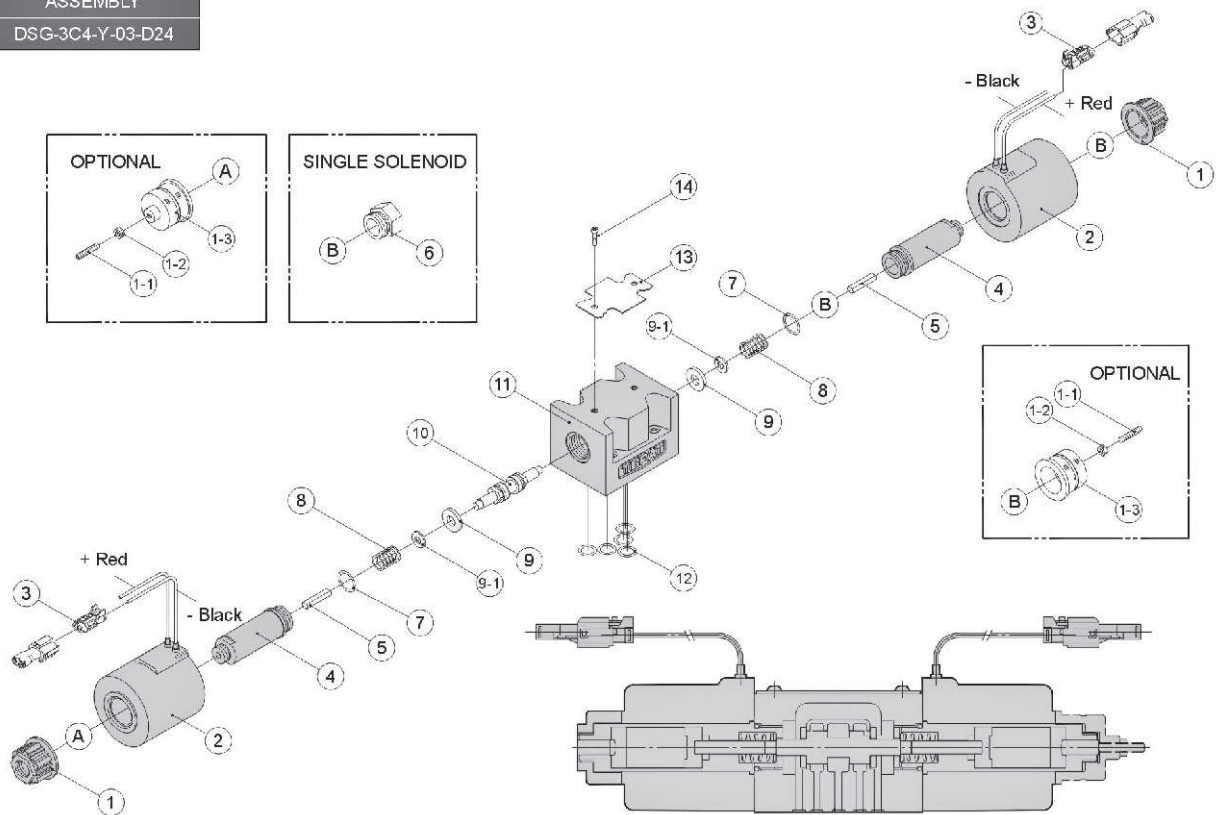
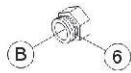
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OPTIONAL



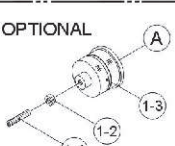
SINGLE SOLENOID



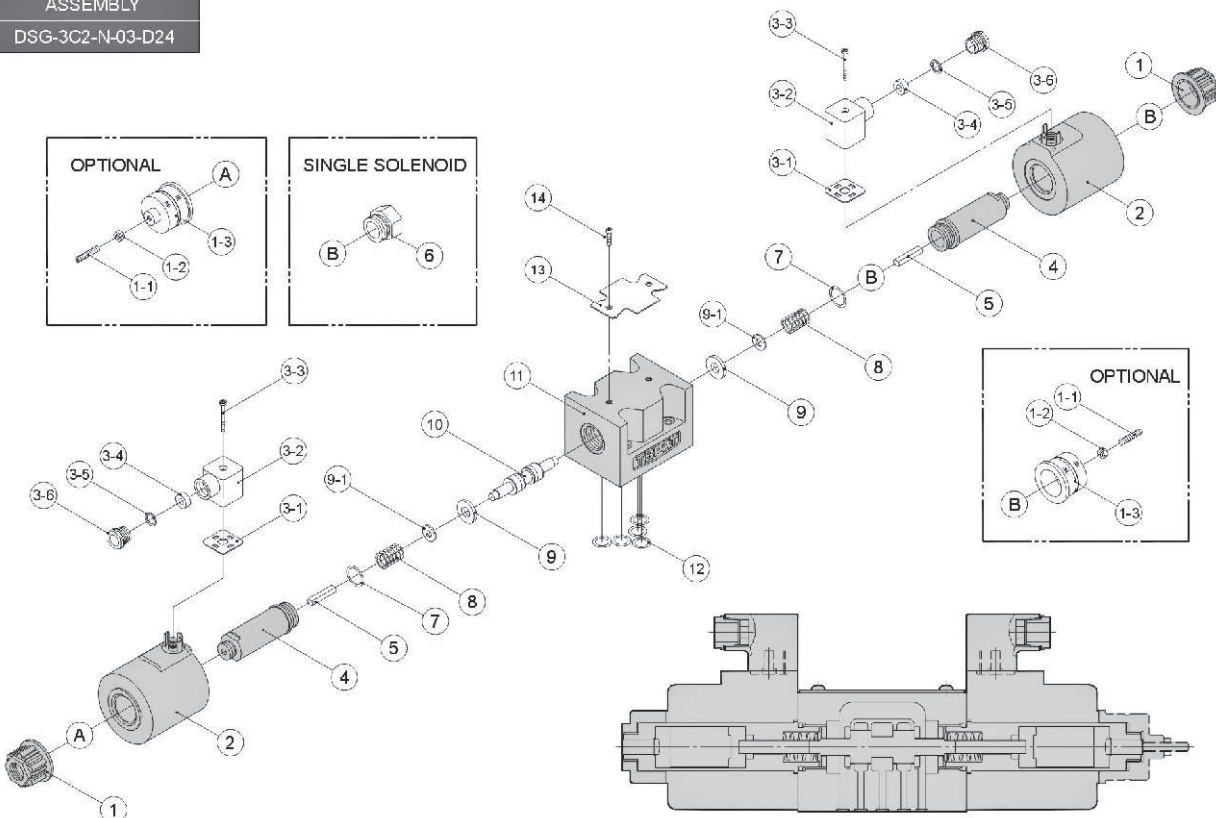
ASSEMBLY

DSG-3C2-N-03-D24

OPTIONAL



SINGLE SOLENOID



PARTS LIST OF "DSG-01/03-(N)" SERIES

NO	PART NAME	DSGX-01	DSG-01-AC	DSG-01-DC	DSG-03-AC	DSG-03-DC
1	Lock Nut	GX01001	G01001	G01001	G03001	G03001
2	Coil	GX01002(★)	G01002(★)	G01002(★)	G03002(★)	G03002(★)
4	Solenoid Core	GX01004	G01004A	G01004D	G03004A	G03004D
5	Push Pin	GX01005	G01005	G01005	G03005	G03005
6/B	Back Cover	GX01006	G01006	G01006	G03006	G03006
7	O-Ring	P18 x 2pcs	P18 x 2pcs	P18 x 2pcs	P21 x 2pcs	P21 x 2pcs
8	Spring	GX01008	G01008	G01008	G03008(◆)	G03008(◆)
9	Retainer	G01009	G01009	G01009	G03009	G03009
9-1	Spring stop	-----	-----	-----	G03009-1	G03009-1
10	Spool	G01010(※)	G01010(※)	G01010(※)	G03010(※)	G03010(※)
11	Body	G01011	G01011	G01011	G03011	G03011
12	O-Ring	P9 x 4pcs	P9 x 4pcs	P9 x 4pcs	P12 x 5pcs	P12 x 5pcs
16	Detent Guide	G01016	G01016	G01016	G03016	G03016
17	Detent Kit	G01017	G01017	G01017	G03017	G03017
18	Detent Hold	-----	-----	-----	G03018	G03018
A	Stroke Limiter	GX01SLA	G01SLA	G01SLA	G03SLA	G03SLA
1-1	Fixing Screw	GX01SL1	G01SL1	G01SL1	G03SL1	G03SL1
1-2	Steel Nut	GX01SL2	G01SL2	G01SL2	G03SL2	G03SL2
1-3	Lock Nut	GX01SL3	G01SL3	G01SL3	G03SL3	G03SL3

DIN CONNECTOR TYPE 'DIN 43650'

NO	PART NAME	DSGX-N-01	DSG-N-01-AC	DSG-N-01-DC	DSG-N-03-AC	DSG-N-03-DC
3	DIN Connector	43650 AC/DC	43650 AC	43650 DC	43650 AC	43650 DC
13	Nameplate	G01013(※)	G01013(※)	G01013(※)	G03013(※)	G03013(※)
14	Fixing Screw	G01014	G01014	G01014	G03014	G03014
3-1	Gasket	43650-1	43650-1	43650-1	43650-1	43650-1
3-2	Housing	43650-2	43650-2	43650-2	43650-2	43650-2
3-3	Fixing Screw	43650-3	43650-3	43650-3	43650-3	43650-3
3-4	Grommet	43650-4	43650-4	43650-4	43650-4	43650-4
3-5	Washer	43650-5	43650-5	43650-5	43650-5	43650-5
3-6	Gland Nut	43650-6	43650-6	43650-6	43650-6	43650-6

LEAD-WIRE TYPE 'SWP CONNECTOR'

NO	PART NAME	DSGX-01	DSG-01-AC	DSG-01-DC	DSG-03-AC	DSG-03-DC
3	SWP Connector	ST 730496-3	ST 730496-3	ST 730496-3	ST 730496-3	ST 730496-3
13	Nameplate	G01013(※)	G01013(※)	G01013(※)	G03013(※)	G03013(※)
14	Fixing Screw	G01014	G01014	G01014	G03014	G03014

TERMINAL BOX TYPE

NO	PART NAME	DSGX-01	DSG-01-AC	DSG-01-DC	DSG-03-AC	DSG-03-DC
3	Terminal Box	Ele TB ACT	Ele TB ACT	Ele TB DCT	Ele TB ACT	Ele TB DCT
13	Nameplate	G01013E(※)	G01013E(※)	G01013E(※)	G03013E(※)	G03013E(※)
14	Fixing Screw	G01014P	G01014P	G01014P	G03014P	G03014P
15	O-Ring	P4 x 2 pcs	P4 x 2 pcs	P4 x 2 pcs	P4 x 2 pcs	P4 x 2 pcs
3A	Terminal Box	Ele TB AC	Ele TB AC	Ele TB DC	Ele TB AC	Ele TB DC
3B	Plastic Cover	GPC96	GPC96	GPC96	GPC96	GPC96
3C	Fixing Screw	GPC96S	GPC96S	GPC96S	GPC96S	GPC96S

※: Spool Type: 2B2, 2B3, 3C2, 3C3, 3C4.....

★: Coil Voltages: A110, A220., D12, D24., RAC110, RAC220.....

◆: Spring: The spool between 3C2-03 & 3C6-03 is different.

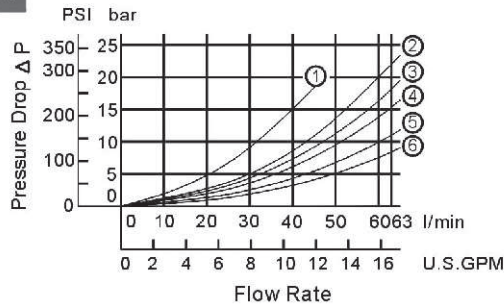


Bell
HYDROMATICS

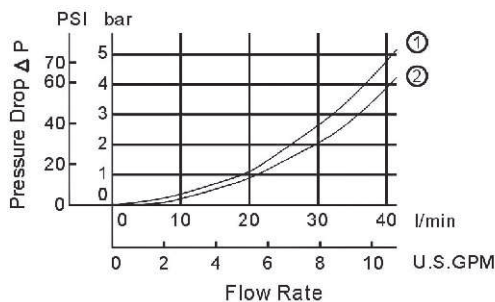
Solenoid Valves

PRESSURE DROP

DSG-01



DSG-01-S

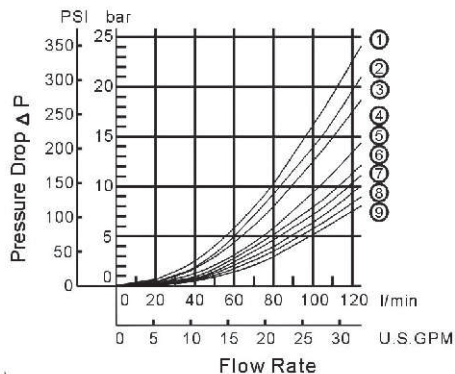


Series	Spool Type	Pressure Drop Curve Number				
		P→A	B→T	P→B	A→T	P→T
DSG-01	3C2	⑤	⑤	⑤	⑤	—
	3C3	⑥	⑥	⑥	⑥	④
	3C4	⑤	⑥	⑤	⑥	—
	3C40	⑤	⑤	⑤	⑤	—
	3C60	①	①	①	①	④
	3C9	⑥	⑤	⑥	⑤	—
	3C10	⑤	⑥	⑤	⑥	—
	3C12	⑤	⑤	⑤	⑥	—
	2D2	⑤	②	⑤	②	—
	2B2	②	②	⑤	⑤	—
	2B3	③	③	⑤	⑥	—
	2B8	⑤	—	⑤	—	—

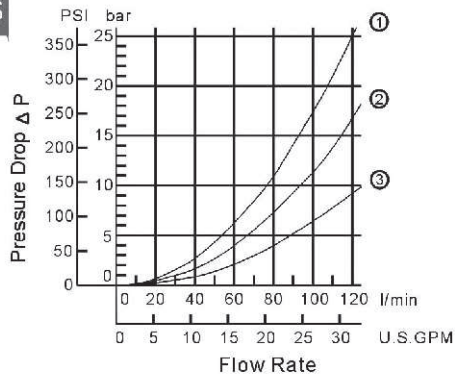
Series	Spool Type	Pressure Drop Curve Number			
		P→A	B→T	P→B	A→T
DSG-01-S	3C2	①	①	①	①
	3C4	①	②	①	②
	2B2	①	①	①	①

Graphs based on fluid viscosity of 35 cSt(162 SSU) .

