



"DHG" DIRECTIONAL VALVES

LIST OF SPECIAL TWO POSITION VALVES (DHG-04/06/10)

A

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.

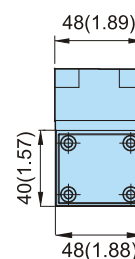
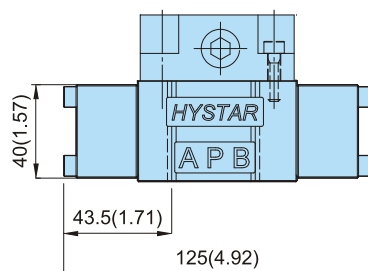
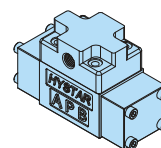
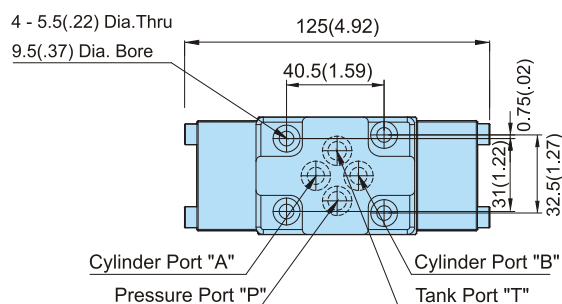
DIMENSIONS

MILLIMETERS(INCHES)

A

DHG-01

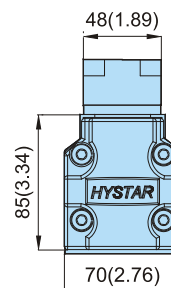
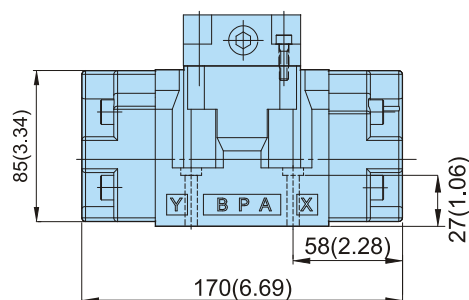
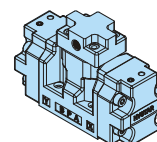
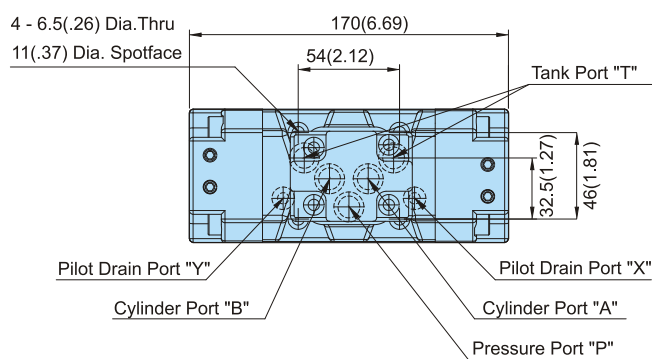
MOUNTING SURFACE:DHG-01-CETOP3
ISO 03-NFPAD03



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

DHG-03

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



•Dimensions for models with Din connector, reference page 15 for details.

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



"DHG" DIRECTIONAL VALVES

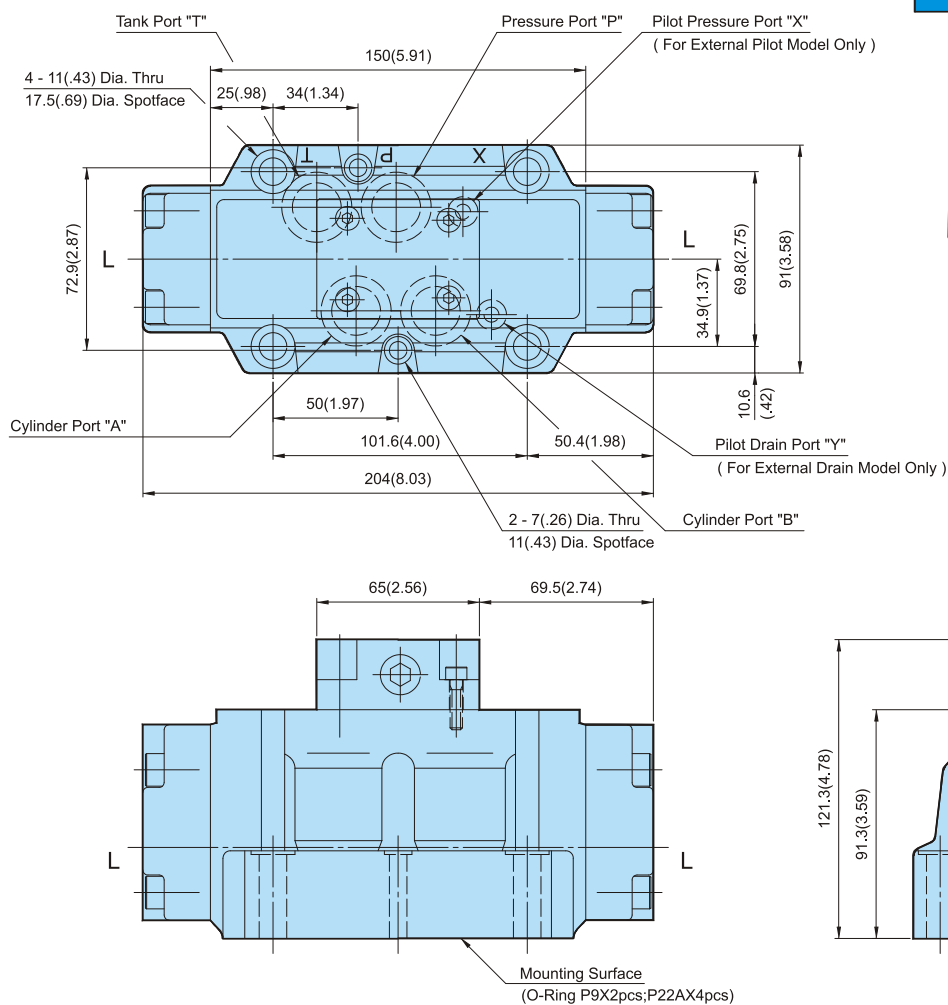
DIMENSIONS

MILLIMETERS(INCHES)

