



DLS8

Sectional directional control valves

Features

DLS8

These Load-Sensing directional valves are fitted with compensator in the inlet section.

They are made using the SD8 working sections.

They can be used both with fixed displacement pumps (open centre version) and variable displacement pumps (closed centre version).

Ports valves and control kits are the same as SD8 directional valve.

Simple, compact and heavy duty designed sectional valve from 1 to 14 sections for open and closed centre hydraulic systems.

- Fitted with a main pressure relief valve and a load check valve on every working section.
- Available with parallel, tandem or series circuit.
- Optional carry-over port.
- A wide range of port and circuit valves.
- Intermediate sections for several types of circuit.
- Available manual, pneumatic, hydraulic, electro-hydraulic, and remote with flexible cable spool control kits.
- Diameter 18 mm (0.71 in) interchangeable spools.

Additional information

This catalogue shows the product in the most standard configurations.

Please contact our Sales Dpt. for more detailed information or special requests.

WARNING!

All specifications of this catalogue refer to the standard product at this date.

Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

1st edition October 2015

DLS8

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Working condition

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/s (46 cSt) viscosity at 40°C (104°F) temperature.

Nominal flow rating	on P inlet	120 l/min	32 US gpm
	on A and B ports	100 l/min	26 US gpm
Max. pressure		315 bar	4600 psi
Back pressure (max.)	on T outlet port	25 bar	360 psi
Internal leakage A(B)⇒T (standard)	Δp = 100 bar (1450 psi)	3 cm ³ /min	0.30 cm ³ /min
Fluid		Mineral based oil	
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C	from -4°F to 176°F
	with FPM (VITON) seals	from -20°C to 100°C	from -4°F to 212°F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cSt
	min.	12 mm ² s	12 cSt
	max.	400 mm ² s	400 cSt
Max. contamination level		-/19/16 - ISO 4406	NAS 1638 - class 10
Environmental temperature for working conditions	with mechanical devices	from -40°C to 60°C	from -40°F to 140°F
Tie rod tightening torque		30 Nm	22 lbft

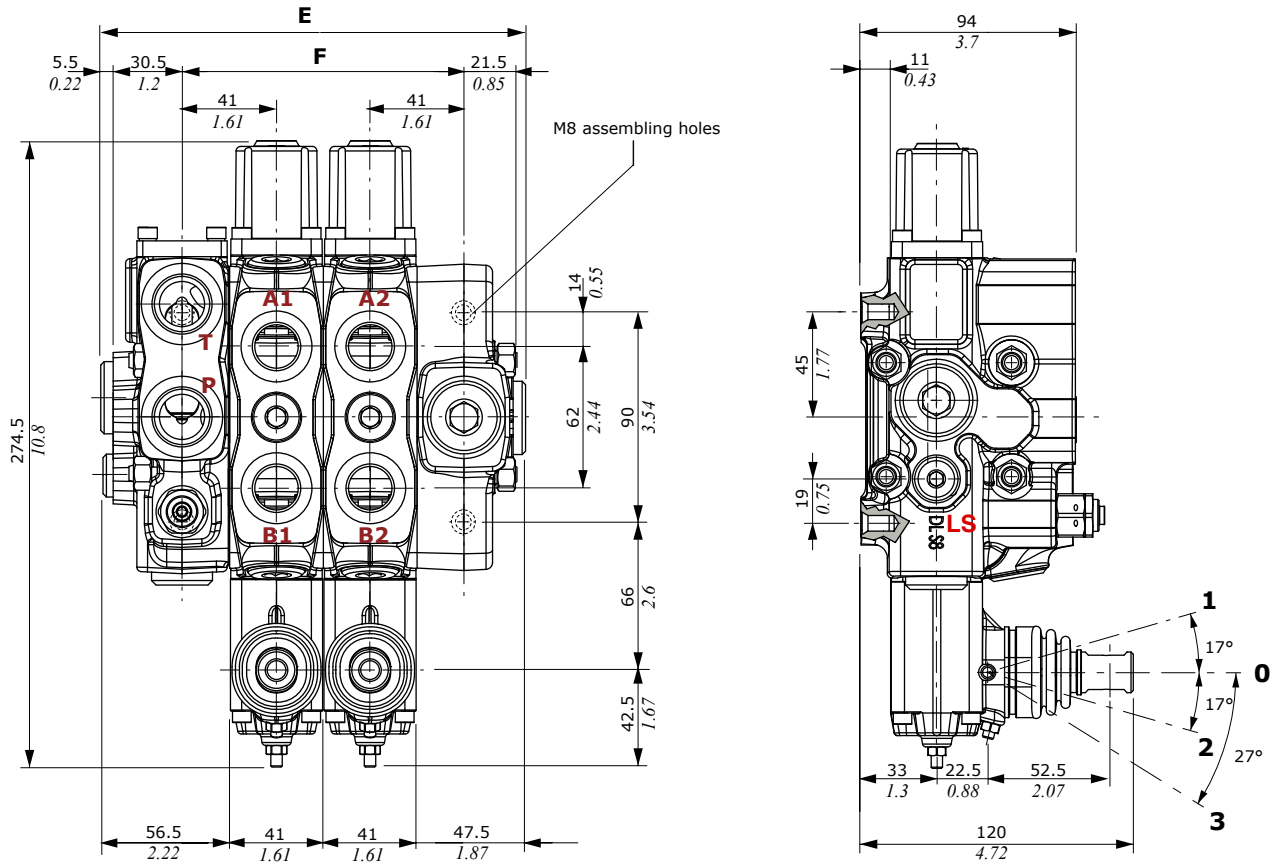
NOTES - For different conditions please contact our Sales Dept.

Standard threads

REFERENCE STANDARD				
		BSP	UN-UNF	NPTF
THREAD ACCORDING TO		ISO 228/1	ISO 263	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified	
CAVITY DIMENSION ACCORDING TO	ISO	1179-1	11926-1	
	SAE		J1926-1	J476a
	DIN	3852-2, X or Y shape		

PORTS THREADING		
MAIN PORTS	BSP	UN-UNF
P inlet	G 3/4	7/8-14 (SAE 10)
A and B ports	G 1/2	3/4-16 (SAE 8)
T outlet	G 3/4	7/8-14 (SAE 10)
LS load sensing	G 1/4	9/16-18 (SAE 6)
PILOT PORTS		
Hydraulic	G 1/4	9/16-18 (SAE 6)
Pneumatic	NPTF 1/8-27	NPTF 1/8-27

Dimensions



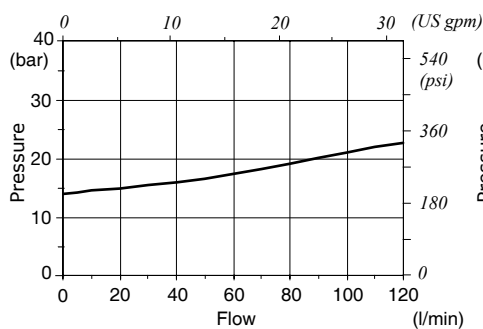
NOTES - Drawings and dimensions are referred to **BSP** thread configuration.

TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
DLS8/1	145	5.71	82	3.23	8.6	19
DLS8/2	186	7.32	123	4.84	12.3	27.1
DLS8/3	227	8.93	164	6.46	16	35.3
DLS8/4	268	10.55	205	8.07	19.7	43.4
DLS8/5	309	12.16	246	9.68	23.4	51.6
DLS8/6	350	13.78	287	11.3	26.9	59.3

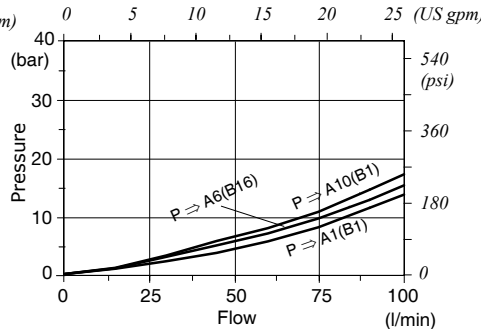
TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
DLS8/7	391	15.39	328	12.91	30.6	67.5
DLS8/8	432	17	369	14.52	34.3	75.7
DLS8/9	473	18.61	410	16.13	38	83.9
DLS8/10	514	20.22	451	17.74	41.7	92.1

Performance data

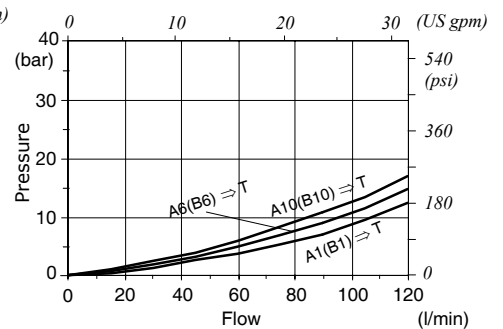
P ⇒ T pressure drop



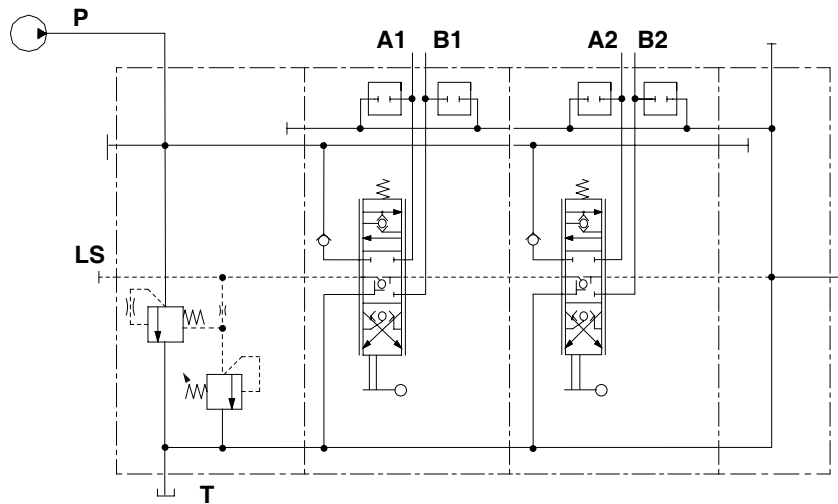
P ⇒ A(B) pressure drop



A(B) ⇒ T pressure drop

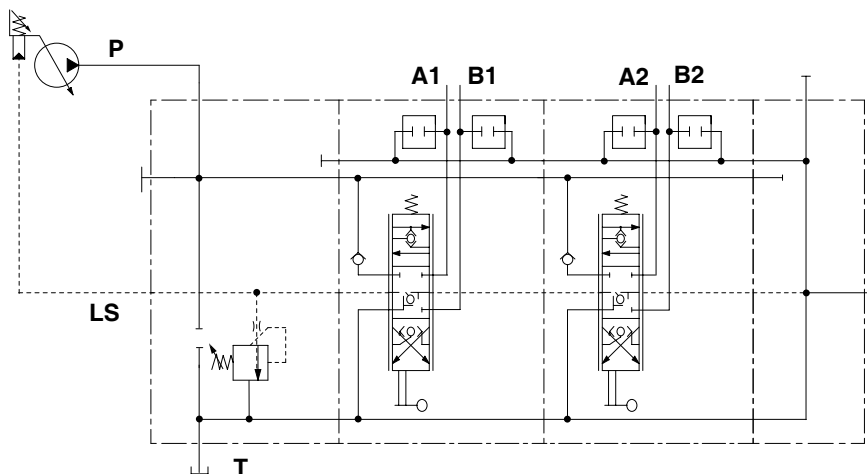


For open centre circuit (fixed displacement pump)

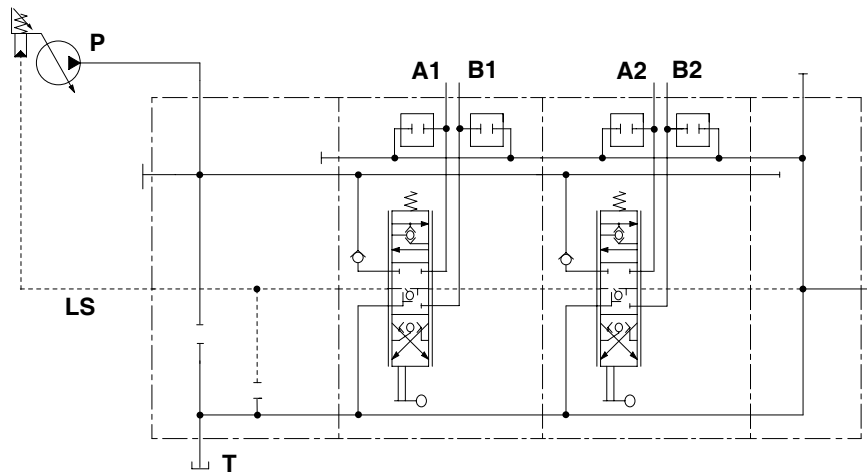


Description example:
DLS8/2/AM(G3-150)/6N8LF3/6N8LF3/RF

For closed centre circuit (variable displacement pump with Load-Sensing compensator)



Description example with L.S. relief valve:
DLS8/2/AN(G3-150)/6N8LF3/6N8LF3/RF



Description example without L.S. relief valve:
DLS8/2/AP(SV)/6N8LF3/6N8LF3/RF

Complete section ordering codes

DLS8 / 2 / AM(G3-150) / 6N8LF3 / 6N8LF3 / RF -

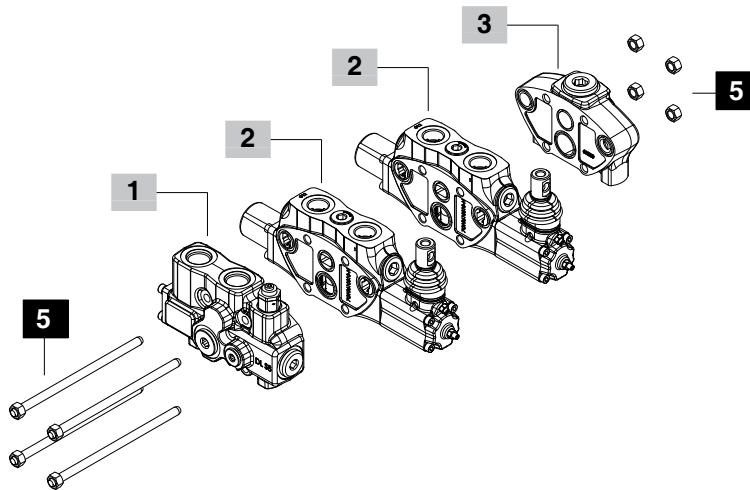
Nr. of working sections

1

2

3

4



1 Inlet section * page 51

TYPE	CODE	DESCRIPTION
AM(G3-150)	61C331000	For open centre circuit, with compensator and L.S. pressure relief valve
AN(G3-150)	61C332000	Without compensator and with L.S. pressure relief valve
AP(SV)	61C333000	Without compensator and without L.S. pressure relief valve