DSG-03



DSG-03-S



Series	Spool Type	Pressure Drop Curve Number				
		P→A	B→T	P→B	A→T	P→T
DSG-03	3C2	⑦	⑦	⑦	⑦	—
	3C3	⑨	⑨	⑨	⑨	⑤
	3C4	⑦	⑧	⑦	⑧	—
	3C40	⑦	⑦	⑦	⑦	—
	3C60	⑥	⑤	⑥	⑤	①
	3C9	⑨	⑦	⑨	⑦	—
	3C10	⑦	⑧	⑦	⑦	—
	3C12	⑦	⑦	⑦	⑧	—
	2D2	④	③	⑥	⑥	—
	2B2	②	①	⑦	⑦	—
	2B3	③	②	⑨	⑨	—
	2B8	⑥	—	⑤	—	—

Series	Spool Type	Pressure Drop Curve Number			
		P→A	B→T	P→B	A→T
DSG-03-S	3C2	②	②	②	②
	3C4	②	②	③	③
	2B2	①	②	②	②

Graphs based on fluid viscosity of 35 cSt(162 SSU) .

FLOW LIMITATIONS :

Pressure drop is influenced by forces acting within the valve. The graphs shown assume simultaneous equal flow rates P to A or B, and from A or B to T.

Care should be taken in applications where high flow rates are used in conjunction with high pressure. i.e. greater than 250 bar(3600PSI).

Also when single flow paths, or substantially different simultaneous flow rates are required between P to A or B, and A or B to T.

B1

**Bell**
HYDROMATICS

Solenoid Valves

B1

ORDERING CODE

M01 - **03** - **4B** - **30**

DESIGN NO

30: with PT thread
3090: with NPT thread

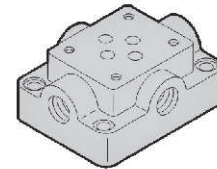
PORT POSITION

4S: four ports (A,B,P,T) side ports
4B: four ports (A,B,P,T) back ports
2S2B: two ports (A,B) in side and two ports (P,T) in back
3S1B: three ports (A,B,P) in side and one port (T) in back
3S1B2: three ports (A,B,P) in side (A+B one side) and one port (T) in back
4S4B: four ports (A,B,P,T) in side, four ports (A,B,P,T) in back and supplied with 4 pcs plugs.

PORT SIZE

02: 1/4"
03: 3/8"
04: 1/2"
06: 3/4"
10: 1-1/4"

SERIES NUMBER

M01: Subplates for DSG-01 and DSGX-01 solenoid valves
M03: Subplates for DSG-03 solenoid valves
M04: Subplates for DSHG-04 solenoid controlled pilot operated valves
M06: Subplates for DSHG-06 solenoid controlled pilot operated valves
M10: Subplates for DSHG-06 solenoid controlled pilot operated valvesThe installation surfaces should be finer than $\frac{6.3S}{\sqrt{V}}$

SUBPLATE PORT POSITION

MODEL	4S	4B	2S2B	3S1B	3S1B2
M01	O	O	O	O	X
M03	O	O	O	O	O
M04	O	O	X	X	X
M06	O	O	X	X	X
M10	X	O	X	X	X

SUBPLATE PORT SIZE

MODEL	02	03	04	06	08	10
M01	O	O	X	X	X	X
M03	X	O	O	X	X	X
M04	X	X	O	O	X	X
M06	X	X	X	O	O	X
M10	X	X	X	X	X	O

SUBPLATE WEIGHT

Unit: kg/pc

MODEL	4S	4B	2S2B	3S1B	3S1B2
M01	1.10	1.10	1.10	1.10	X
M03	3.10	2.20	3.10	3.10	3.10
M04	4.80	3.00	X	X	X
M06	9.50	4.60	X	X	X
M10	X	17.00	X	X	X

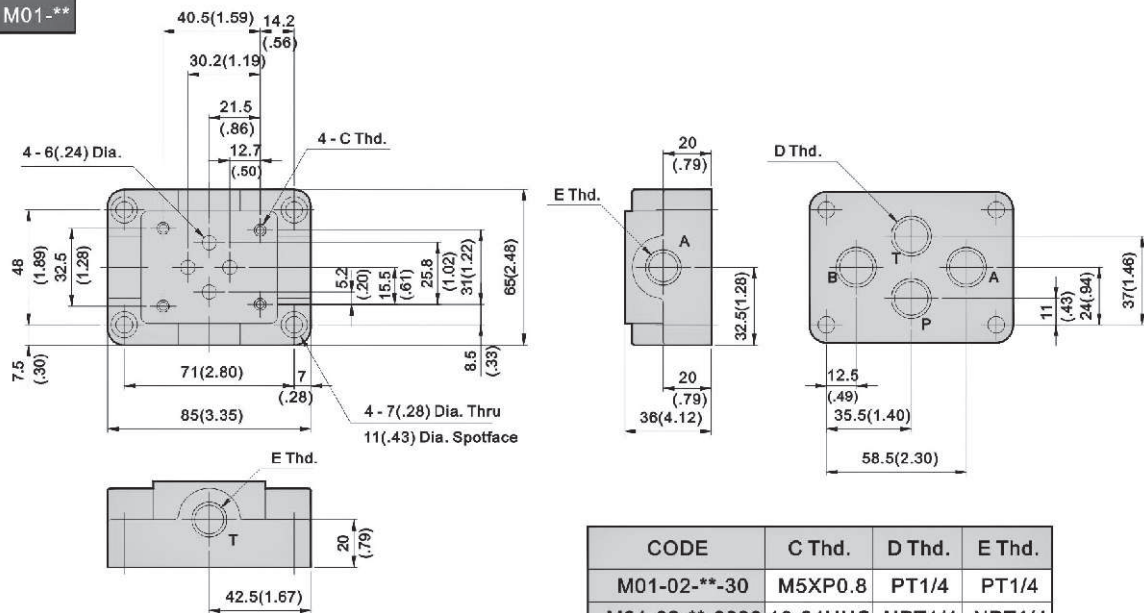
Solenoid Valves

SUBPLATE

DIMENSIONS:MILLIMETERS(INCHES)

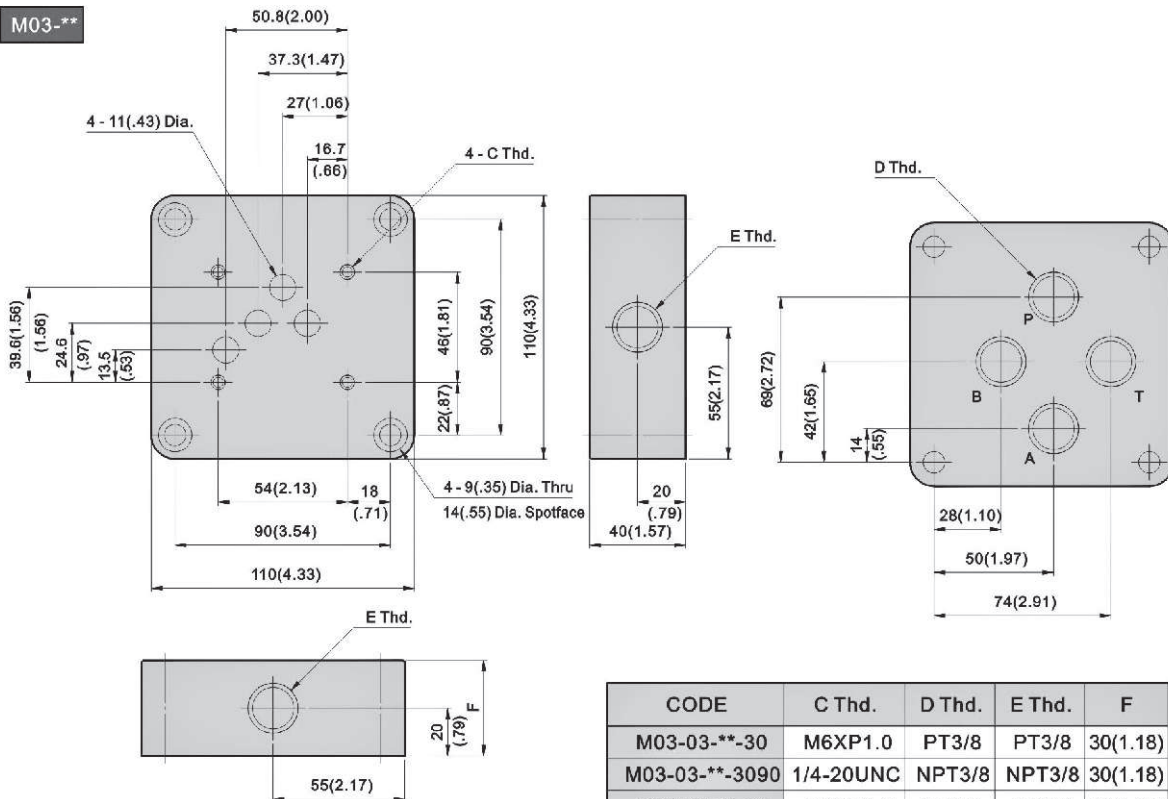
B1

M01-**-



CODE	C Thd.	D Thd.	E Thd.
M01-02-**-30	M5XP0.8	PT1/4	PT1/4
M01-02-**-3090	10-24UNC	NPT1/4	NPT1/4
M01-03-**-30	M5XP0.8	PT3/8	PT3/8
M01-03-**-3090	10-24UNC	NPT3/8	NPT3/8

M03-**-



CODE	C Thd.	D Thd.	E Thd.	F
M03-03-**-30	M6XP1.0	PT3/8	PT3/8	30(1.18)
M03-03-**-3090	1/4-20UNC	NPT3/8	NPT3/8	30(1.18)
M03-04-**-30	M6XP1.0	PT1/2	PT1/2	30(1.18)
M03-04-**-3090	1/4-20UNC	NPT1/2	NPT1/2	30(1.18)

" F " is for port position " 4B " type only.