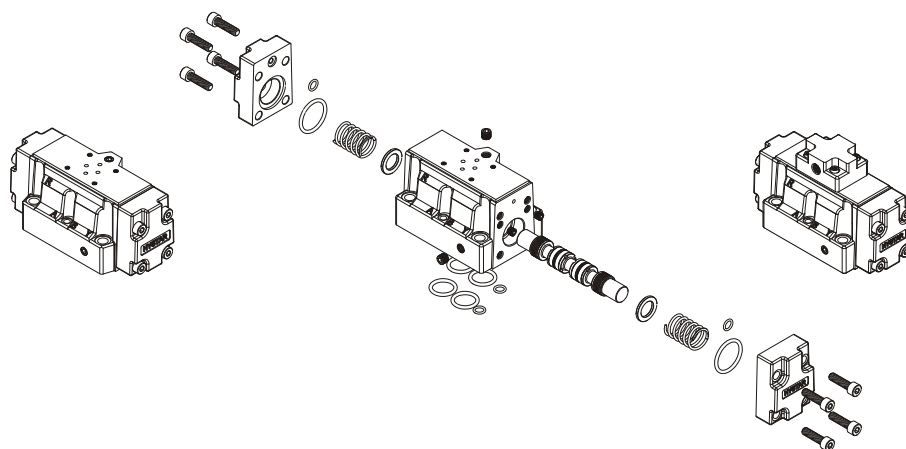
A

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



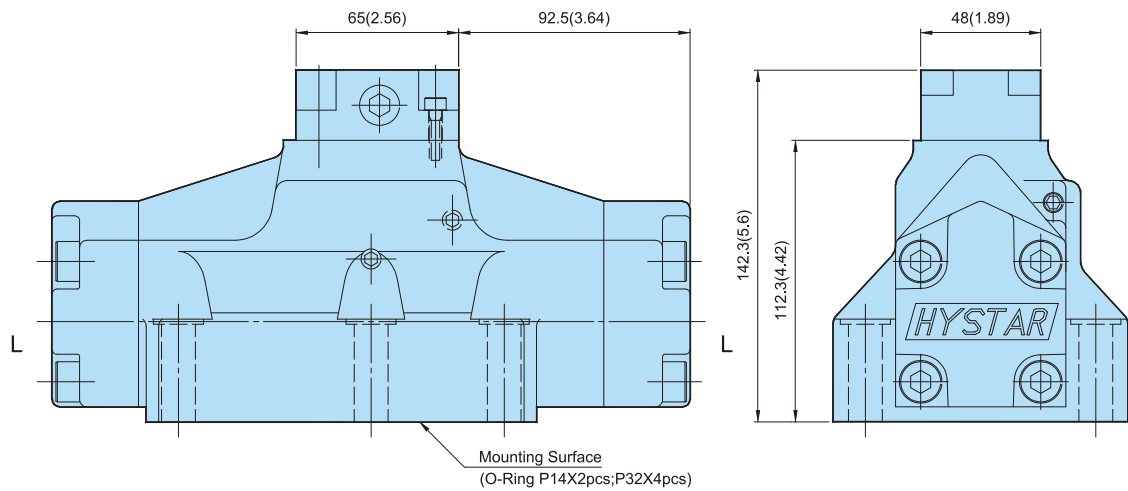
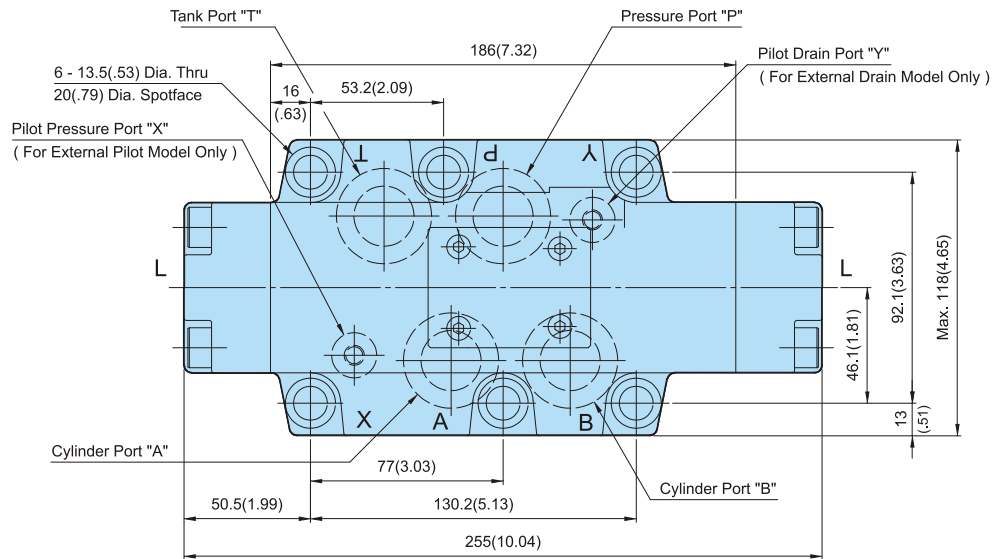
DIMENSIONS

MILLIMETERS(INCHES)