2 Working section * page 54

TYPE	CODE	DESCRIPTION
Q-6N8LF3	61C151001	Parallel circuit, double acting spool with spring return, lever control, without arrangement for port valves
P-6N8LF3	61C131601	As previous one, with arrangement for port valves (omitted in description)

3 Outlet section * page 55

TYPE	CODE	DESCRIPTION
RF	61C431000	Standard outlet section

4 Valve threading

Specify only if it is different from BSP standard (see page 47)

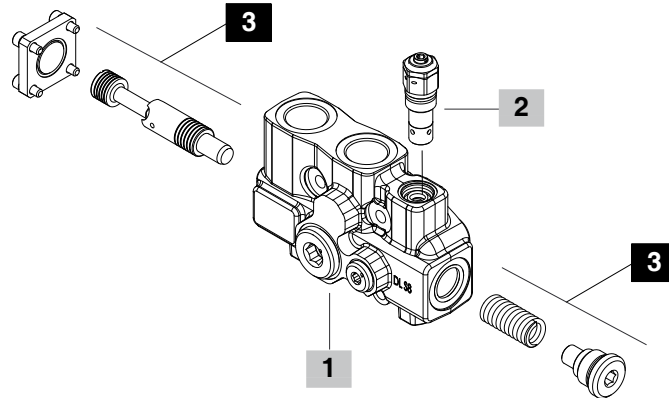
5 Assembling kit

CODE	DESCRIPTION
5TIR108128	Tie rod kit for 1 working section directional valve
5TIR108169	Tie rod kit for 2 working section directional valve
5TIR108210	Tie rod kit for 3 working section directional valve
5TIR108251	Tie rod kit for 4 working section directional valve
5TIR108292	Tie rod kit for 5 working section directional valve
5TIR108333	Tie rod kit for 6 working section directional valve
5TIR108374	Tie rod kit for 7 working section directional valve
5TIR108415	Tie rod kit for 8 working section directional valve
5TIR108456	Tie rod kit for 9 working section directional valve
5TIR108497	Tie rod kit for 10 working section directional valve

NOTE (*) – Codes are referred to **BSP** thread.

FE DLS8 / AM (G3 - 125) - Valve setting (bar)

1 2 4



1 Inlet cover body * page 52

TYPE	CODE	DESCRIPTION
AM	5FIA308310	For compensator and L.S. relief valve
AN	5FIA308311	For compensator blanking kit and L.S. relief valve
AP	5FIA308312	For compensator blanking kit and L.S. relief valve blanking kit

3 Compensator kit

CODE	DESCRIPTION
5KIT008300	Compensator kit, for AM section
5KIT008310	Compensator blanking kit, for AN and AP section

2 L.S. relief valve options page 53

Standard setting is referred to 10 l/min (2.6 US gpm)

TYPE	CODE	DESCRIPTION
ST	XTAP220440	Relief valve blanking plug

L.S. relief valve

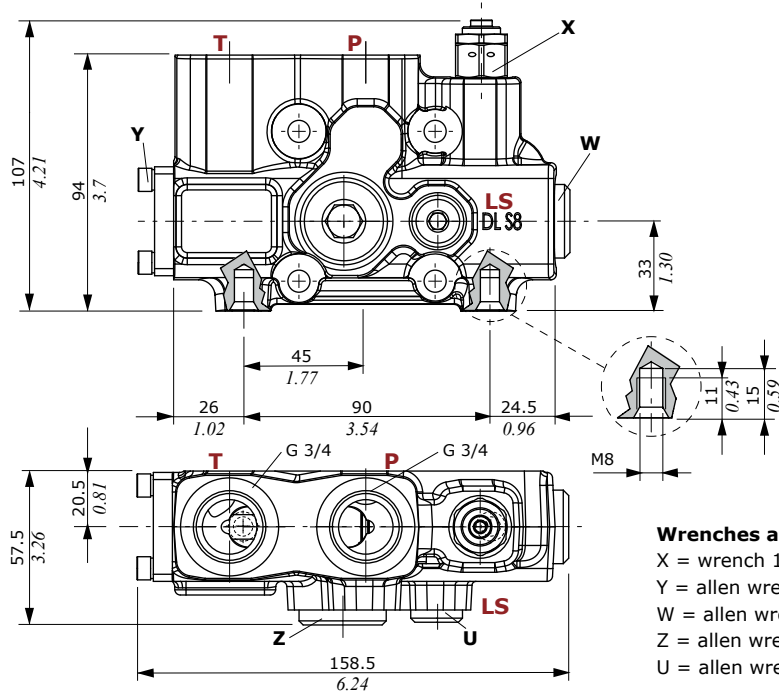
(G3-160)	XCAR602100	Range 100-200 bar (1450-2900 psi), standard setting 160 bar (2300 psi)
(G4-250)	XCAR602200	Range 160-315 bar (2300-4550 psi), standard setting 250 bar (3600 psi)

4 Section threading

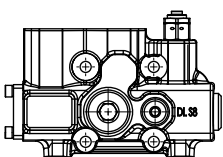
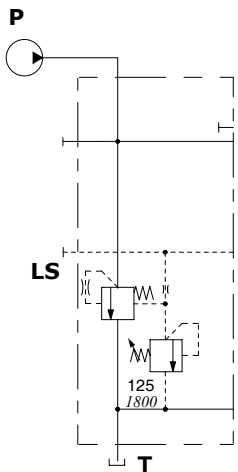
Specify only if it is different from BSP standard (see page 47)

NOTE (*) – Codes are referred to **BSP** thread.