Bell
HYDROMATICS

Solenoid Valves

B1

ORDERING CODE

MM01 - 5S - 30

DESIGN NO

30: with PT thread
3090: with NPT thread

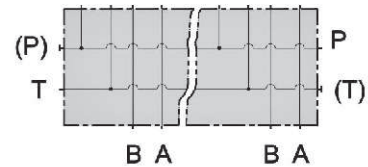
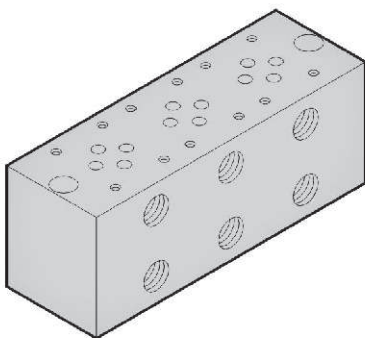
NUMBER OF STATIONS

1S : 1 Station
2S : 2 Stations
3S : 3 Stations
4S : 4 Stations
5S : 5 Stations
6S : 6 Stations
7S : 7 Stations
8S : 8 Stations
9S : 9 Stations

SERIES NUMBER

MM01: Manifolds for DSG-01 and DSGX-01 solenoid valves
MM03: Manifolds for DSG-03 solenoid valves

1. The installation surface should be finer than $\frac{6.3S}{\sqrt{W}}$
2. Material: Casting iron FC 30 (or steel or aluminium)
3. Max Working Pressure: 315 bar





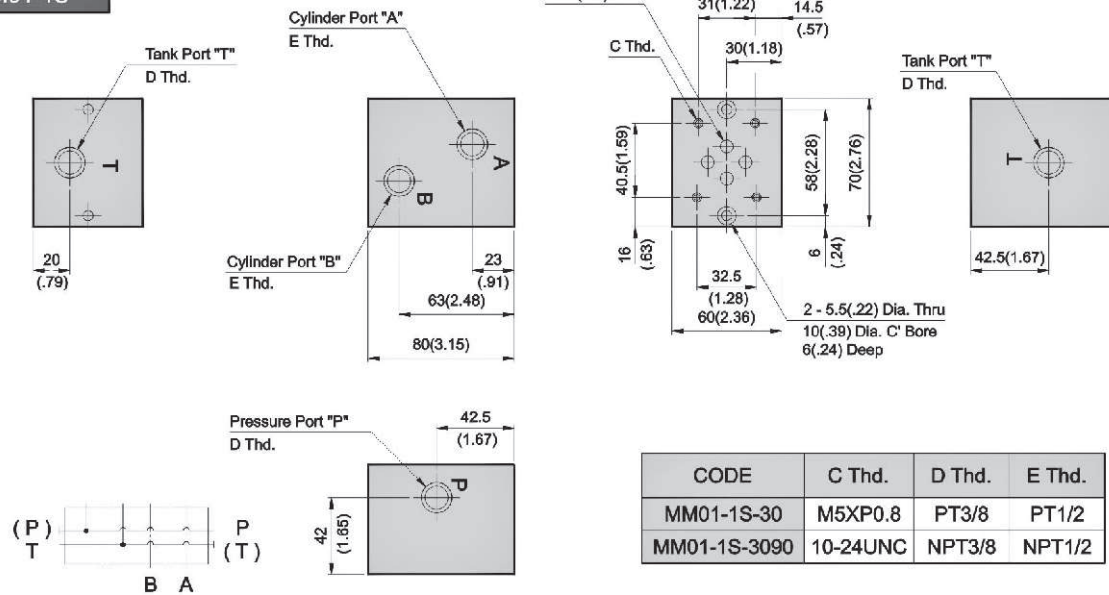
Bell
HYDROMATICS

Solenoid Valves

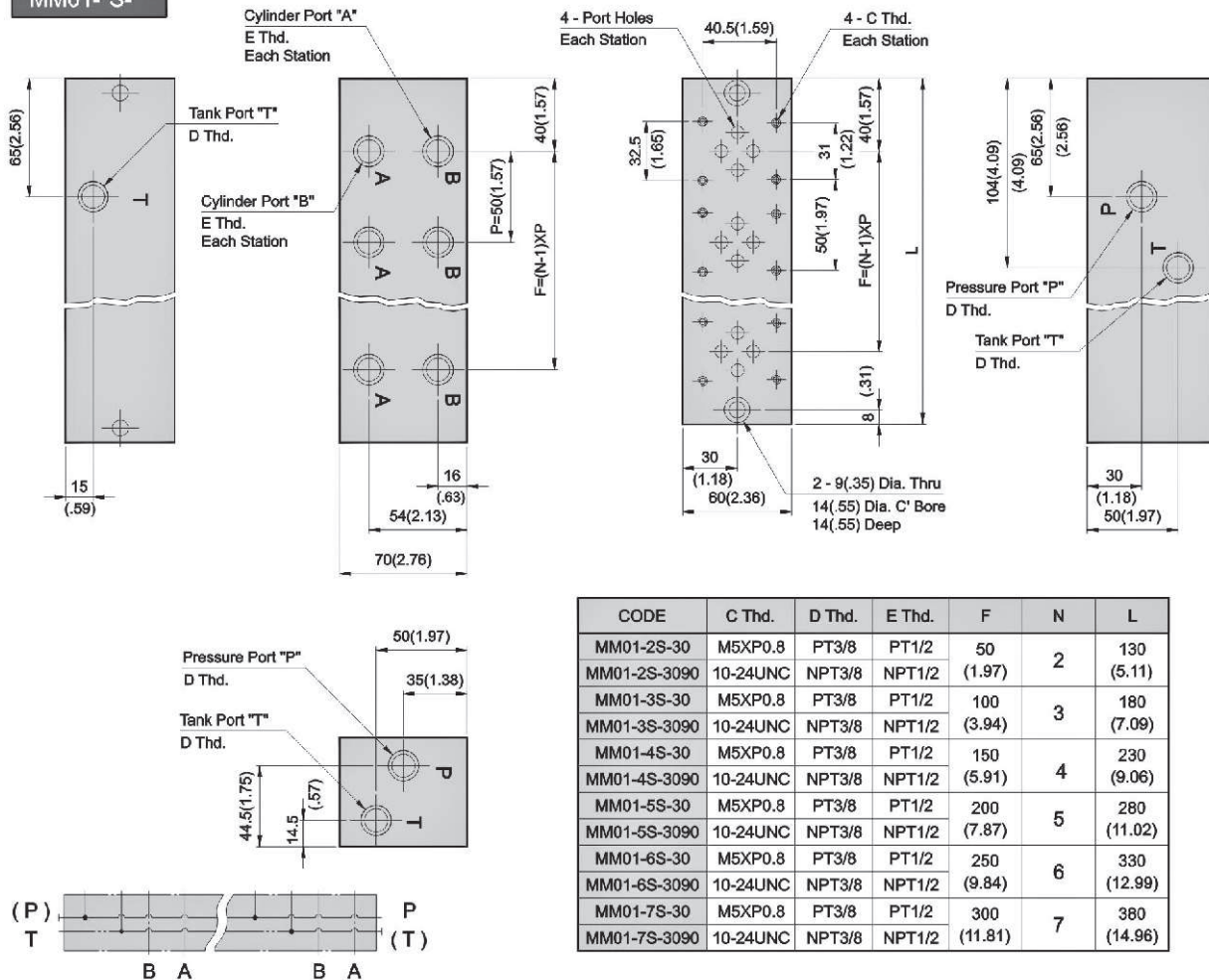
MANIFOLDS

DIMENSIONS: MILLIMETERS (INCHES)

MM01-1S-**



MM01-*S-**



B1



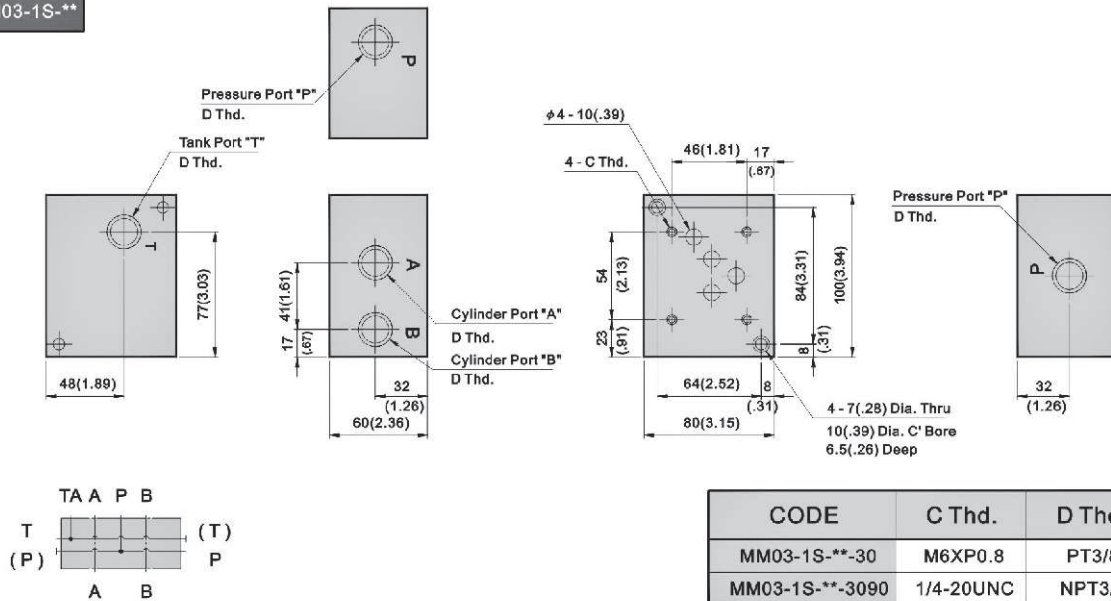
Bell
HYDROMATICS

Solenoid Valves

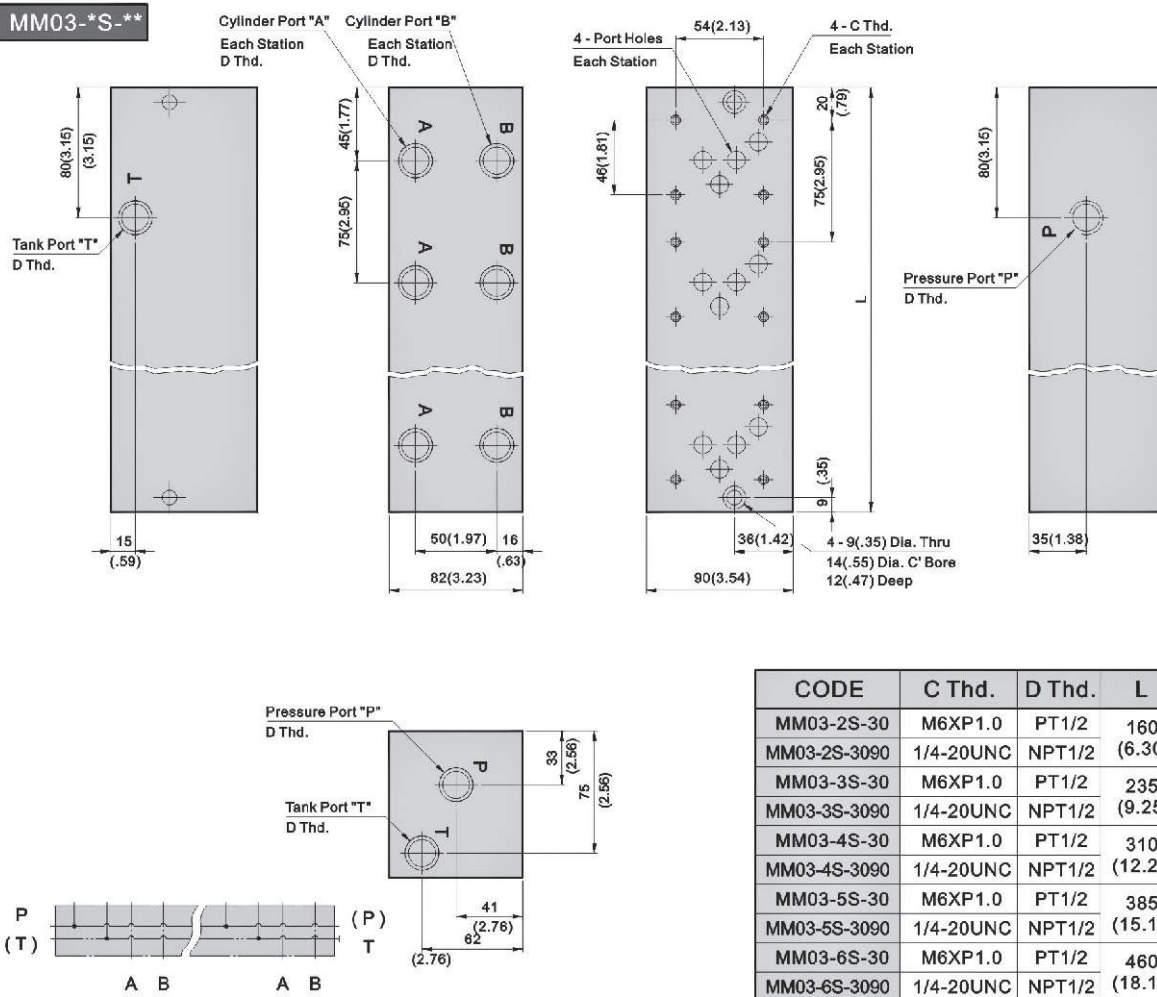
MANIFOLDS

DIMENSIONS: MILLIMETERS(INCHES)

MM03-1S-**-



MM03-S-**-



B1

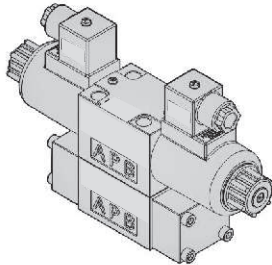


Bell
HYDROMATICS

Solenoid Valves

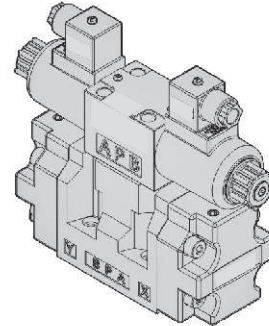
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVES DSHG TYPE

DSHG-N-01



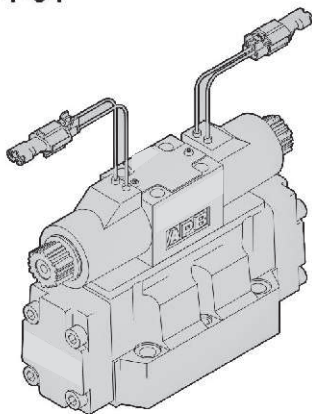
Max. Pressure : 210bar (3000PSI)
Max. Flow : 40lpm (10.6USgpm)

DSHG-N-03



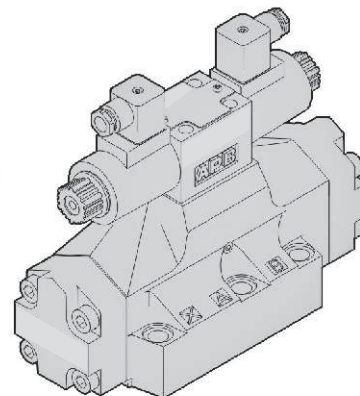
Max. Pressure : 250bar (3600PSI)
Max. Flow : 160lpm (42.3USgpm)