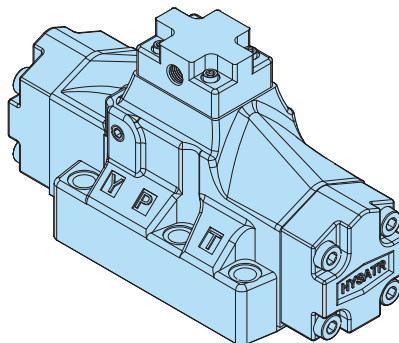
A

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





"DHG" DIRECTIONAL VALVES

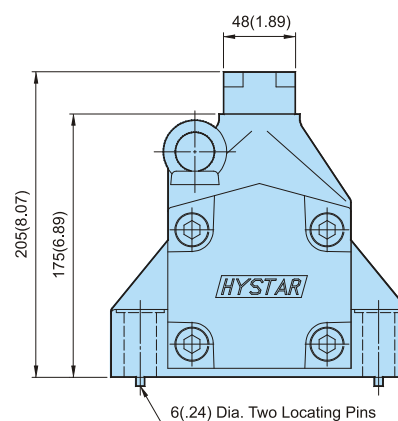
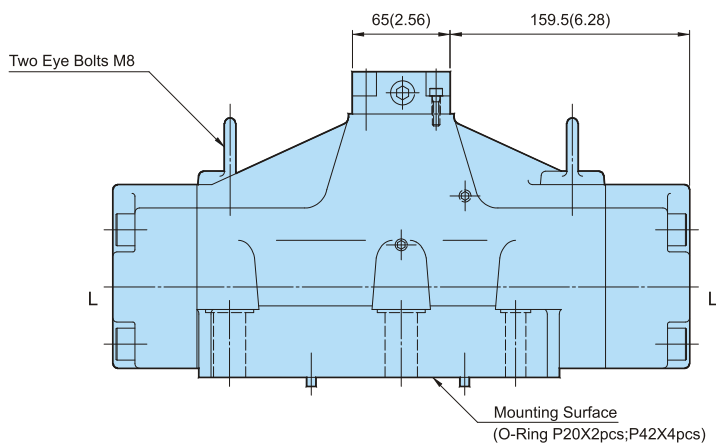
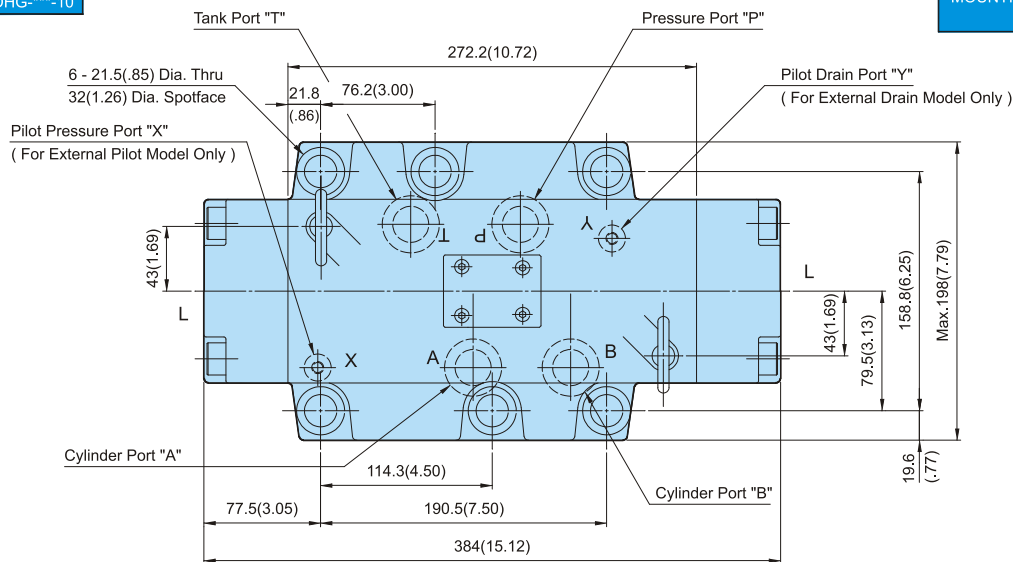
DIMENSIONS

MILLIMETERS(INCHES)

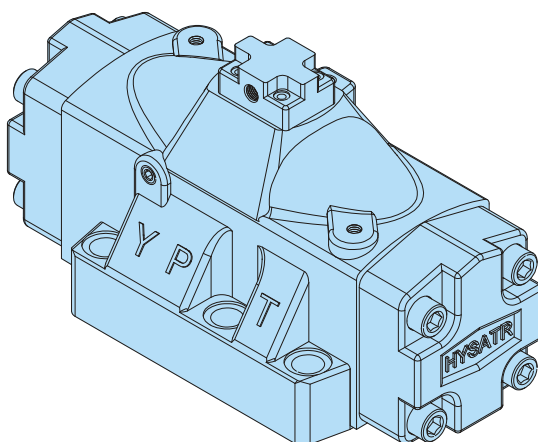
A

DHG-***-10

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



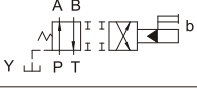
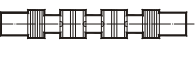
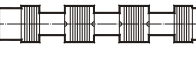
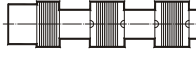
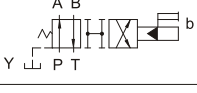
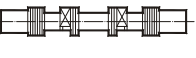
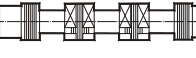
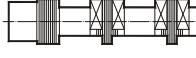

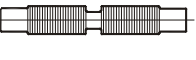
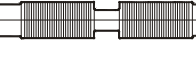


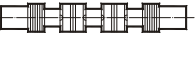
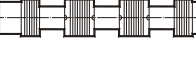
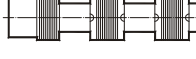
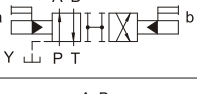



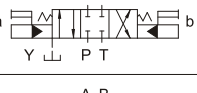


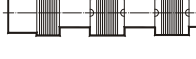




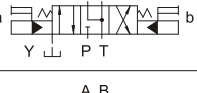


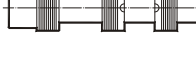











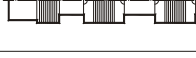







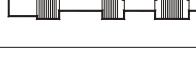



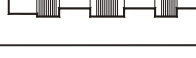


Attachment Name	Description	Tightening Torque	Code
Soc. Hd. Cap Screw	M20X75LgX6pcs	473-585 Nm	30
Soc. Hd. Cap Screw	3/4-10UNCX3"LgX6pcs	4106-5078 in.lbs	3090



LIST OF NORMAL SPOOL STRUCTURE (DSHG-04/06/10)

A

MODEL	 / 	HYDRAULIC SYMBOLS	DSHG-04	DSHG-06	DSHG-10
2B2	0 / 0				
2B3	0 / 0				
2B8	0 / 0				
2N2	0 / 0				
2N3	0 / 0				
3C2	2 / 2				
3C3	2 / 2				
3C4	2 / 2				
3C5	2 / 2				
3C60	2 / 2				
3C8	2 / 2				
3C9	2 / 2				
3C10	2 / 2				
3C12	2 / 2				

Note :  is " Retainer ",  is " Spring ".