Dimensional data and hydraulic circuit

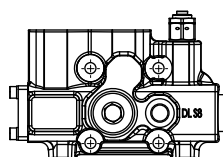
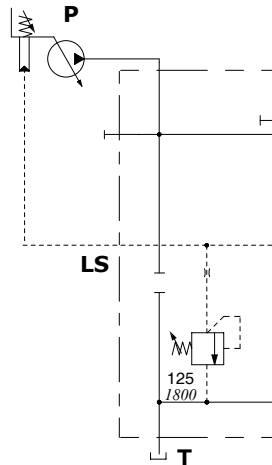


For fixed displacement pump, L.S. compensator (open centre) with main relief valve



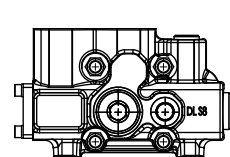
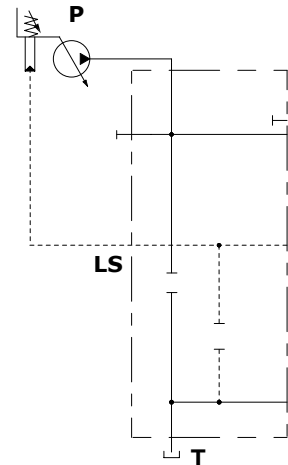
Description example:
AM (G3-125)

For variable displacement pump, (closed centre) with main relief valve



Description example:
AN (G3-125)

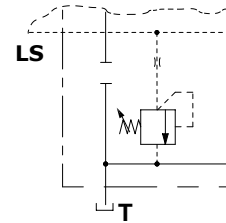
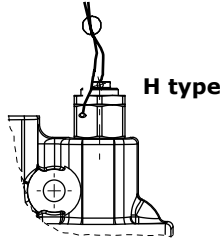
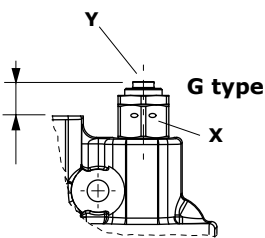
For variable displacement pump, (closed centre) without main relief valve



Description example:
AP (ST)

L.S. relief valve

Configuration type:



Legenda

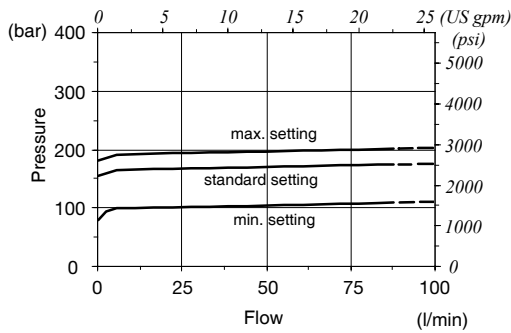
- G: adjustable with screw
- H: valve set and locked

Wrenches and tightening torques

- X = wrench 19 - 24 Nm (17.7 lbf^t)
- Y = allen wrench 4

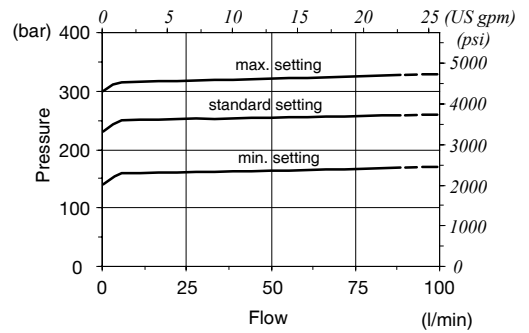
G3 valve setting range

From 100 to 200 bar (from 1450 to 2900 psi)



G4 valve setting range

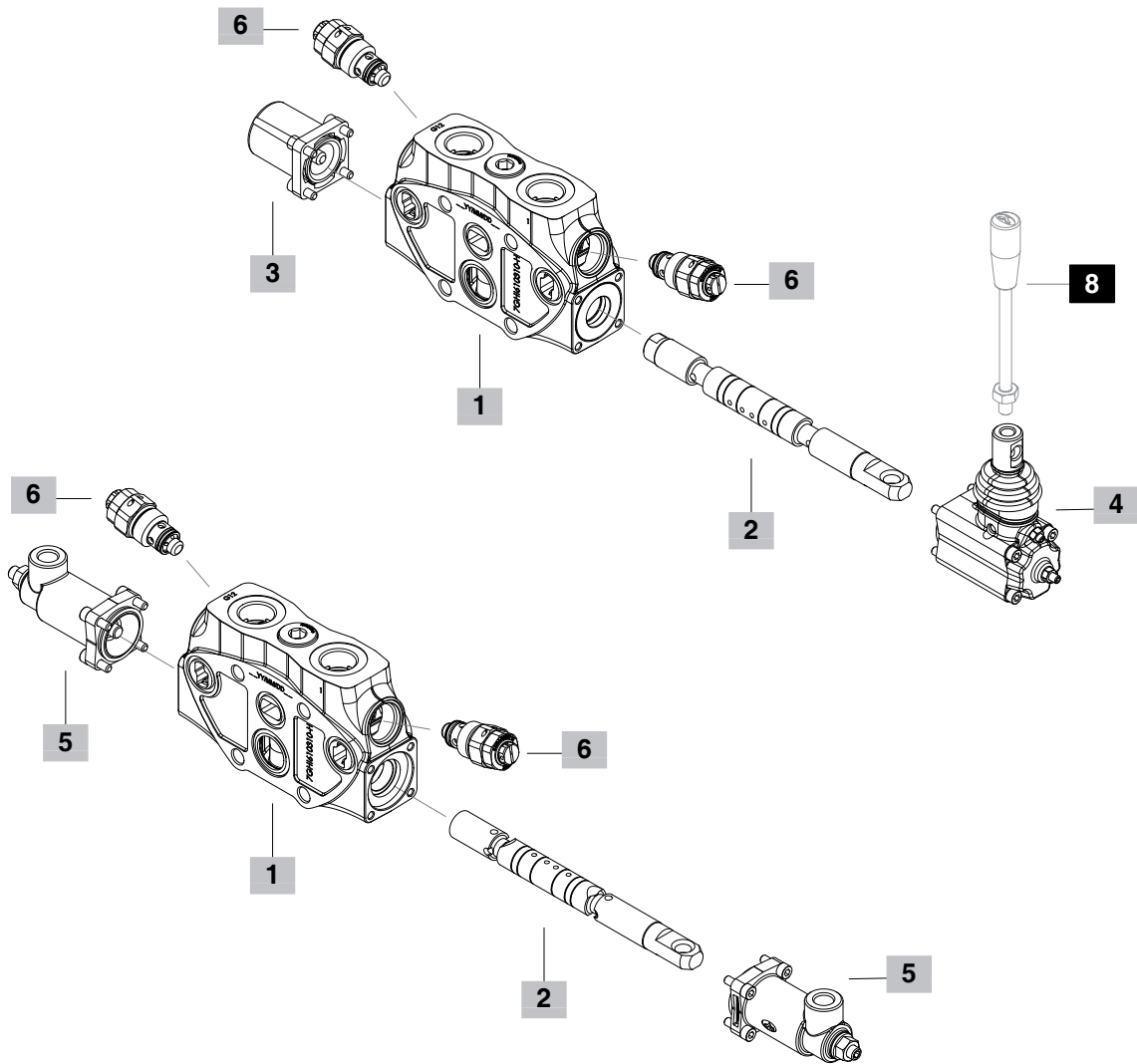
From 160 to 315 bar (from 2300 to 4550 psi)



Part ordering codes

EL DLS8 / (P) - 6N 8 LF3 . P3 (G3 - 100) -
 1 2 3 4 6 7
 1 - on A port
 2 - on B port
 3 - on A and B ports
 Valve setting (bar)