DSHG-Y-04



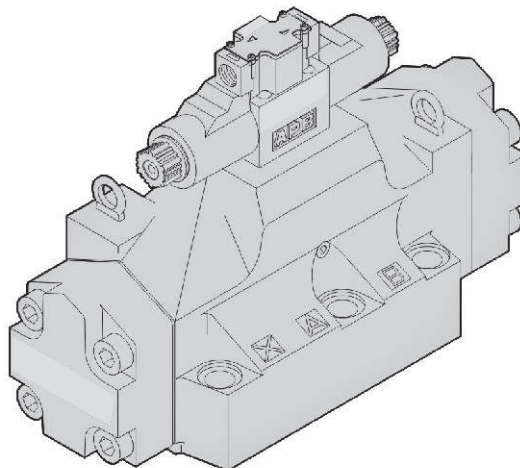
Max. Pressure : 250bar (3600PSI)
Max. Flow : 300lpm (79.3USgpm)

DSHG-N-06



Max. Pressure : 250bar (3600PSI)
Max. Flow : 500lpm (132USgpm)

DSHG-10



Max. Pressure : 250bar (3600PSI)

Max. Flow : 1100lpm (291USgpm)

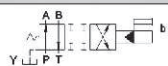
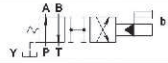
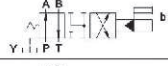
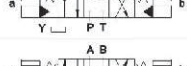
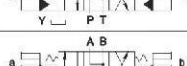
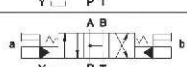
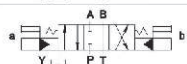
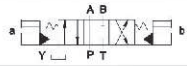
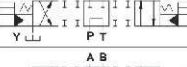
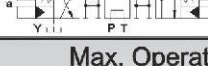
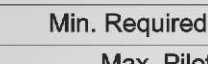
B2



Bell
HYDROMATICS

Solenoid Valves

MODEL NO SPECIFICATIONS (Solenoid Controlled Pilot Operated Directional Valves)

Spool Type & Graphic Symbols		Rated Flow Capacity -Maximum Flow Capacity							
SYMBOLS	MODEL NO	DSHG-01	DSHG-03	DSHG-04	DSHG-06	DSHG-10			
	DSHG-2B2-**-	~40 lpm (~10.6USgpm)	60~160 lpm (15.9~42.3USgpm)	135~300 lpm (35.7~79.3USgpm)	310~500 lpm (82~132USgpm)	570~1100 lpm (150~291USgpm)			
	DSHG-2B3-**-								
	DSHG-2B4-**-								
	DSHG-2N2-**-								
	DSHG-2N3-**-								
	DSHG-3C2-**-								
	DSHG-3C3-**-								
	DSHG-3C4-**-								
	DSHG-3C40-**-								
	DSHG-3C7-**-								
	DSHG-3C9-**-								
	DSHG-3C10-**-								
	DSHG-3C11-**-								
	DSHG-3C12-**-								
	DSHG-3C5-**-	~40 lpm (~10.6USgpm)	60~160 lpm (15.9~42.3USgpm)	245~280 lpm (64.8~74.5USgpm)	230~450 lpm (60.8~120USgpm)	570~950 lpm (150~250USgpm)			
	DSHG-3C6-**-								
	DSHG-3C60-**-								
Max. Operating Pressure (bar)		315 (4500 PSI)							
Min. Required Pilot Pressure (bar)		8 (114 PSI)				10 (143 PSI)			
Max. Pilot Pressure (bar)		250 (3600 PSI)							
Permissible Back Pressure (T) (bar) Ext. Drain		210 (3000 PSI)							
Permissible Back Pressure (T) (bar) Int. Drain		160 (2300 PSI)							
Weight (Kgs)	Double Solenoid	3.5	7.2	8.9	12.8	45.4			
	Single Solenoid	2.9	6.6	8.3	12.2	44.8			
Switching Frequency (times/min)		120	120	120	120	110			
Hydraulic Fluids		Use Hydraulic Fluids Equivalent to ISO VG32 or VG46							
Operating Temperature Range Recommended (°C)		-15 ~ +70 (+5 ~ +160°F)							
Operating Viscosity (cSt)		15 ~ 400 (80 ~ 1800SSU)							
Filtration		25 Microns Absolute or Finer							

B2



Bell
HYDROMATICS

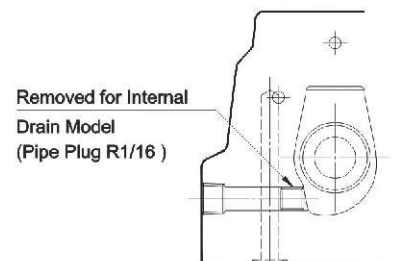
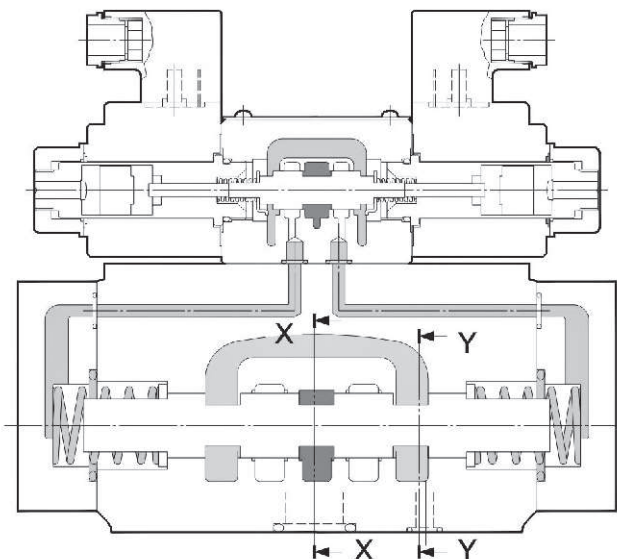
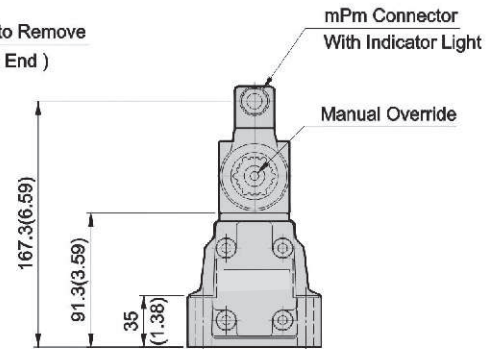
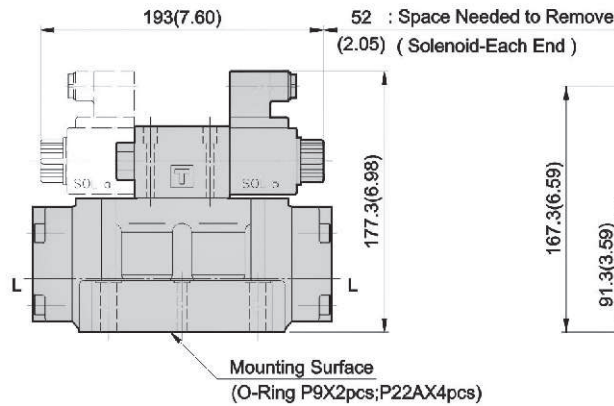
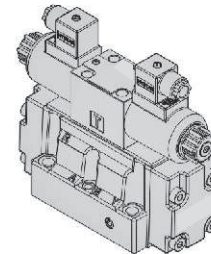
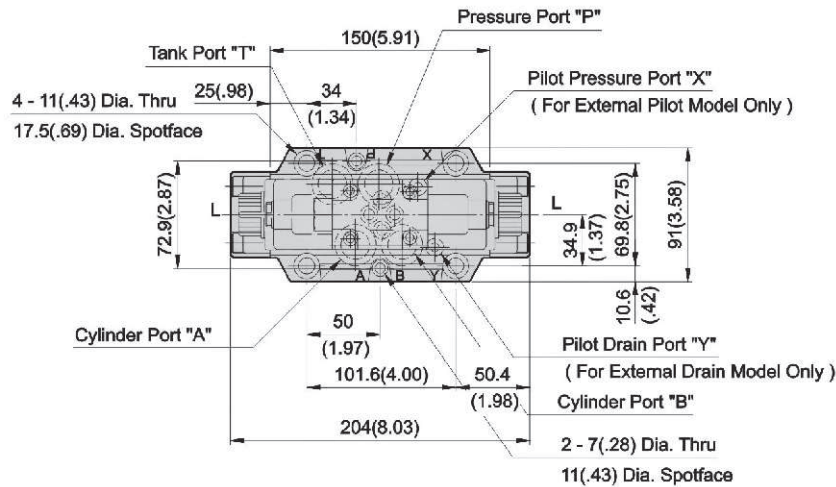
Solenoid Valves

DIMENSIONS

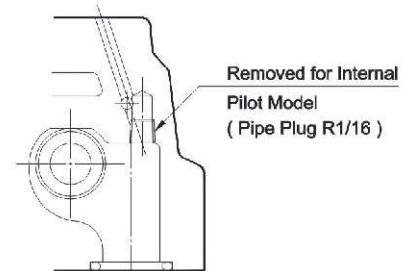
MILLIMETERS(INCHES)

04(1/2")(S)DSHG-***-N-04

MOUNTING SURFACE: DSHG-04-CETOP7
ISO 07-NFPAD07



Section Y-Y



Section X-X

Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M6X45LgX2pcs	12-15 Nm	30
	M10X45LgX4pcs	58-72 Nm	
Soc. Hd. Cap Screw	1/4-20UNCX1-3/4"LgX2pcs	104-130 in.lbs	3090
	3/8-16UNCX1-3/4"Lg X4pcs	504-625 in.lbs	

B2

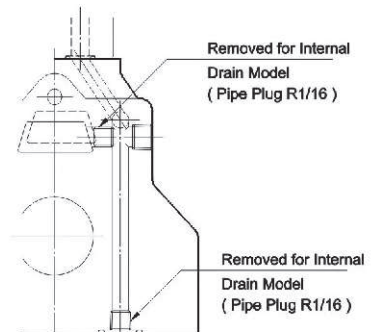
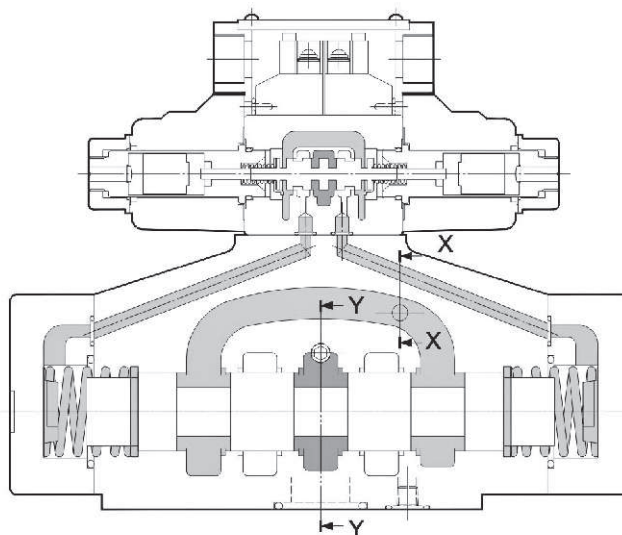
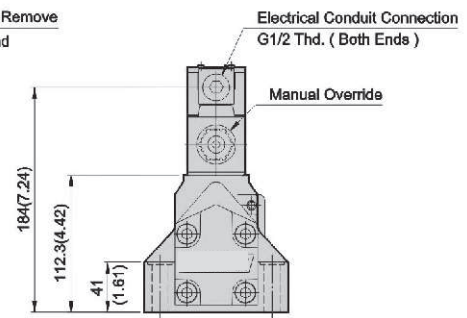
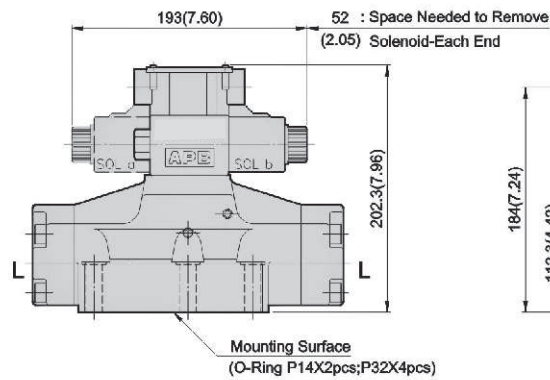
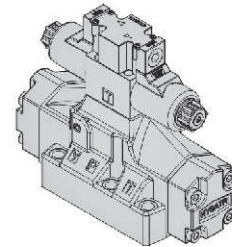
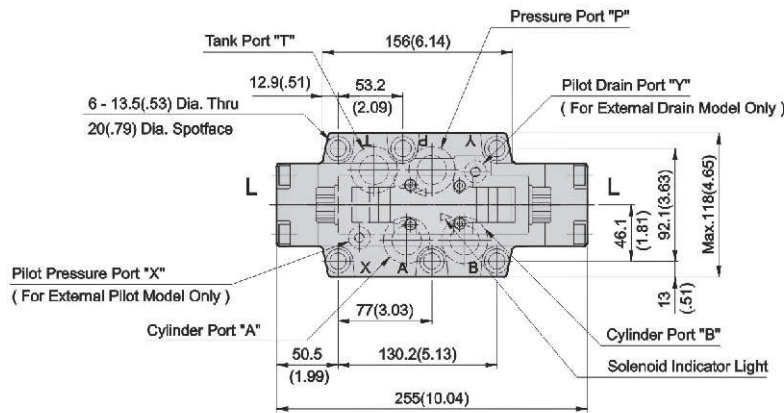
Solenoid Valves