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

A

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	

INTERFACE SIZE CROSS REFERENCE

A

INTERFACE SIZE CROSS REFERENCE

HYSTAR	CETOP	ISO	NFPA-NEW	NFPA-OLD	NG
DSG-01	3	03	D03	D01	6
DSG-03	5	05	D05	D02	10
DSHG-04	7	07	D07	D04	16
DSHG-06	8	08	D08	D06	25
DSHG-10	10	10	D10	D10	32

CETOP : A European trade association representing various country organizations similar to the NFPA in the USA.,BFPA in England,VDMA in Germany,.....

(Comite' Europe'en des Transmissions Ole'ohydrauliques et Pneumatiques)

ISO : The International Standards Organization establishes the ISO interface standards.
(International Organization for Standardization)

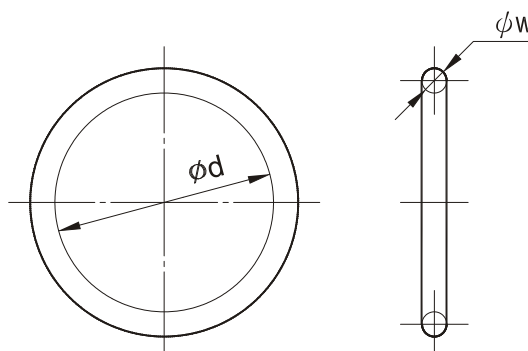
NFPA : National Fluid Power Association of the U.S.A.

NG : A code related to port diameter expressed in millimeters.It's part of German " DIN " standard (similar to ANSI-American National Standards Institute) and covers port size only.It does not relate to the configuration of the rest of the interface.

N.G translates to the configuration of the rest of the interface.

N.G translates to nominal size.

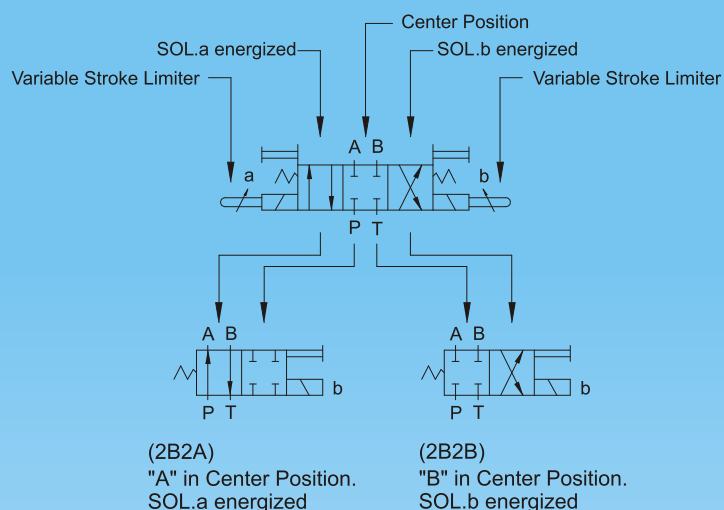
O-RING DATA SHEET



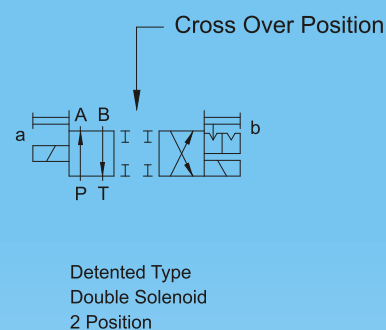
CODE	d(mm)	w(mm)	Hardness	DSG-01	DSG-03	DSHG-04	DSHG-06	DSHG-10
P3	2.8	1.9	HS-70	4	4			
P4	3.8	1.9	HS-70	15	15			
P9	8.8	1.9	HS-85	12		3/18/2-7	3/2-7	
P12	11.8	2.4	HS-85		12			
P14	13.8	2.4	HS-80				18	3/2-7
P18	17.8	2.4	HS-70	7				
P20	19.8	2.4	HS-80					18
P21	20.8	2.4	HS-70		7			
P22A	21.7	3.5	HS-80			16		
P32	31.7	3.5	HS-80			4	16	
P40	39.7	3.5	HS-80				4	
P42	41.7	3.5	HS-80					16
G30	29.4	3.1	HS-80			2-4	2-4	
G35	34.4	3.1	HS-80					2-4
G65	64.4	3.1	HS-80					4



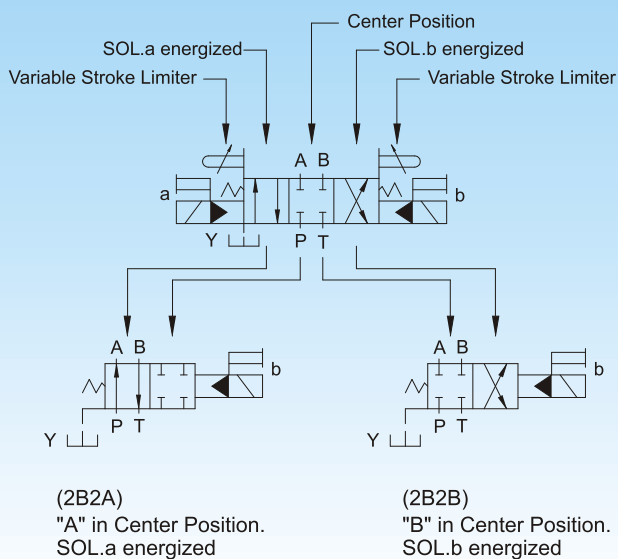
(DSG-3C2-01/03-RW)



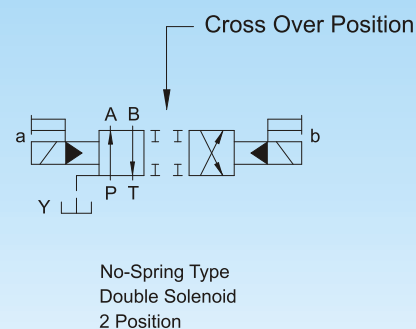
(DSG-2D2-01/03)



(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

HYSTAR-2002

HYSTAR offers a solution for hydraulic control systems for the new and after markets, with a wide range of high quality products and an excellent customer service throughout a well-established worldwide distribution network.