EL DLS8 / (P) - 6N 8IMF3 . P3 (G3 - 100) -
 1 2 5 6 7
 1 - on A port
 2 - on B port
 3 - on A and B ports
 Valve setting (bar)



Part ordering codes

1 Working section kit * page 56

TYPE	CODE	DESCRIPTION
P	5EL1083000	For parallel circuit (omitted in description)
Q	5EL1083010	For parallel circuit without arrangement for port valves

2 Spools page 56**Double acting, 3 positions, with A and B closed in neutral position**

TYPE	CODE	DESCRIPTION
6V	3CU3410020	Up to 20 l/min (5.3 US gpm) flow
6Q	3CU3410040	Up to 40 l/min (10.6 US gpm) flow
6S	3CU3410060	Up to 60 l/min (16 US gpm) flow
6N	3CU3410090	Up to 90 l/min (23.8 US gpm) flow

Double acting, 3 positions, with A and B to tank in neutral position

TYPE	CODE	DESCRIPTION
7V	3CU3425020	Up to 20 l/min (5.3 US gpm) flow
7Q	3CU3425040	Up to 40 l/min (10.6 US gpm) flow
7S	3CU3425060	Up to 60 l/min (16 US gpm) flow
7N	3CU3425090	Up to 90 l/min (23.8 US gpm) flow

3 "A" side spool positioners page 28

TYPE	CODE	DESCRIPTION
7FT	5V07208100	With friction and neutral position notch
8	5V08108010	With spring return in neutral position

4 "B" side options page 35

TYPE	CODE	DESCRIPTION
L	5LEV108000	Standard lever box
LF3	5LEV108710	Lever box with spool stroke limiter
SLP	5COP108000	Without lever box, with dust-proof plate
LCB	5CLO208000	Joystick lever for 2 section operation

5 Complete controls * page 38

TYPE	CODE	DESCRIPTION
8IMF3	5IDR208220	Proportional hydraulic control with spool stroke limiter

6 Port valves page 39

Standard setting is referred to 10 l/min (2.6 US gpm)

TYPE	CODE	DESCRIPTION
-	3XTAP524290	Valve blanking plug (omitted in description)

C XCAR408110 Anti-cavitation valve**Anti-shock valve**

P(G2)	3XCAR208112	Range 55-140 bar (790-2050 psi) standard setting 60 bar (870 psi)
P(G3)	3XCAR208113	Range 63-220 bar (900-3200 psi) standard setting 100 bar (1450 psi)
P(G4)	3XCAR208114	Range 180-350 bar (2600-5100 psi) standard setting 200 bar (2900 psi)

Anti-shock and anti-cavitation valve

U(G2)	XCAR308112	Range 63-125 bar (900-1800 psi) standard setting 63 bar (900 psi)
U(G3)	XCAR308115	Range 100-250 bar (1450-3600 psi) standard setting 100 bar (1450 psi)
U(G4)	XCAR308114	Range 200-315 bar (2900-4600 psi) standard setting 200 bar (2900 psi)

7 Section threading

Specify only if it is different from BSP standard (see page 47)

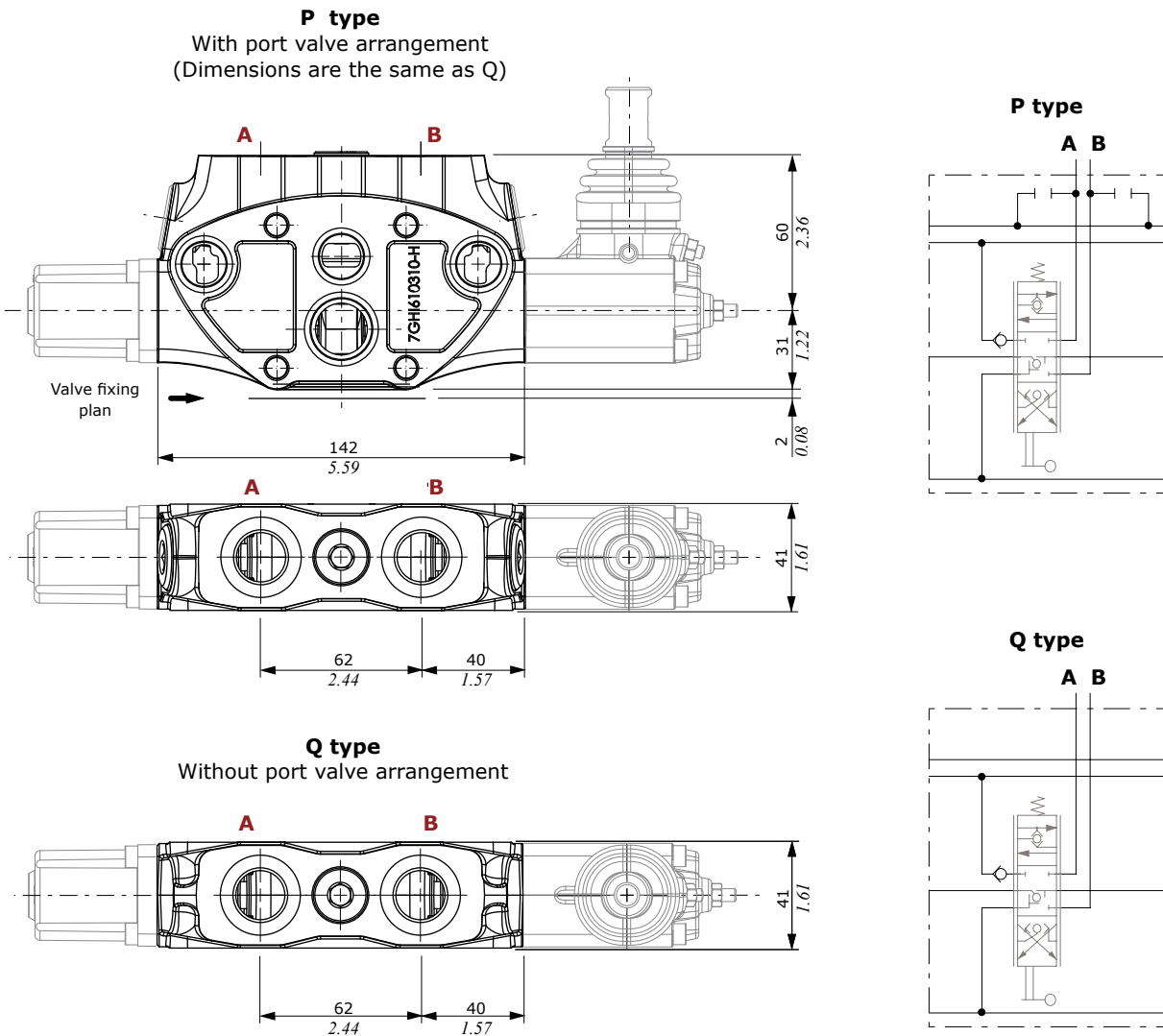
8 Optional handlevers

TYPE	CODE	DESCRIPTION
AL01/M10x200	170012020	For L lever box, 200 mm (7.87 in)
AL08/M12x200	170013120	For LCB joystick, 200 mm (7.87 in)

For handlever features please see dedicated catalogue cod. D1WWEH01E

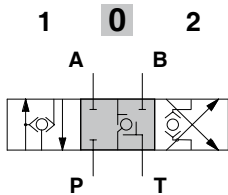
NOTE (*) – Codes are referred to **BSP** thread.