DIMENSIONS

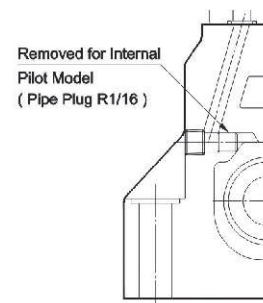
MILLIMETERS(INCHES)

06(3/4") (S) DSHG-***-06

MOUNTING SURFACE: DSHG-06-CETOP8
ISO 08-NFPAD08



Section X-X



Section Y-Y

Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M12X55Lg X6pcs	100-123 Nm	30
Soc. Hd. Cap Screw	1/2-13UNCX2-1/8"Lg X6pcs	868-1068 In.lbs	3090

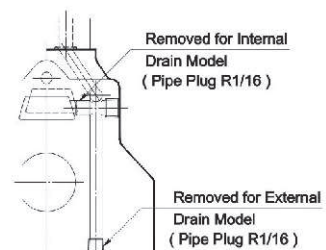
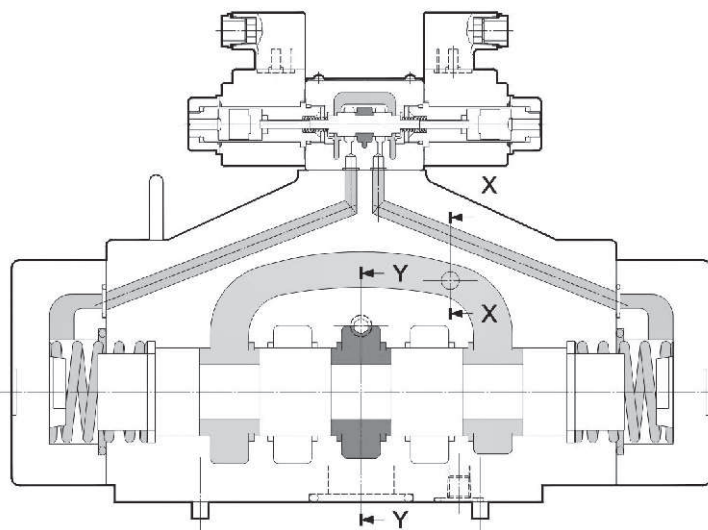
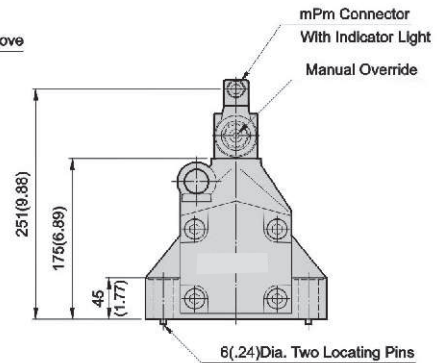
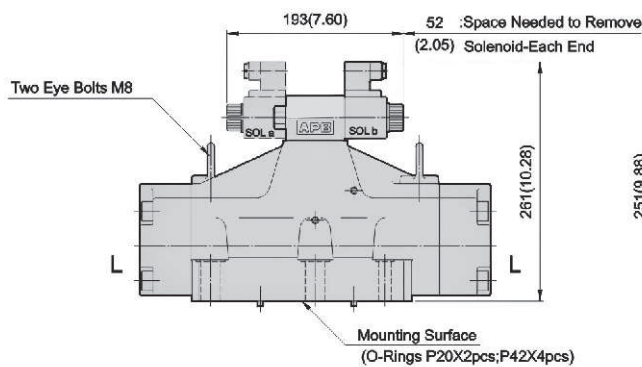
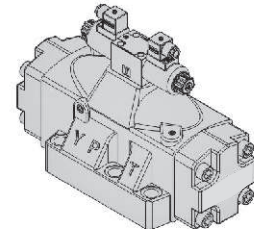
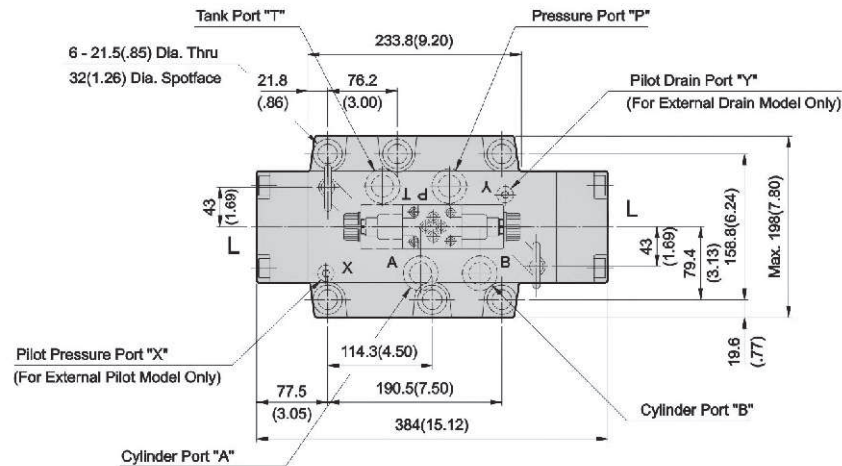
Solenoid Valves

DIMENSIONS

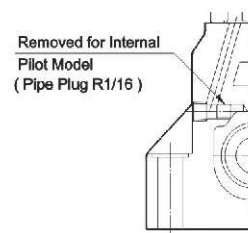
MILLIMETERS(INCHES)

10(1-1/4")X(S)DSHG-***-10

MOUNTING SURFACE: DSHG-10-CETOP10
ISO 10-NFPAD10



Section X-X



Section Y-Y

Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M20X75Lg X6pcs	473-585 Nm	30
Soc. Hd. Cap Screw	3/4-10UNCX3"Lg X8pcs	4106-5078 in.lbs	3090

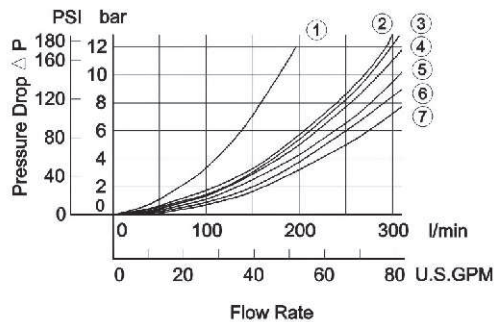


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HYDROMATICS

Solenoid Valves

PRESSURE DROP

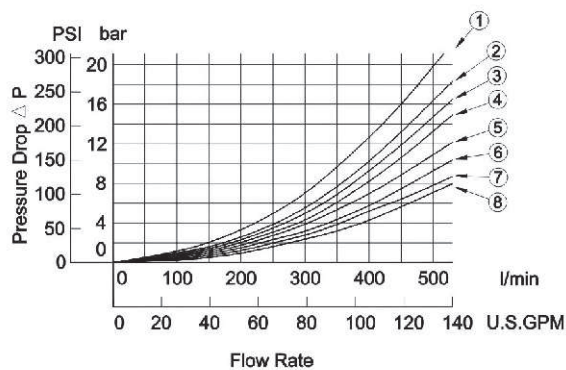
DSHG-04
DSHG-04-S



Series	Spool Type	Pressure Drop Curve Number				
		P→A	B→T	P→B	A→T	P→T
DSHG-04 DSHG-04-S	3C2	5 (2)	4 (2)	5 (2)	6 (4)	—
	3C3	5	3	5	5	7
	3C4	5 (2)	3 (3)	5 (2)	5 (5)	—
	3C40	5 (2)	4 (4)	5 (2)	6 (6)	—
	3C5	7	4	5	5	5
	3C6	5 (6)	3 (4)	5 (6)	6 (7)	1 (2)
	3C60	7	5	7	7	2
	3C7	5	4	5	6	—
	3C9	5	4	5	6	—
	3C10	5 (2)	2 (2)	5 (2)	6 (4)	—
	3C11	6	4	5	6	—
	3C12	5 (2)	4 (2)	5 (2)	5 (5)	—

Graphs based on fluid viscosity of 35 cSt (162 SSU).
Notes : () curve No. is for shock-less type.

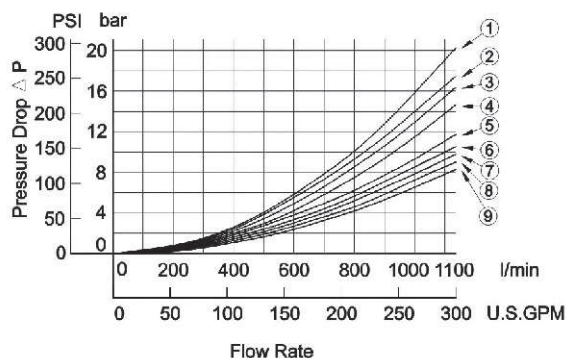
DSHG-06
DSHG-06-S



Series	Spool Type	Pressure Drop Curve Number				
		P→A	B→T	P→B	A→T	P→T
DSHG-06 DSHG-06-S	3C2	8 (6)	5 (1)	8 (6)	7 (2)	—
	3C3	6	4	6	7	6
	3C4	8 (6)	5 (2)	8 (6)	7 (2)	—
	3C40	8	5	8	7	—
	3C5	8	4	5	7	2
	3C6	5	1	5	4	3
	3C60	6 (6)	5 (2)	6 (6)	7 (3)	3 (1)
	3C7	6	4	6	7	—
	3C9	6	5	6	7	—
	3C10	8	5	8	7	—
	3C11	8	4	5	7	—
	3C12	8	5	8	7	—

Graphs based on fluid viscosity of 35 cSt (162 SSU).
Notes : () curve No. is for shock-less type.

DSHG-10
DSHG-10-S



Series	Spool Type	Pressure Drop Curve Number				
		P→A	B→T	P→B	A→T	P→T
DSHG-10 DSHG-10-S	3C2	9 (8)	6 (3)	9 (8)	8 (4)	—
	3C3	7	6	7	7	5
	3C4	9 (8)	6 (5)	9 (8)	6 (6)	—
	3C40	9	6	9	8	—
	3C5	9	6	8	6	1
	3C6	5	3	5	4	2
	3C60	8 (8)	5 (4)	8 (8)	5 (4)	3 (2)
	3C7	7	6	7	7	—
	3C9	7	6	7	8	—
	3C10	9	5	9	8	—
	3C11	9	6	8	7	—
	3C12	9	7	9	6	—

Graphs based on fluid viscosity of 35 cSt (162 SSU).
Notes : () curve No. is for shock-less type.

FLOW LIMITATIONS :

Pressure drop is influenced by forces acting within the valve. The graphs shown assume simultaneous equal flow rates P to A or B, and from A or B to T.

Care should be taken in applications where high flow rates are used in conjunction with high pressure, i.e., greater than 250 bar (3600 PSI).

Also when single flow paths, or substantially different simultaneous flow rates are required between P to A or B, and A or B to T.