Our commitment to a continuous improvement of quality standards is achieved by manufacturing HYSTAR products in accordance with a strict quality control standard and rigorous testing. Serving the customer efficiently and quickly is our priority.

*Our directional control valves provide high performance and reliability. Available in five sizes that mount on standard CETOP (NFPA) configurations, our valves can be solenoid, hydraulic, pneumatic, cam or manually operated. The precision-machined spools allow a complete interchangeability for maximum flexibility. Reliability is enhanced through high performance wet armature construction AC and DC solenoids. These powerful solenoids offer plug-in (DIN connector type 43650), terminal box or lead-wire type are available. Manual override pins and optional **push-on protective caps**. CETOP 3 (NFPA D03) and CETOP 5 (NFPA D05) versions are also available with a built-in ramp to reduce shock caused by abrupt change of oil flow at a very low cost, i.e. shockless type.*

Our modular valves series save space and reduce cost. Any type of hydraulic circuit can be installed without piping and fittings by stacking modular valves under the directional valve. "V" series modular valves is the latest version pressure up to 315 bar, size CETOP 3 (NFPA D03) flow up to 60 l/min, size CETOP 5 (NFPA D05) flow up to 120 l/min, compact type.

A full range of in-line, threaded connection and subplate mounted, directional, flow, pressure control valves, pressure switches and pressure gauge is part of our range of hydraulic components. Manifold blocks and subplates complete the range.

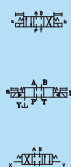
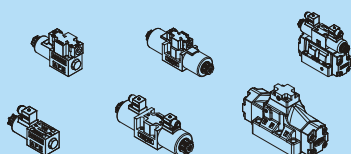
Our pump program includes gear pumps, fixed displacement vane and variable displacement vane with an adjustable pressure compensator and a maximum flow volume control. For higher pressure, we offer our range of variable piston pumps with an adjustable pressure compensator and a maximum flow volume control.

New installations require more and more proportional controls. That is why at HYSTAR we have developed a range of proportional electro-hydraulic pressure and flow control valves. Plus electronic amplifiers to drive these proportional control valves.

Our manufacturing program includes logic valves, poppet valves, lift valves, linear position transducers, tie-rod hydraulic cylinders, injection screw, absorbers, bladder accumulators, spin-on filters, suction strainer, oil cooler, fan cooler, mounting brackets, sight level and temperature gauges.

HYSTAR offers quality products at sensible prices with the emphasis on proven design and 100% interchangeability. When designing or modifying a hydraulic circuit, our service and range of products make HYSTAR your PARTNER.

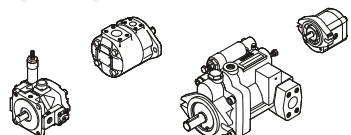
SOLENOID VALVES



- Solenoid operated directional valves 5
- Solenoid controlled pilot operated directional valves. 41
- Hydraulic Operated Directional Valves. 59

A

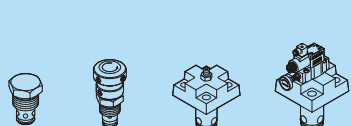
PUMPS



- Variable Displacement Vane Pumps 71
- Fixed Displacement Vane Pumps 87
- Piston Pumps 146
- Gear Pumps 185

B

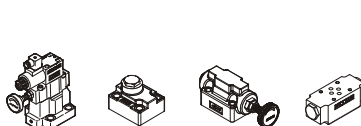
CARTRIDGE VALVES



- Cartridge Valves (Screw-in Type) 206
- Cartridge Valves (Logic Elements) 240

C

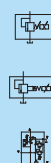
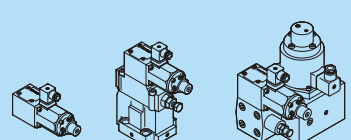
CONTROLLED VALVES



- Pressure Control Valves 246
- Directional Control Valves & Pre-Fill Valves 263
- Flow Control Valves 291
- Modular Control Valves 315

D

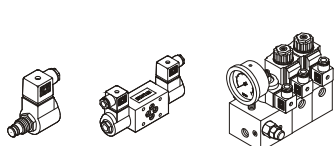
PROPORTIONAL VALVE



- Proportional Electro-Hydraulic Pilot Relief Valves 343
- Proportional Electro-Hydraulic Relief Valves 346
- Proportional Electro-Hydraulic Relief & Flow Control Valves 350

E

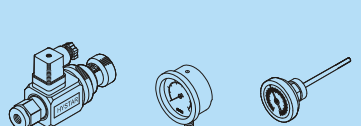
POPPET & LIFT VALVES



- Solenoid Check Valve (Cartridge Type) 364
- Solenoid Check Valve (Modular Type) 376
- Lift Valves 380

F

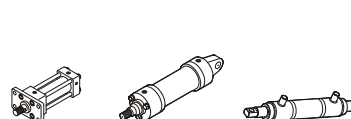
SWITCHES & GAUGES



- Pressure Switches (Piston-Spring Type) 385
- Pressure Gauges (Liquid Filled Type) 400
- Thermometers 410

G

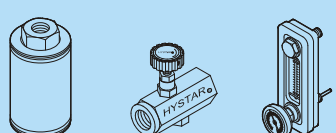
CYLINDERS



- Hydraulic Cylinders (Industrial Machines) 417
- Hydraulic Cylinders (Packing Equipment) 425
- Hydraulic Cylinders (Lifting System) 428

H

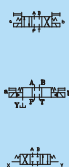
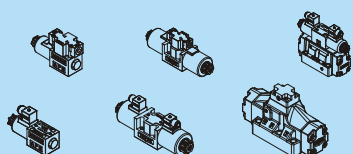
ACCESSORIES



- Suction Filters(Strainer) 438
- In-Line mounting valves 450
- Fluid Level and Thermometer Gauges 441

I

SOLENOID VALVES



- Solenoid operated directional valves

5

- Solenoid controlled pilot operated directional valves.