Dimensional data and hydraulic circuit



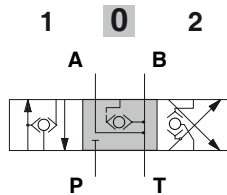
Spools

Type 6V/6Q/6S/6N spool
Double acting, 3 positions with A and B closed in neutral position



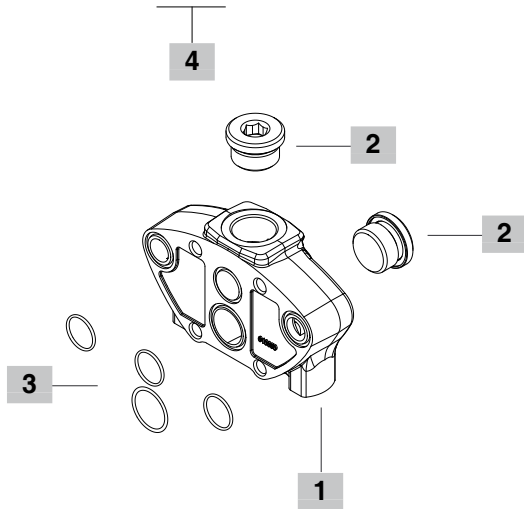
Spool stroke
position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)

Type 7V/7Q/7S/7N spool
Double acting, 3 positions with A and B to tank in neutral position



Spool stroke
position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)

FS DLS8 / RF -



1 Outlet section *

CODE	DESCRIPTION
3FIA208300-H	Outlet section body

2 Plug *

CODE	DESCRIPTION
3XTAP732200	G 3/4 plug

3 O-ring seals

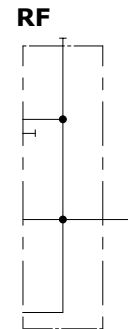
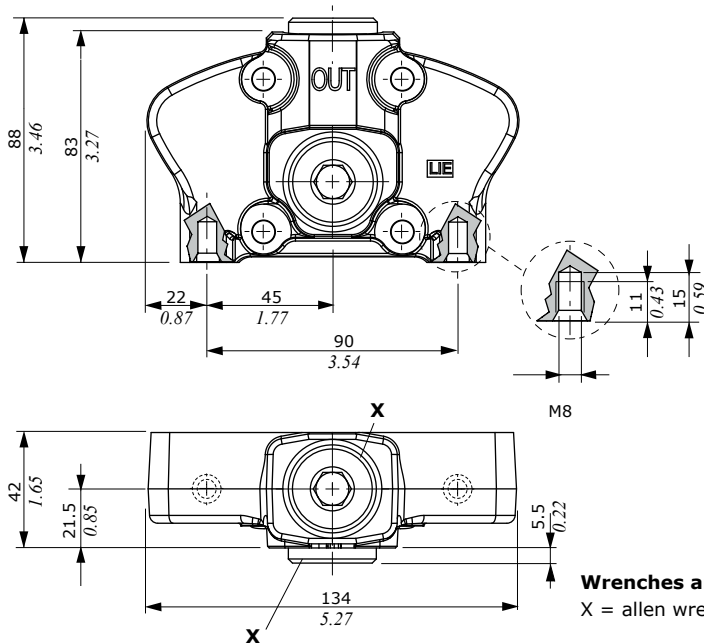
CODE	DESCRIPTION
4GUA118818	O-ring 18.77x1.78 NBR 70 SH (3 pieces)
4GUA125118	O-ring 25.12x1.78 NBR 70 SH (1 piece)

4 Section threading

Specify only if it is different from BSP standard (see page 47)

NOTES (*) - Codes are referred to **BSP** thread.

Dimensional data and hydraulic circuit



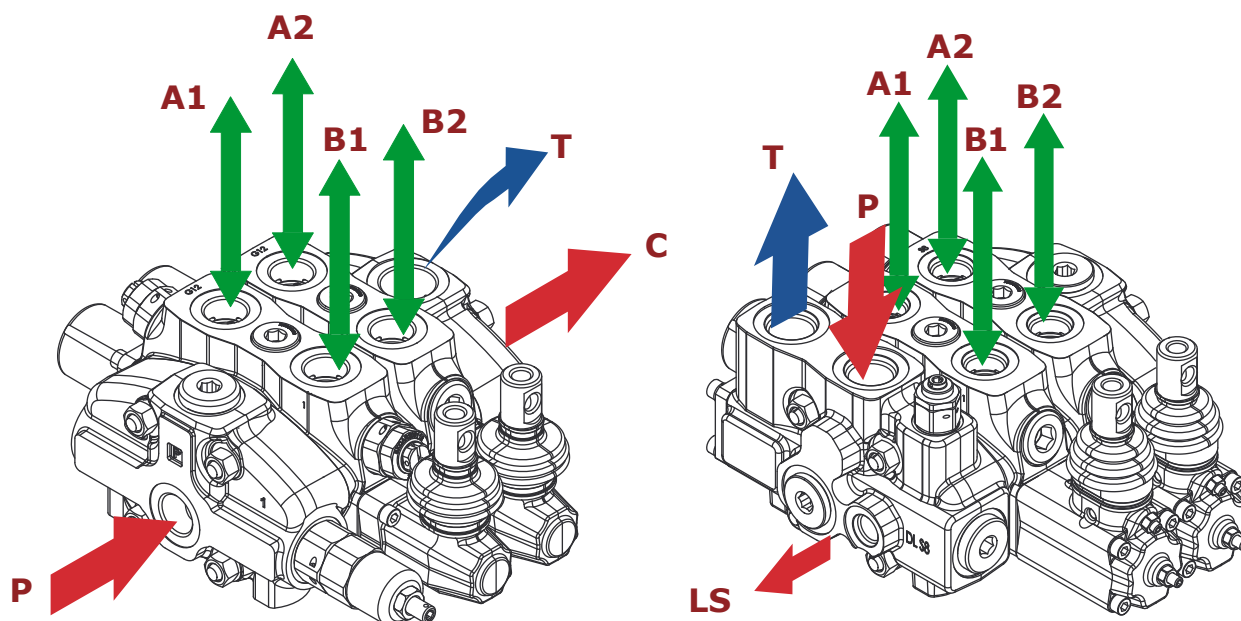
Wrenches and tightening torques
 X = allen wrench 12 - 42 Nm (31 lbft)

Installation and maintenance

The SD8/DLS8 valves are assembled and tested as per the technical specifications of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- the valve can be assembled in any position; please in order to prevent working section deformation and spool sticking, mount the product on a flat surface;
- in order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure washdown directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.