B2



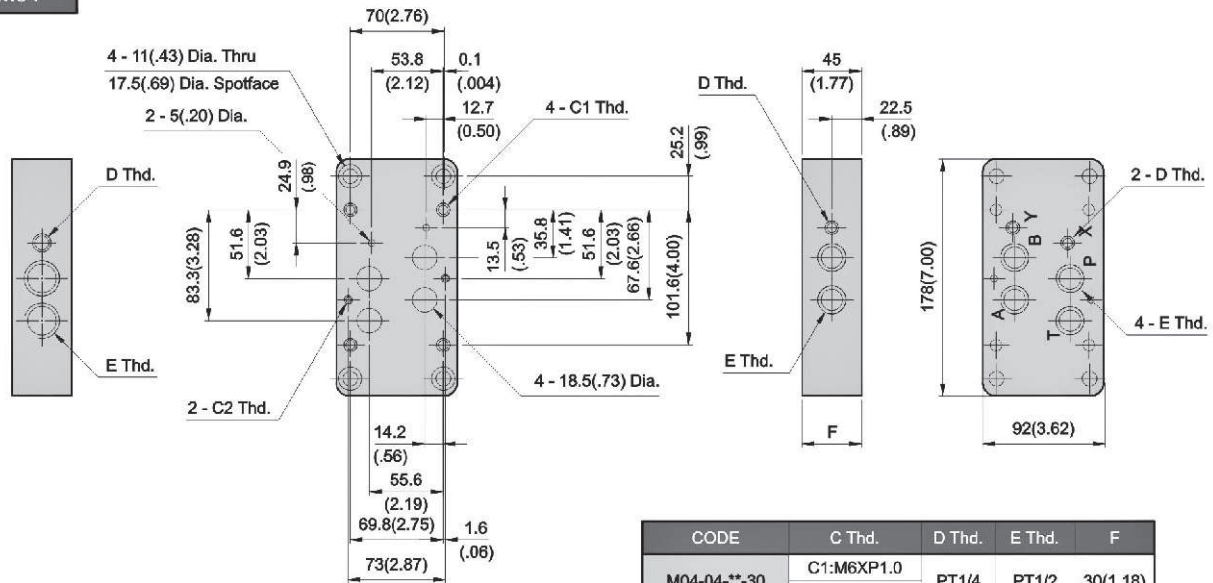
Bell
HYDROMATICS

Solenoid Valves

SUBPLATE

DIMENSIONS : MILLIMETERS(INCHES)

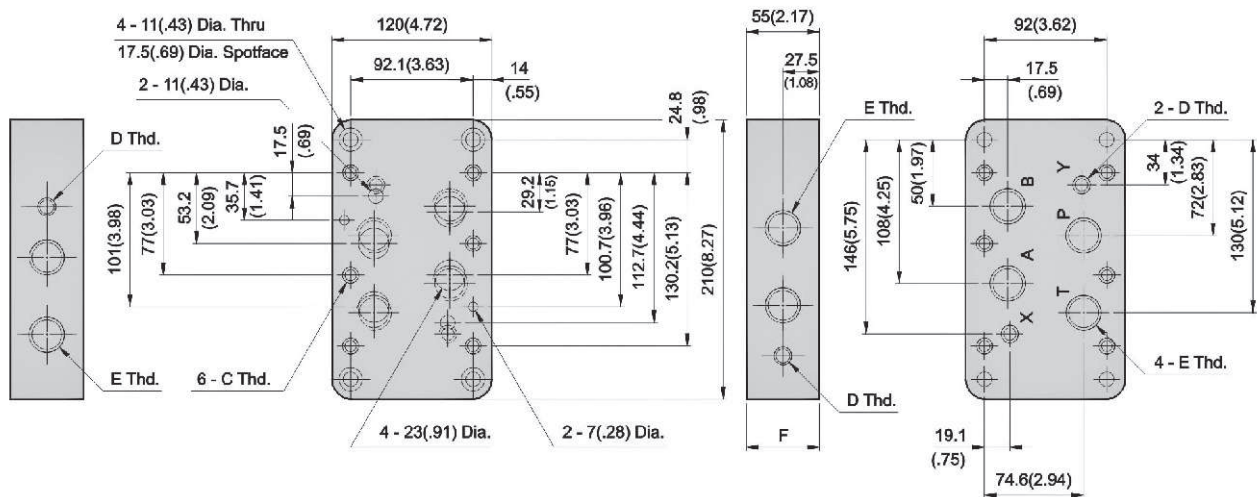
M04-**-



CODE	C Thd.	D Thd.	E Thd.	F
M04-04-**-30	C1:M6XP1.0 C2:M10XP1.25	PT1/4	PT1/2	30(1.18)
M04-04-**-3090	C1:1/4-20UNC C2:3/8-16UNC	NPT1/4	NPT1/2	30(1.18)
M04-06-**-30	C1:M6XP1.0 C2:M10XP1.25	PT3/8	PT3/4	—
M04-06-**-3090	C1:1/4-20UNC C2:3/8-16UNC	NPT3/8	NPT3/4	—

"F" is for port position "4B" type only.

M06-**-



CODE	C Thd.	D Thd.	E Thd.	F
M06-06-**-30	M12XP1.5	PT3/4	PT3/4	30(1.18)
M06-06-**-3090	1/2-13UNC	NPT3/4	NPT3/4	30(1.18)
M06-08-**-30	M12XP1.5	PT1"	PT1"	30(1.18)
M06-08-**-3090	1/2-13UNC	NPT1"	NPT1"	30(1.18)

"F" is for port position "4B" type only.

B2



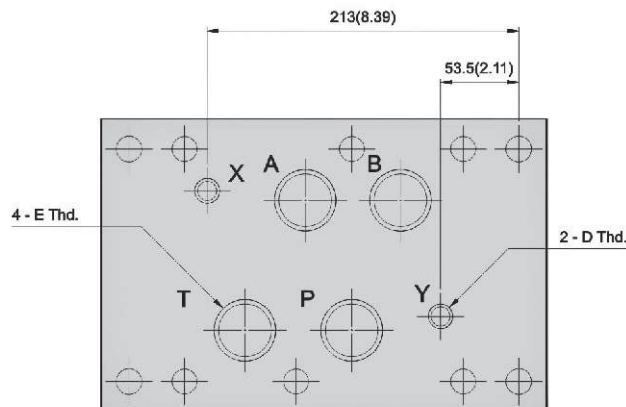
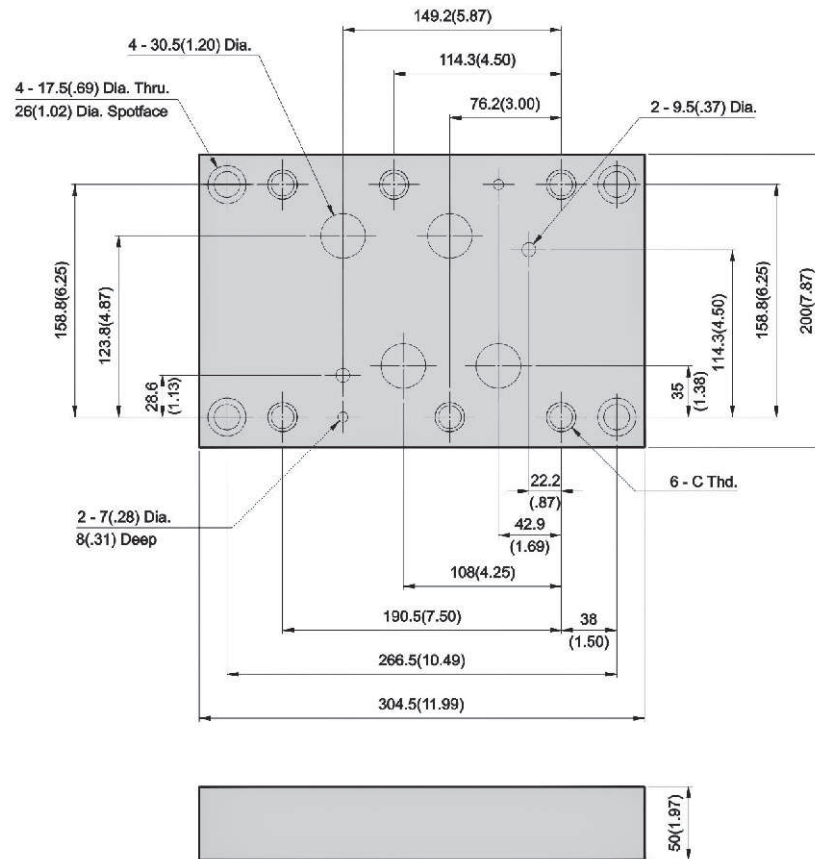
Bell
HYDROMATICS

Solenoid Valves

SUBPLATE

DIMENSIONS : MILLIMETERS(INCHES)

M10-**-



CODE	C Thd.	D Thd.	E Thd.
M10-10-**-30	M20XP2.5	PT1/4	PT1-1/4
M10-10-**-3090	3/4-10UNC	NPT1/4	NPT1-1/4

B2

Solenoid Valves

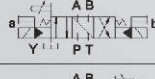
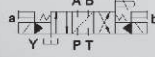
DIMENSIONS

MILLIMETERS(INCHES)

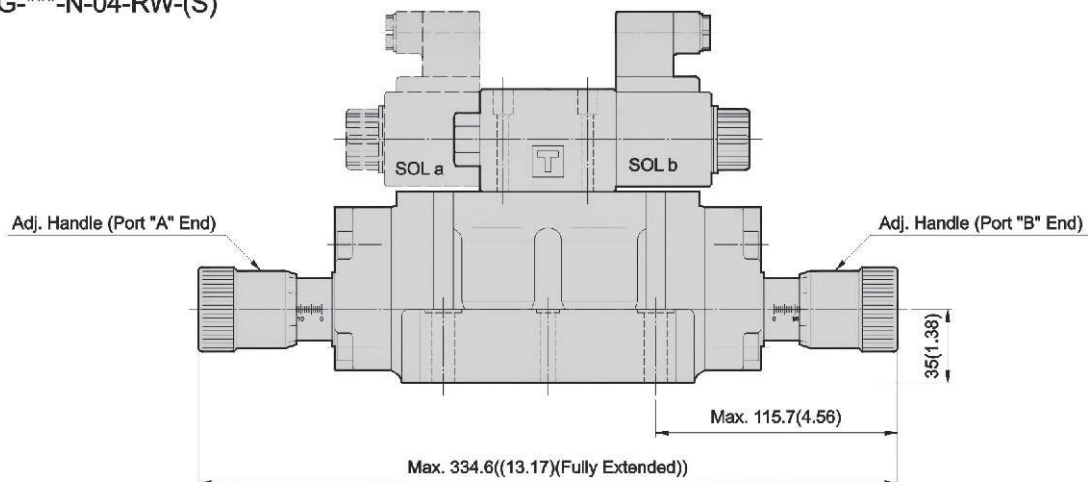
OPTIONAL

MODELS WITH STROKE LIMITER(RW/RA/RB)

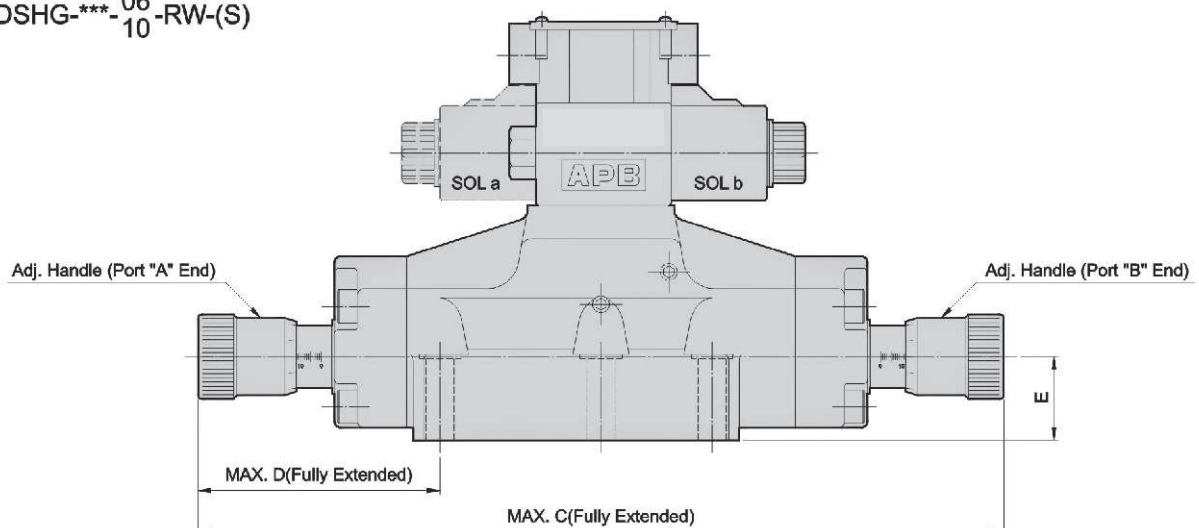
When the stroke adjustment is screwed in, the main spool stroke becomes shorter and flow rate becomes lower.