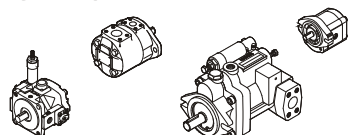
41

- Hydraulic Operated Directional Valves.

59

A

PUMPS



- Variable Displacement Vane Pumps

71



- Fixed Displacement Vane Pumps

87



- Piston Pumps

146

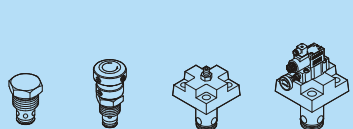


- Gear Pumps

185

B

CARTRIDGE VALVES



- Cartridge Valves (Screw-in Type)

206

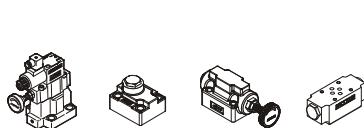


- Cartridge Valves (Logic Elements)

240

C

CONTROLLED VALVES



- Pressure Control Valves

246



- Directional Control Valves & Pre-Fill Valves

263



- Flow Control Valves

291

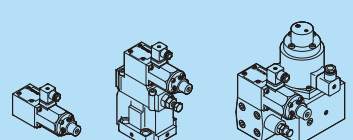


- Modular Control Valves

315

D

PROPORTIONAL VALVE



- Proportional Electro-Hydraulic Pilot Relief Valves

343



- Proportional Electro-Hydraulic Relief Valves

346

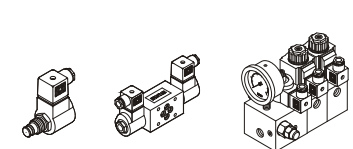


- Proportional Electro-Hydraulic Relief & Flow Control Valves

350

E

POPPET & LIFT VALVES



- Solenoid Check Valve (Cartridge Type)

364



- Solenoid Check Valve (Modular Type)

376



- Lift Valves

380

F

SWITCHES & GAUGES



- Pressure Switches (Piston-Spring Type)

385



- Pressure Gauges (Liquid Filled Type)

400

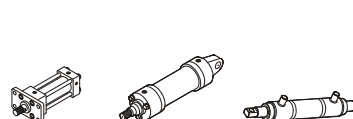


- Thermometers

410

G

CYLINDERS



- Hydraulic Cylinders (Industrial Machines)

417



- Hydraulic Cylinders (Packing Equipment)

425

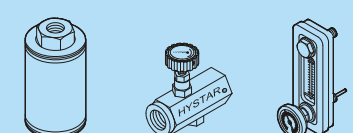


- Hydraulic Cylinders (Lifting System)

428

H

ACCESSORIES



- Suction Filters(Strainer)

438



- In-Line mounting valves

450



- Fluid Level and Thermometer Gauges

441

I

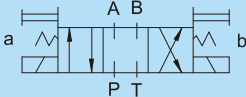
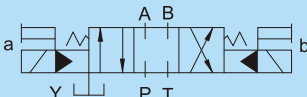
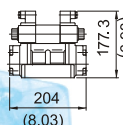
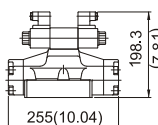
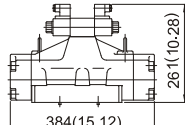
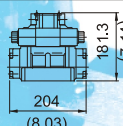
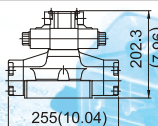
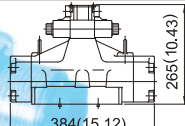
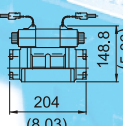
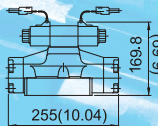
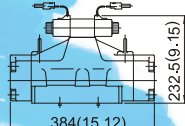
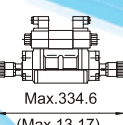
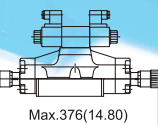
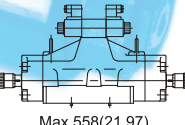
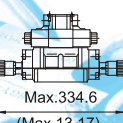
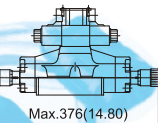
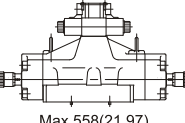
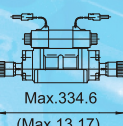
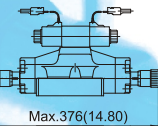
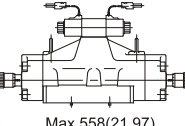
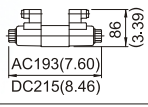
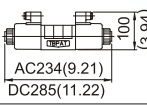
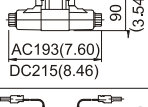
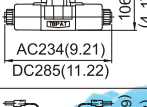
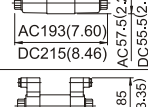
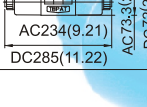
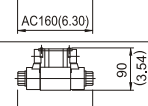
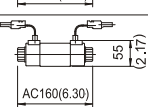
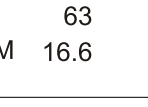
A

HYSTAR®

315
(4500)

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

200
(2900)

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)	 265(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-**-	 AC193(7.60) DC215(8.46) AC57.5(2.26) DC55.5(2.18)	 AC234(9.21) DC285(11.22) AC73.3(2.89) DC72(2.83)					
DSGX-N-**-	 85 (3.35) AC160(6.30)						
DSGX-**-	 90 (3.54) AC160(6.30)						
DSGX-Y-**-	 55 (2.17) AC160(6.30)						
Max. Flow : ℓ/min			63	120	300	500	1100
: U.S.GPM			16.6	31.7	79.3	132	291