Fitting tightening torque - Nm (*lbft*)

THREAD TYPE	P port	A, B ports	T, C ports	LS signal
BSP	G 1/2	G 1/2	G 3/4	G 1/4
With O-Ring seal	50 - 36.9	50 - 36.9	70 - 51.6	20 - 14.7
With copper washer	60 - 44.3	60 - 44.3	70 - 51.6	25 - 18.4
With steel and rubber washer	60 - 44.3	60 - 44.3	70 - 51.6	16 - 11.8
UN-UNF	7/8-14 (SAE 10)	3/4-16 (SAE 8)	7/8-14 (SAE 10)	9/16-18 (SAE 6)
With O-Ring seal	90 - 66.4	60 - 44.3	90 - 66.4	30 - 22.1
METRIC	M22x1,5	M22x1,5	M27x2	M14x1,5
With O-Ring seal	60 - 44.3	60 - 44.3	100 - 73.7	35 - 25.8

NOTES – This torque is recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer has to be consulted.

Types and ordering codes

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000	-	-	-	-	-
	12 VDC	4SLE001200	4SLE001201 ⁽⁵⁾	4SLE001203 ⁽⁵⁾	4SLE001210 ⁽²⁾	4SLE001214 ⁽²⁾	4SLE001207
		4SLE001217 ⁽³⁾	4SLE001209 ⁽³⁻⁵⁾	4SLE001211 ⁽³⁻⁵⁾	-	-	-
		4SLE001216 ⁽³⁻⁶⁾	4SLE001202 ⁽⁶⁾	4SLE001206 ⁽²⁾	-	-	-
		4SLE001206 ⁽²⁾	-	-	-	-	-
	24 VDC	4SLE002400	4SLE002401 ⁽⁵⁾	4SLE002403 ⁽⁵⁾	-	-	4SLE002404
	4SLE002408 ⁽³⁾	4SLE002407 ⁽³⁻⁵⁾	-	-	-	-	
4SLE302400 ⁽¹⁾	4SLE002402 ⁽⁶⁾	-	-	-	-		
48 VDC	4SLE004800	-	-	-	-	-	
4SLE304800 ⁽¹⁾	-	-	-	-	-	-	
110VDC	4SLE011000	-	-	-	-	-	
4SLE311000 ⁽¹⁾	-	-	-	-	-	-	
220 VDC	4SLE022000	-	-	-	-	-	
4SLE322000 ⁽¹⁾	-	-	-	-	-	-	
BT	10 VDC	4SL3000100	-	-	-	-	-
	12 VDC	4SL3000120	4SL3000130 ⁽⁶⁾	4SL3000122 ⁽⁵⁾	4SL3000124 ⁽²⁾	4SL3000127 ⁽²⁾	4SL300012C
		4SL3000126 ⁽⁴⁾	4SL3000134 ⁽³⁻⁶⁾	4SL30001200 ⁽³⁻⁵⁾	-	-	-
		4SL3000128 ⁽²⁾	-	-	-	-	-
	24 VDC	4SL3000240	4SL3000249 ⁽⁶⁾	4SL3000248 ⁽⁵⁾	-	-	4SL3000246
	4SL3030240 ⁽¹⁾	4SL300024C ⁽³⁻⁶⁾	-	-	-	-	
	26 VDC	4SL3000260	-	-	-	-	-
48 VDC	4SL3000480	-	-	-	-	-	
4SL3030480 ⁽¹⁾	-	-	-	-	-	-	
110 VDC	4SL3001100	-	-	-	-	-	
4SL3031100 ⁽¹⁾	-	-	-	-	-	-	
220 VDC	4SL3002200	-	-	-	-	-	
4SL3032200 ⁽¹⁾	-	-	-	-	-	-	
BPV	12 VDC	4SLA001200	-	-	-	-	4SLA001201
	24 VDC	4SLA002400	-	-	-	-	4SLA002401
Mating connectors (for connector with rectifier see following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

NOTES - ⁽¹⁾ supply with AC and use only with rectifier connector - ⁽²⁾ with flying leads - ⁽³⁾ with bidirectional diode - ⁽⁴⁾ with unidirectional diode - ⁽⁵⁾ integrated perpendicular type - ⁽⁶⁾ integrated parallel type

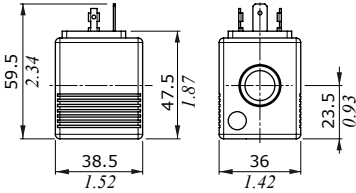
Voltage	ISO 4400 mating connector with rectifier	
	BER type coil	BT type coil
24 VDC	4CN1010240	4CN3010240
48 VDC	4CN1010480	4CN3010480
110 VDC	4CN1011100	4CN3011100
220 VDC	4CN1012200	4CN3012200

Coils

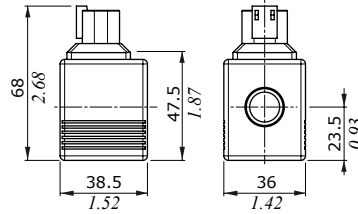
Dimensions and features

BER type

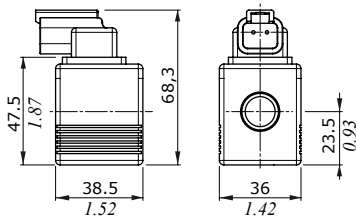
ISO4400 connector



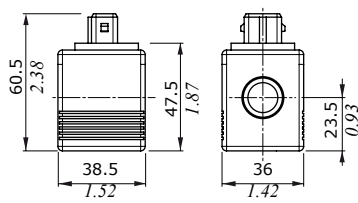
DEUTSCH DT04 connector (perpendicular type)



DEUTSCH DT04 connector (parallel type)



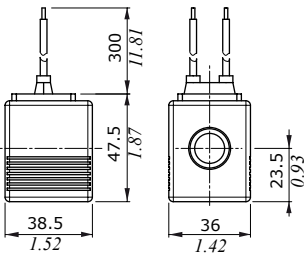
AMP JPT connector



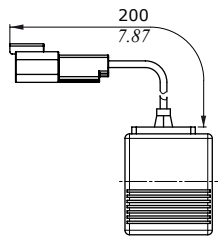
Features

- Nominal voltage tolerance . . . : ±10%
- Power rating : 19.2 W - 10/12/24/48/110/220 VDC
- : 19 W - 24/110/220 RAC
- : 19.2 W - 48 RAC
- Max. operating current : 1.9 A - 10 VDC
- : 1.61 A - 12 VDC
- : 0.80 A - 24 VDC
- : 0.40 A - 48 VDC
- : 0.17 A - 110 VDC
- : 0.09 A - 220 VDC
- : 0.89 A - 24 RAC
- : 0.45 A - 48 RAC
- : 0.19 A - 110 RAC
- : 0.09 A - 220 RAC
- Coil insulation : Class H (180°C - 356°F)
- Weather protection : IP65 - ISO4400
- : IP69K - Deutsch DT
- : IP65 - AMP JPT
- : IP67 - Weatherpack
- : IP67 - Metri-pack
- Insertion : 100%

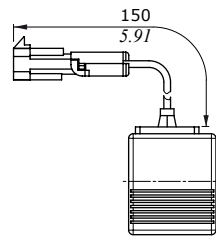
Flying leads



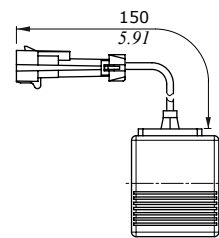
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