GRAPHIC SYMBOLS		CODE
	With Stroke Adjustment, "A+B" Stroke.	"RW"
	With Stroke Adjustment, Port "A" Stroke.	"RA"
	With Stroke Adjustment, Port "B" Stroke.	"RB"

DSHG-***-N-04-RW-(S)



DSHG-***-⁰⁶/₁₀-RW-(S)



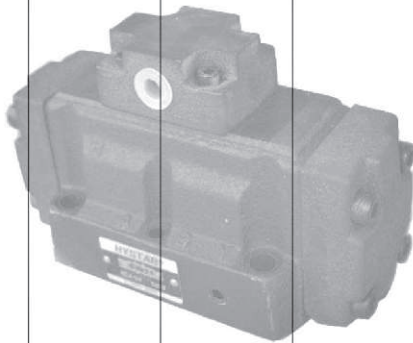
Model Numbers	C	D	E
DSHG-***-06-RW-(S)	376(14.80)	111(4.37)	40(1.57)
DSHG-***-10-RW-(S)	558(21.97)	164.5(6.48)	65(2.56)

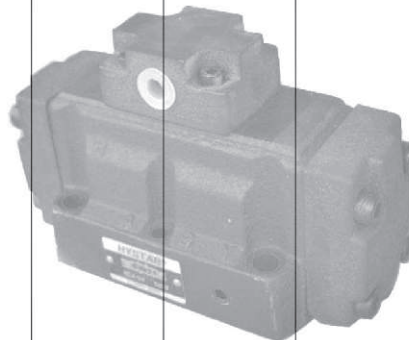
**Bell**
HYDROMATICS

Solenoid Valves

MODEL NO SPECIFICATIONS (DHG-04/06/10 Pilot Operated Directional Valves)

B2

Spool Type & Graphic Symbols		Rated Flow Capacity -Maximum Flow Capacity							
SYMBOLS	MODEL NO	DHG-01	DHG-03	DHG-04	DHG-06	DHG-10			
	DHG-2B2- **	 ~40 lpm (~10.6USgpm)	60~160 lpm (15.9~42.3USgpm)	135~300 lpm (35.7~79.3USgpm)	310~500 lpm (82~132USgpm)	570~1100 lpm (150~291USgpm)			
	DHG-2B3- **								
	DHG-2N2- **								
	DHG-2N3- **								
	DHG-3C2- **								
	DHG-3C3- **								
	DHG-3C4- **								
	DHG-3C40- **								
	DHG-3C7- **								
	DHG-3C9- **								
	DHG-3C10- **	~40 lpm (~10.6USgpm)	60~160 lpm (15.9~42.3USgpm)	245~280 lpm (64.8~74.5USgpm)	230~450 lpm (60.8~120USgpm)	570~950 lpm (150~250USgpm)			
	DHG-3C11- **								
	DHG-3C12- **								
	DHG-3C5- **								
	DHG-3C6- **								
	DHG-3C60- **								
Max. Operating Pressure (bar)		315 (4500 PSI)							
Min. Required Pilot Pressure (bar)		8 (114 PSI)				10(143 PSI)			
Max. Pilot Pressure (bar)		250 (3600 PSI)							
Max. T-line Back Pressure (bar)		210 (3000 PSI)							
Weight (Kgs)		3.5 (7.7 lbs)	7.2 (15.9 lbs)	7.4 (16.3 lbs)	11.2 (24.7 lbs)	43.8 (96.6 lbs)			
Hydraulic Fluids		Use Hydraulic Fluids Equivalent to ISO VG32 or VG46							
Operating Temperature Range Recommended (°C)		-15 ~ +70 (+5 ~ +160°F)							
Operating Viscosity (cSt)		15 ~ 400 (80 ~ 1800SSU)							
Filtration		25 Microns Absolute or Finer							





Bell
HYDROMATICS

Solenoid Valves

LIST OF SPOOL FUNCTIONS (DHG-04/06/10)

SPRING CENTERED 3 POSITIONS	GRAPHIC SYMBOLS (STANDARD)	PRESSURE CENTERED 3 POSITIONS	GRAPHIC SYMBOLS (STANDARD)	NO SPRING 2 POSITIONS	GRAPHIC SYMBOLS (STANDARD)
3C2		3H2		2N2	
3C3		3H3		2N3	
3C4		3H4		2N4	
3C40		3H40		2N40	
3C5		3H5		2N7	
3C6		3H6		2N2A	
3C60		3H60		2N3A	
3C7		3H7		2N4A	
3C8		3H8		2N40A	
3C9		3H9		2N5A	
3C10		3H10		2N6A	
3C11		3H11		2N60A	
3C12		3H12		2N7A	
3C25		3H25		2N9A	
3C29		3H29		2N10A	
3C48		3H48		2N11A	
				2N12A	

B2

**Bell**
HYDROMATICS**Solenoid Valves****LIST OF SPECIAL TWO POSITION VALVES (DHG-04/06/10)****B2**

SPRING OFFSET 2 POSITION	GRAPHIC SYMBOLS		SPRING OFFSET 2 POSITION	GRAPHIC SYMBOLS	
	STANDARD	(ALTERNATED)		STANDARD	(ALTERNATED)
2B2A(L)			2B2B(L)		
2B3A(L)			2B3B(L)		
2B4A(L)			2B4B(L)		
2B40A(L)			2B40B(L)		
2B5A(L)			2B5B(L)		
2B6A(L)			2B6B(L)		
2B60A(L)			2B60B(L)		
2B7A(L)			2B7B(L)		
2B8A(L)			2B8B(L)		
2B9A(L)			2B9B(L)		
2B10A(L)			2B10B(L)		
2B11A(L)			2B11B(L)		
2B12A(L)			2B12B		
2B25A(L)			2B25B(L)		
2B29A(L)			2B29B(L)		
2B48A(L)			2B48B(L)		

NOTE : Standard Model No. + L = Alternate Model.

For example, 2B2A is Standard Model, 2B2AL is Alternate Model.



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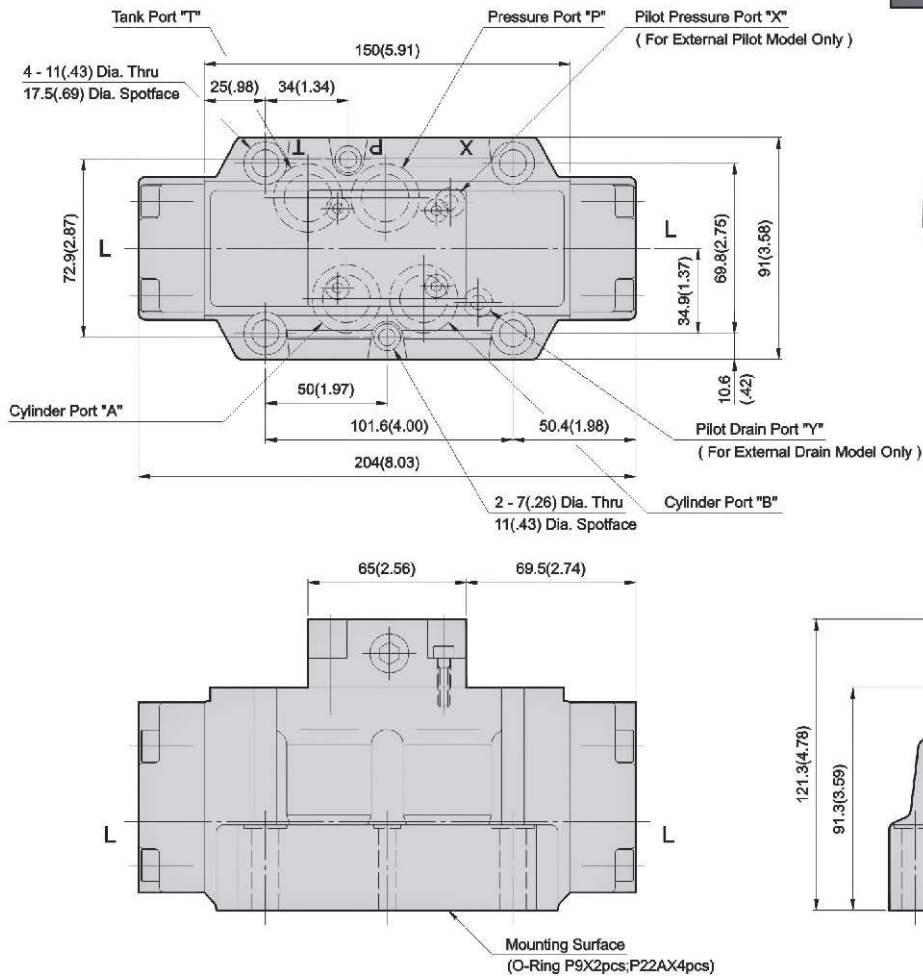
Solenoid Valves

DIMENSIONS

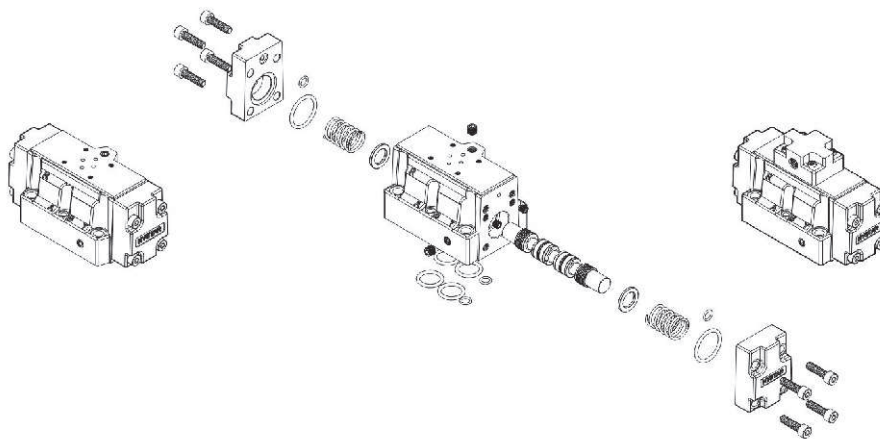
MILLIMETERS(INCHES)

DHG-***-04

MOUNTING SURFACE:DHG-04-CETOP7
ISO 07-NFPAD07



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M6X45LgX2pcs M10X45LgX4pcs	12-15 Nm 58-72 Nm	30
Soc. Hd. Cap Screw	1/4-20UNCX1-3/4"LgX2pcs 3/8-16UNCX1-3/4"Lg X4pcs	104-130 in.lbs 504-625 in.lbs	3090



B2



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HYDROMATICS

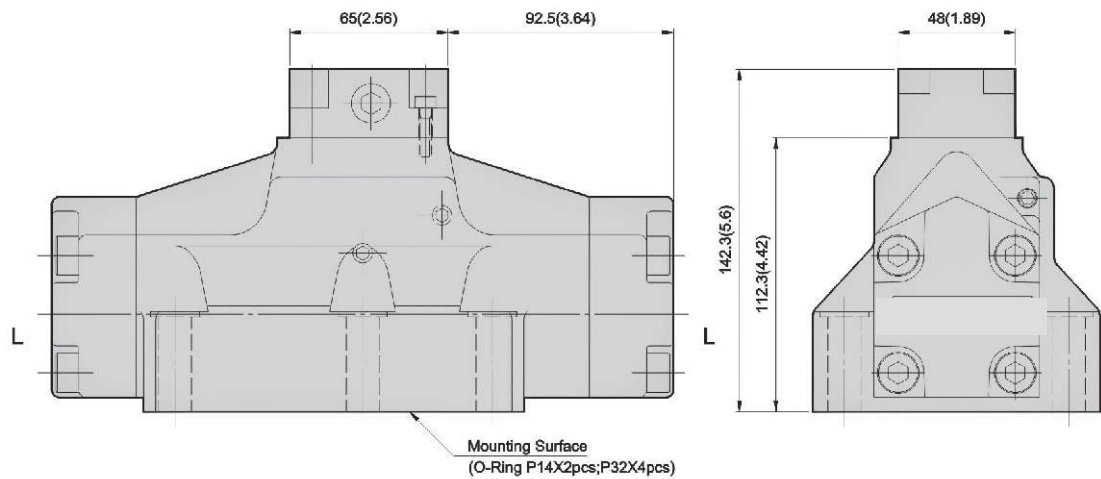
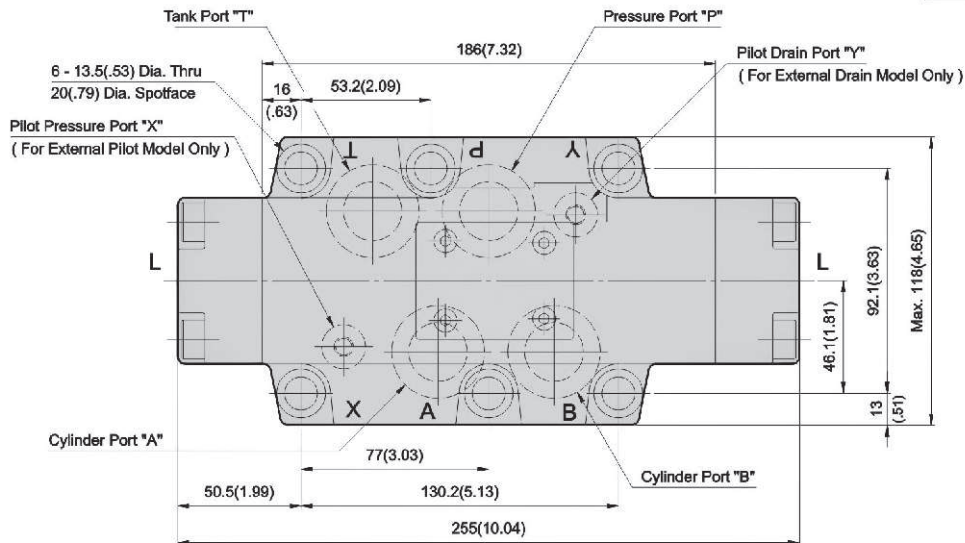
Solenoid Valves

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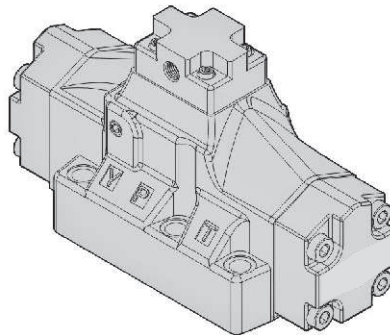
MILLIMETERS(INCHES)

DHG-***-06

MOUNTING SURFACE:DHG-06-CETOP8
ISO 08-NFPAD08



Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M12X55LgX6pcs	100-123 Nm	30
Soc. Hd. Cap Screw	1/2-13UNCX2-1/8"LgX6pcs	868-1068 in.lbs	3090