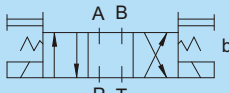
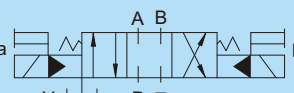
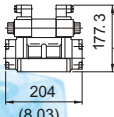
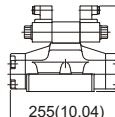
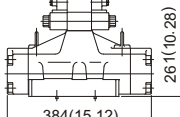
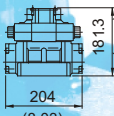
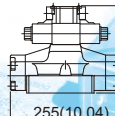
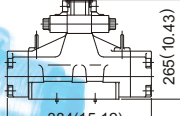
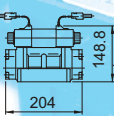
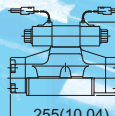
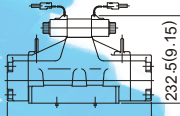
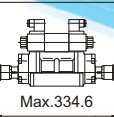
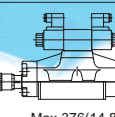
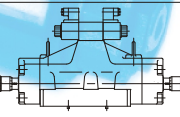
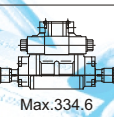
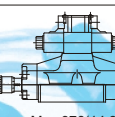
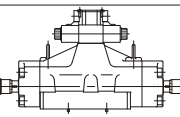
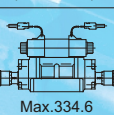
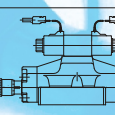
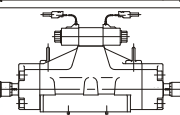
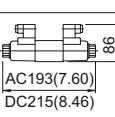
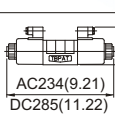
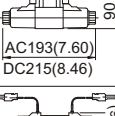
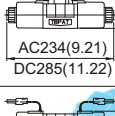
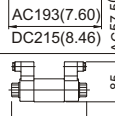
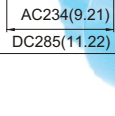
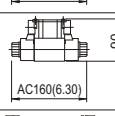
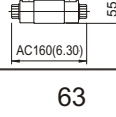
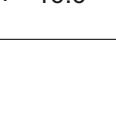
A

HYSTAR®

3 15
(4500)

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

200
(2900)

















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)	 265(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-**	 AC193(7.60) DC215(8.46) AC57.5(2.26) DC55.5(2.18)	 AC234(9.21) DC285(11.22) AC73.3(2.89) DC72(2.83)			
DSGX-N-**	 85 (3.35) AC160(6.30)				
DSGX-**	 90 (3.54) AC160(6.30)				
DSGX-Y-**	 55 (2.17) AC160(6.30)				

















Max. Flow : l/min 63 120 300 500 1100
: U.S.GPM 16.6 31.7 79.3 132 291































"DSG" DIRECTIONAL VALVES











A







DIN TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
		63(16.64)	200(2900)	1/8"	11
		63(16.64)	315(4500)	1/8"	14
		63(16.64)	315(4500)	1/8"	14
		120(31.70)	315(4500)	3/8"	19
		120(31.70)	315(4500)	3/8"	19
		63(16.64)	200(2900)	1/8"	11
		63(16.64)	315(4500)	1/8"	14
		120(31.70)	315(4500)	3/8"	19

TERMINAL TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
		63(16.64)	200(2900)	1/8"	11
		63(16.64)	315(4500)	1/8"	15
		63(16.64)	315(4500)	1/8"	15
		120(31.70)	315(4500)	3/8"	20
		120(31.70)	315(4500)	3/8"	20
		63(16.64)	200(2900)	1/8"	11
		63(16.64)	315(4500)	1/8"	15
		120(31.70)	315(4500)	3/8"	20

SWP TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
		63(16.64)	200(2900)	1/8"	12
		63(16.64)	315(4500)	1/8"	16
		63(16.64)	315(4500)	1/8"	16
		120(31.70)	315(4500)	3/8"	21
		120(31.70)	315(4500)	3/8"	21
		63(16.64)	200(2900)	1/8"	12
		63(16.64)	315(4500)	1/8"	16
		120(31.70)	315(4500)	3/8"	21

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
		300(79.26) 500(132.10) 1100(290.62)	315(4500)	1/2" 3/4" 1-1/4"	46
		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	47
		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	48
		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	46
		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	47
		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	48

















DIRECTIONAL VALVES(DHG TYPE) HYDRAULIC AND PNEUMATICALLY OPERATED	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
		63(16.64)	315(4500)	1/8"	63
		120(31.70)	315(4500)	3/8"	63
		300(79.26)	315(4500)	1/2"	64
		500(132.10)		3/4"	
		1100(290.62)		1-1/8"	

















DIRECTIONAL VALVES(DHG TYPE) HYDRAULIC AND PNEUMATICALLY OPERATED	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
----	--	--	--	--	--
----	--	--	--	--	--
		300(79.26)	315(4500)	1/2"	64
		500(132.10)		3/4"	
		1100(290.62)		1-1/4"	































"DSG" DIRECTIONAL VALVES









A





DIN TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DSG-N-01-ACDCRAC		63(16.64)	200(2900)	1/8"	11
 DSG-N-01-AC		63(16.64)	315(4500)	1/8"	14
 DSG-N-01-DCRAC		63(16.64)	315(4500)	1/8"	14
 DSG-N-03-AC		120(31.70)	315(4500)	3/8"	19
 DSG-N-03-DCRAC		120(31.70)	315(4500)	3/8"	19
 DSGX-N-01-DCRAC-RW		63(16.64)	200(2900)	1/8"	11
 DSG-N-01-DCRAC-RW		63(16.64)	315(4500)	1/8"	14
 DSG-N-03-DCRAC-RW		120(31.70)	315(4500)	3/8"	19