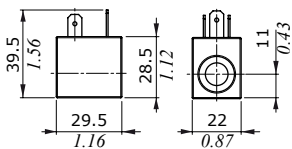


Flying leads with PACKARD METRI-PACK connector

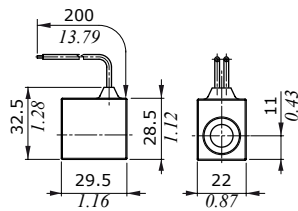


BPV type

ISO4400 connector



Flying leads



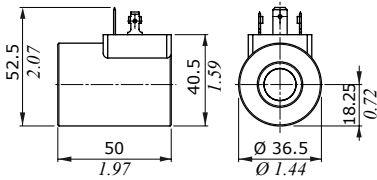
Features

- Nominal voltage tolerance . . . : ±10%
- Power rating : 8 W - 12/24 VDC
- Max. operating current : 0.67 A - 12 VDC
- : 0.33 A - 24VDC
- Coil insulation : Class H (180°C - 356°F)
- Weather protection : IP65 - ISO4400
- Insertion : 100%

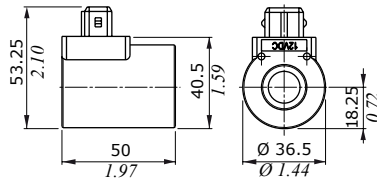
Dimensions and features

BT type

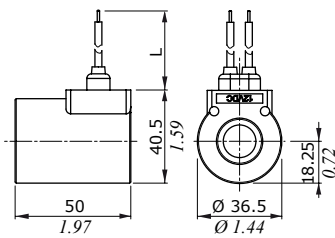
ISO4400 connector



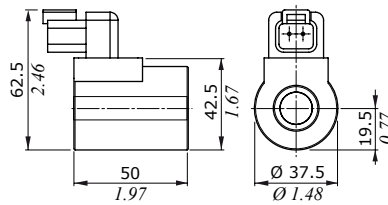
AMP JPT connector



Flying leads



DEUTSCH DT04 connector



Coil type	Dimension L	
	(mm)	(in)
12VDC	247	9.72
24VDC	307	12.09

Features

- Nominal voltage tolerance... : ±10%
- Power rating : 19 W - 10 VDC
: 21 W - 12/24/26 VDC
: 20.3 W - 48 VDC
: 17.3 W - 110 VDC
: 17.7 W - 220 VDC
: 19.9 W - 24 RAC
: 20.7 W - 48 RAC
: 20 W - 110/220 RAC

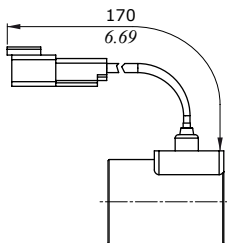
- Max. operating current . . . : 1.9 A - 10 VDC
: 1.77 A - 12 VDC
: 0.89 A - 24VDC
: 0.84 A - 26 VDC
: 0.43 A - 48 VDC
: 0.16 A - 110 VDC
: 0.08 A - 220 VDC
: 0.93 A - 24 RAC
: 0.47 A - 48 RAC
: 0.18 A - 110 RAC
: 0.09 A - 220 RAC

Coil insulation : Classe F (155°C - 311°F)

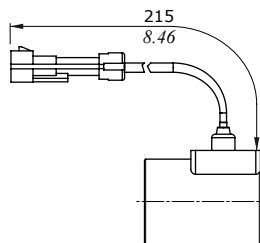
- Weather protection : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack

Insertion : 100%

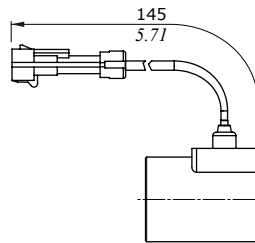
Flying leads with DEUTSCH DT04 connector



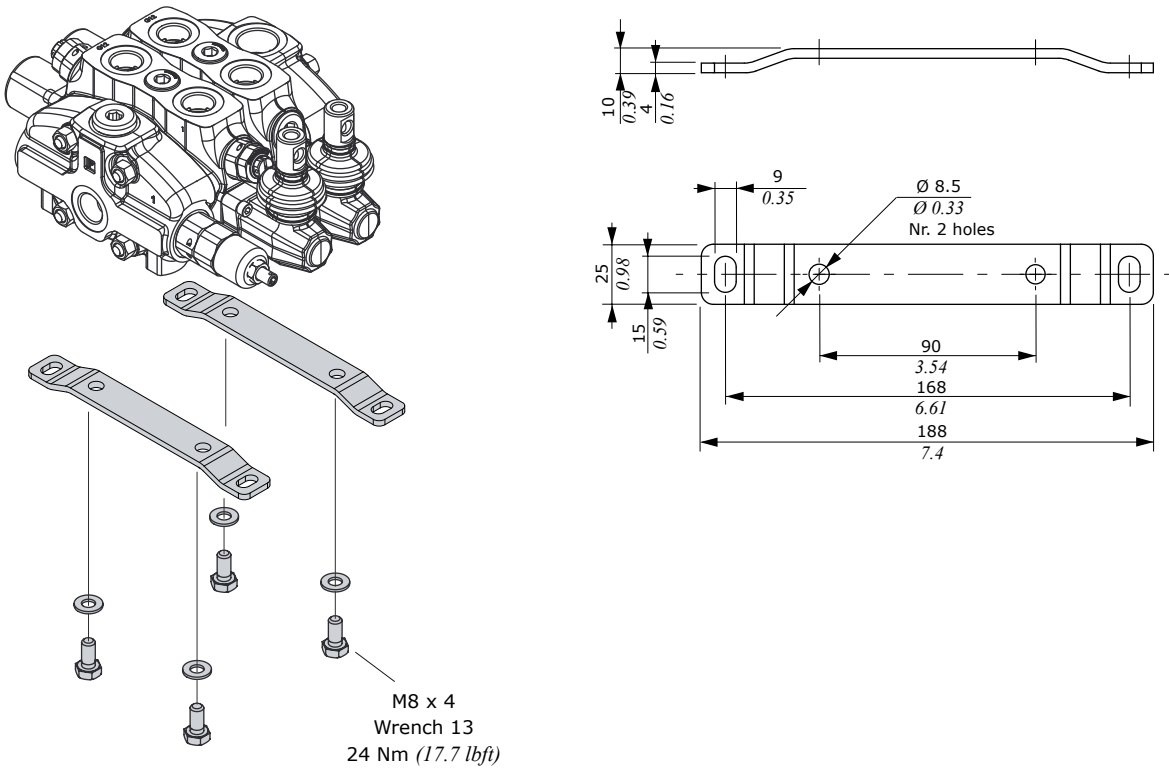
Flying leads with PACKARD WEATHER-PACK connector



Flying leads with PACKARD METRI-PACK connector



Fixing brackets



Painting

SD8/DLS8 valve can be supplied with one coat of black paint (**CVN** configuration).

Description example: SD8/2/AC(YG3-175)/18L/18L/RC-<CVN>

NOTES – For different colour please contact our Sales Dpt.

1st edition October 2015

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