B2



Bell
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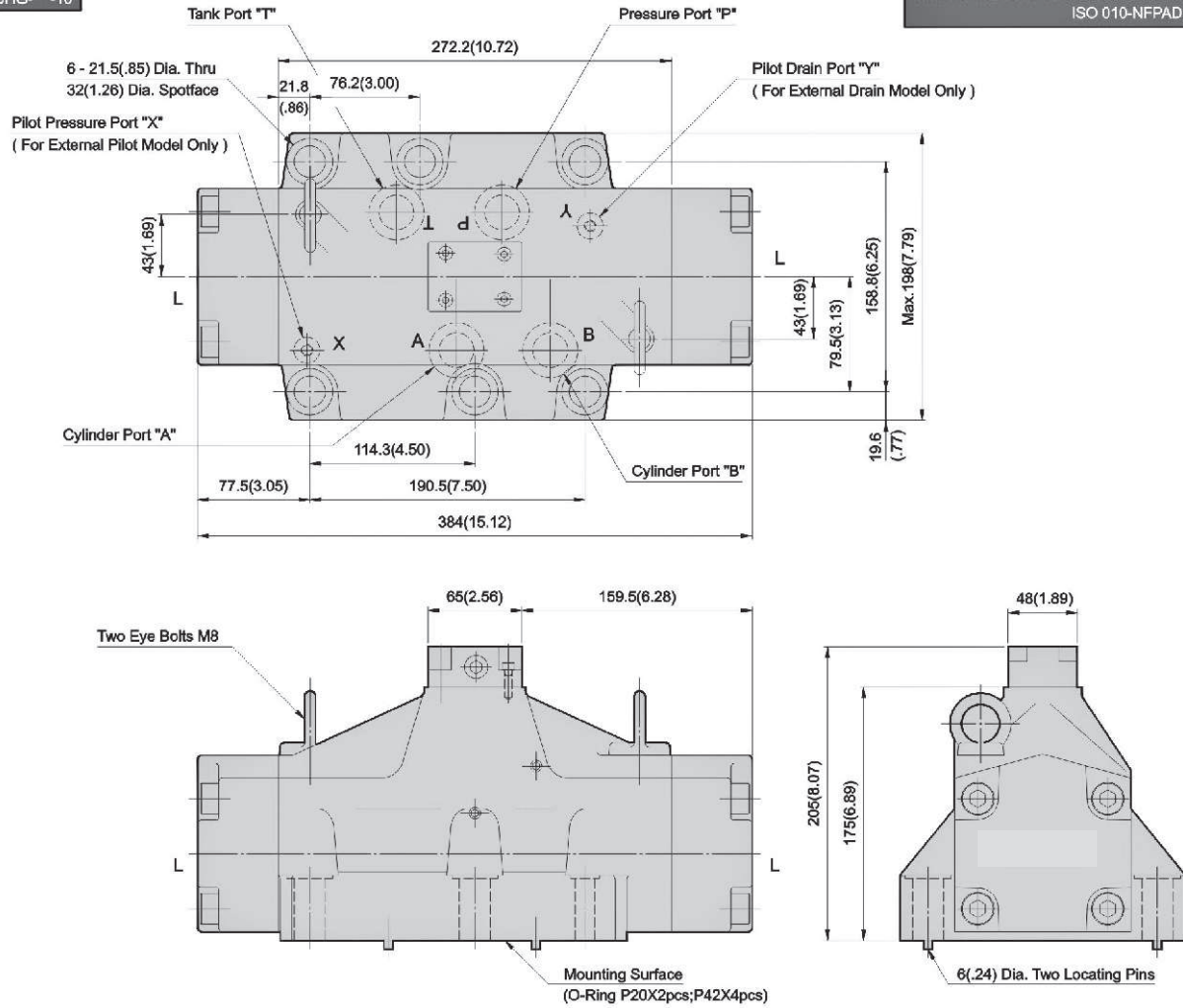
Solenoid Valves

DIMENSIONS

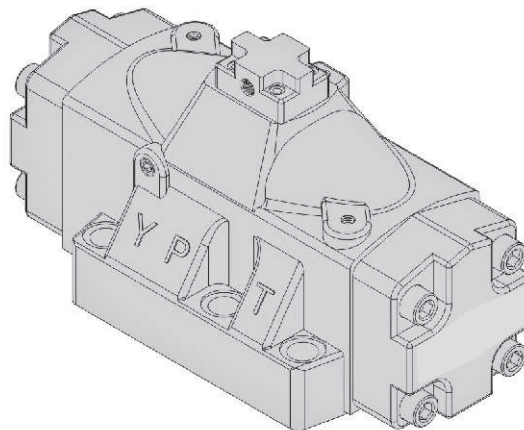
MILLIMETERS(INCHES)

DHG-***-10

MOUNTING SURFACE:DHG-10-CETOP10
ISO 010-NFPAD010



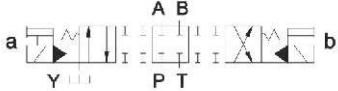
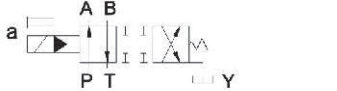
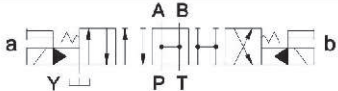
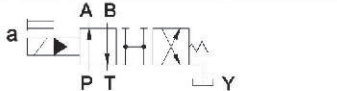
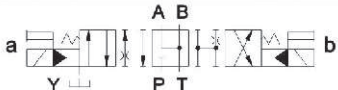
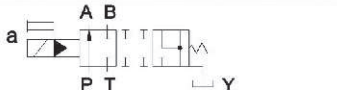
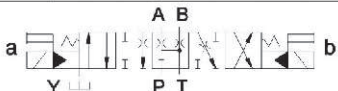
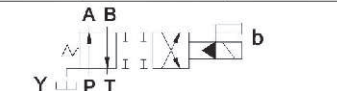
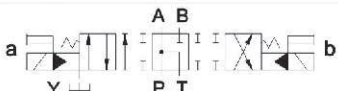
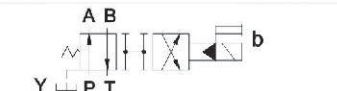
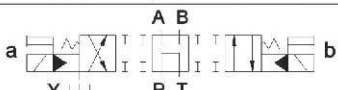
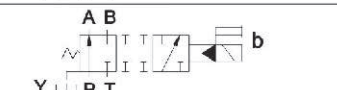
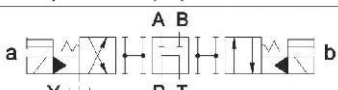
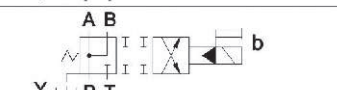
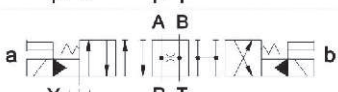
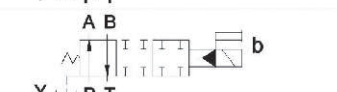
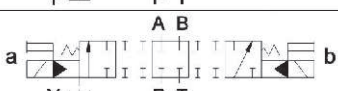
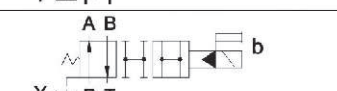
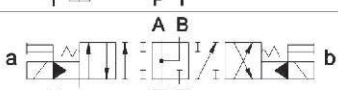
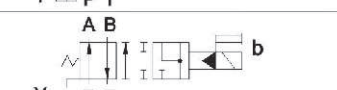
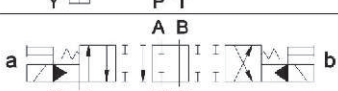
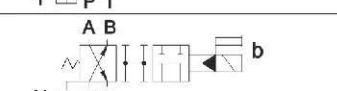
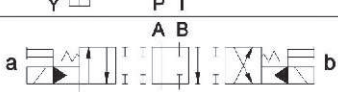
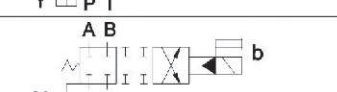
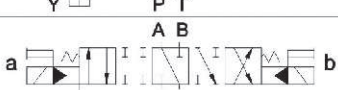
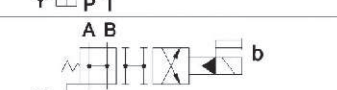
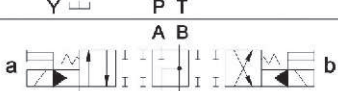
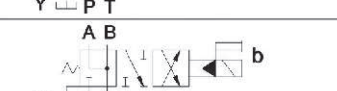
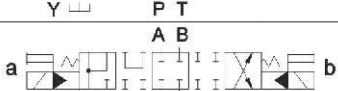
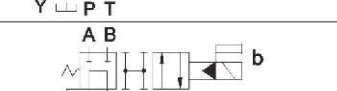
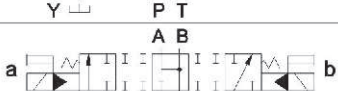
Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M20X75LgX6pcs	473-585 Nm	30
Soc. Hd. Cap Screw	3/4-10UNCX3"LgX6pcs	4106-5078 in.lbs	3090



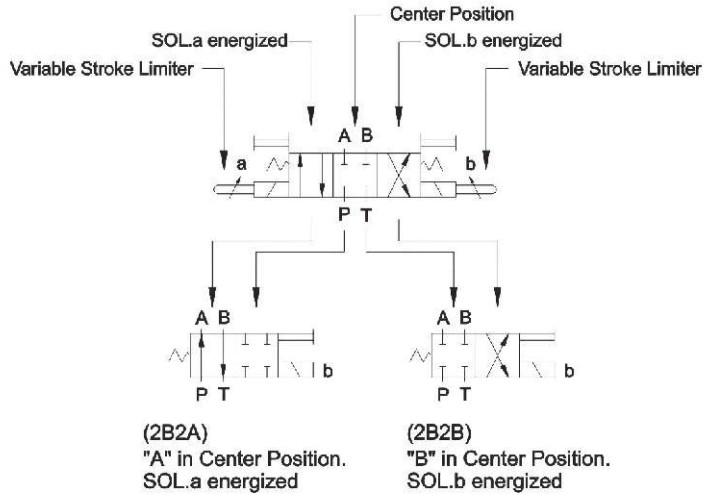
B2

Solenoid Valves

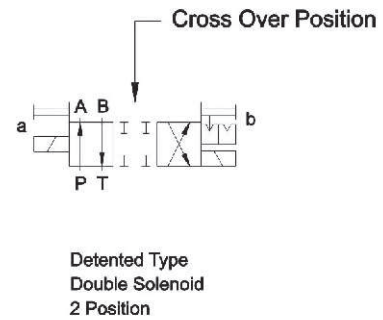
CROSS OVER CONDITIONAL OF NORMAL SPOOL TYPE (DSHG-04/06/10)

SPRING CENTERED 3 POSITIONS	GRAPHIC SYMBOLS WITH DETAILS CROSS OVER	SPRING OFFSET 2 POSITIONS	GRAPHIC SYMBOLS WITH DETAILS CROSS OVER
3C2		2A2	
3C3		2A3	
3C4		2A14	
3C40		2B2	
3C5		2B3	
3C6		2B8	
3C60		2B29	
3C7		2B2A	
3C8		2B3A	
3C9		2B4A	
3C10		2B60A	
3C11		2B2B	
3C12		2B3B	
3C25		2B4B	
3C29		2B60B	
3C48		2B10B	
3C94		2B12B	

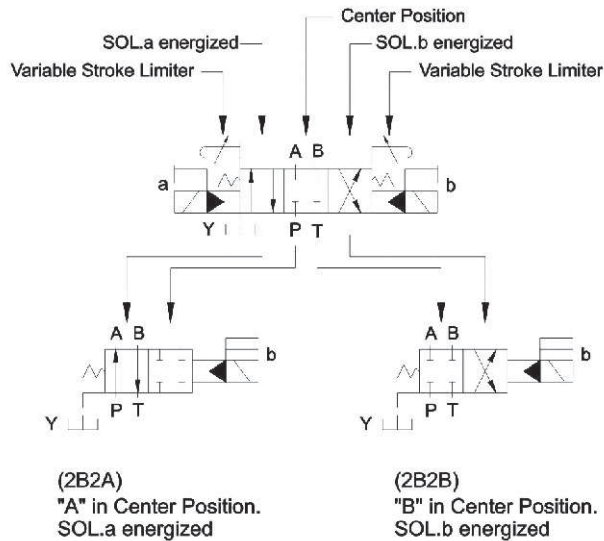
(DSG-3C2-01/03-RW)



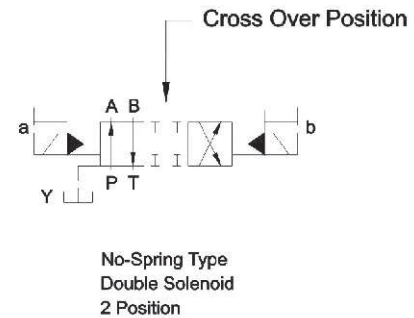
(DSG-2D2-01/03)



(DSHG-3C2-04/06/10-RW)



(DSHG-2N2-04/06/10)



a.	SOL.a energized side
b.	SOL.b energized side
A.	Cylinder Port "A"
B.	Cylinder Port "B"
P.	Pressure Port "P"
T.	Tank Port "T"
	Manual Override
	Closed Line
	Open Line
	Spring
	Connection Lines

	Detented
a	Single Acting Solenoid
	P → A,B T → Connections
	A → T,P B → Connections
	Oil Pressure
	Variable Stroke Limiter
	Connecting Point Of Lines And Passages
Y	Drain Line
	Cross Over Position-All Ports Closed
	Cross Over Position-All Ports Open