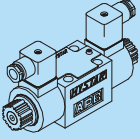

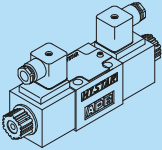

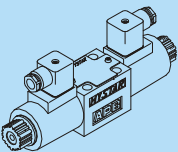

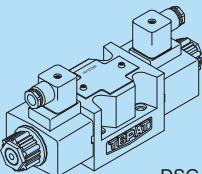

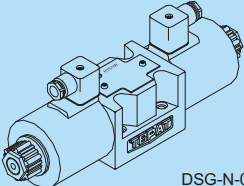

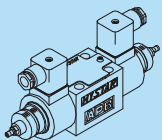

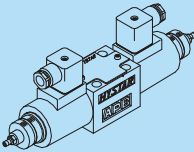

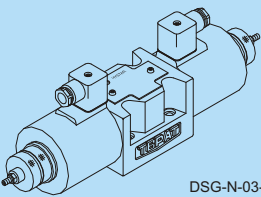

TERMINAL TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DSGX-01-ACDCRAC		63(16.64)	200(2900)	1/8"	11
 DSG-01-AC		63(16.64)	315(4500)	1/8"	15
 DSG-01-DCRAC		63(16.64)	315(4500)	1/8"	15
 DSG-03-AC		120(31.70)	315(4500)	3/8"	20
 DSG-03-DCRAC		120(31.70)	315(4500)	3/8"	20
 DSGX-01-DCRAC-RW		63(16.64)	200(2900)	1/8"	11
 DSG-01-DCRAC-RW		63(16.64)	315(4500)	1/8"	15
 DSG-03-DCRAC-RW		120(31.70)	315(4500)	3/8"	20

SWP TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DSGX-Y-01-ACDCRAC		63(16.64)	200(2900)	1/8"	12
 DSG-Y-01-AC		63(16.64)	315(4500)	1/8"	16
 DSG-Y-01-DCRAC		63(16.64)	315(4500)	1/8"	16
 DSG-Y-03-AC		120(31.70)	315(4500)	3/8"	21
 DSG-Y-03-DCRAC		120(31.70)	315(4500)	3/8"	21
 DSGX-Y-01-DCRAC-RW		63(16.64)	200(2900)	1/8"	12
 DSG-Y-01-DCRAC-RW		63(16.64)	315(4500)	1/8"	16
 DSG-Y-03-DCRAC-RW		120(31.70)	315(4500)	3/8"	21

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DSHG-Y-04		300(79.26) 500(132.10) 1100(290.62)	315(4500)	1/2" 3/4" 1-1/4"	46
 DSHG-N-06		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	47
 DSHG-10		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	48
 DSHG-Y-04-RW		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	46
 DSHG-N-06-RW		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	47
 DSHG-10-RW		300(79.26) 500(132.10) 1100(290.62)		1/2" 3/4" 1-1/4"	48

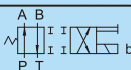
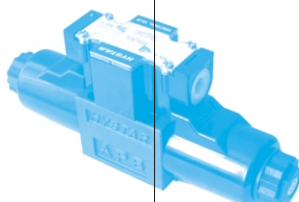
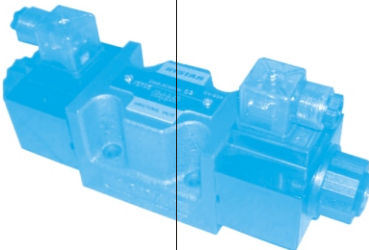
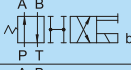
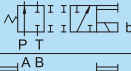
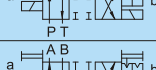
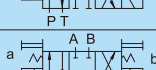




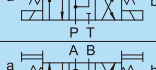





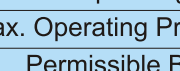

DIRECTIONAL VALVES(DHG TYPE) HYDRAULIC AND PNEUMATICALLY OPERATED	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DHG-01		63(16.64)	315(4500)	1/8"	63
 DHG-03		120(31.70)	315(4500)	3/8"	63
 DHG-04		300(79.26)	315(4500)	1/2"	64
 DHG-06		500(132.10)		3/4"	
 DHG-10		1100(290.62)		1-1/8"	

DIRECTIONAL VALVES(DHG TYPE) HYDRAULIC AND PNEUMATICALLY OPERATED	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
----	--	--	--	--	--
----	--	--	--	--	--
 DHG-04-RW		300(79.26)	315(4500)	1/2"	64
 DHG-06-RW		500(132.10)		3/4"	
 DHG-10-RW		1100(290.62)		1-1/4"	

DIN TYPE HYDRAULIC SOLENOID VALVES	Graphic Symbol	Q max. lpm (USgpm)	P max. bar(PSI)	Valve Size	Ref. Pages
 DSGX-N-01-AC/DC/RAC		63(16.64)	200(2900)	1/8"	A15
 DSG-N-01-AC		63(16.64)	315(4500)	1/8"	A18
 DSG-N-01-DC/RAC		63(16.64)	315(4500)	1/8"	A18
 DSG-N-03-AC		120(31.70)	315(4500)	3/8"	A23
 DSG-N-03-DC/RAC		120(31.70)	315(4500)	3/8"	A23
 DSGX-N-01-DC/RAC-RW		63(16.64)	200(2900)	1/8"	A15
 DSG-N-01-DC/RAC-RW		63(16.64)	315(4500)	1/8"	A18
 DSG-N-03-DC/RAC-RW		120(31.70)	315(4500)	3/8"	A23

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

A

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- **	30~45 lpm (7.9~11.9USgpm)						70~100 lpm (18.5~26.4USgpm)											
	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								
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.

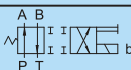
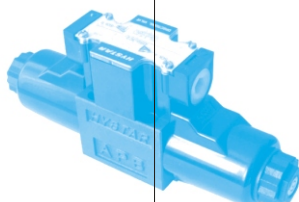
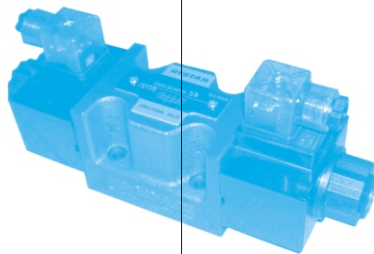
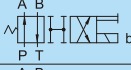
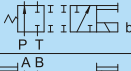
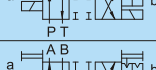
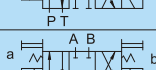




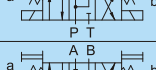





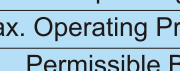

Max. pressure (P.A.B) : 200bar (2900PSI), 3C5/3C6 spool types : 160bar (2300PSI).

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

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

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

A

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-**-	30~45 lpm (7.9~11.9USgpm)						70~100 lpm (18.5~26.4USgpm)											
	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								
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



LIST OF SPOOL FUNCTIONS (DSG-01/03)

A

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			