ATLANTIC
Fluid Tech

SECTION
19

Directional Valves

DIRECTIONAL VALVES

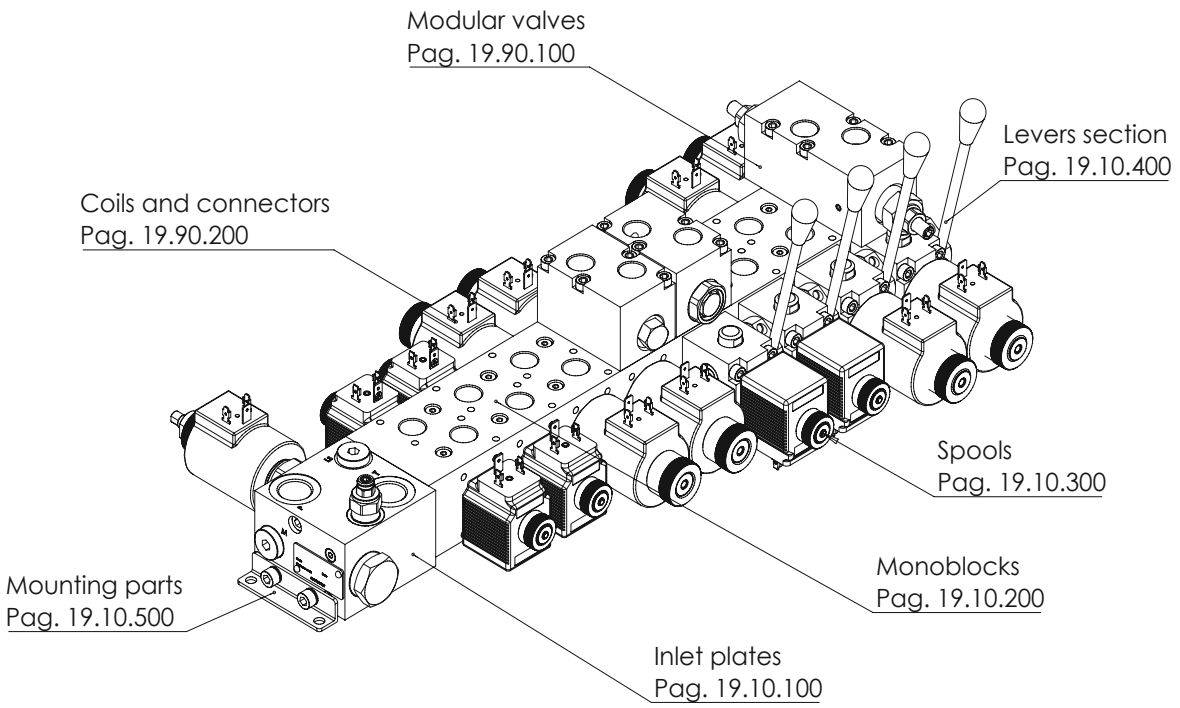
ATLANTIC Fluid Tech

Hydraulic scheme	Valve description	Valve type	Rated flow l/min (gpm)	Max. pressure bar (psi)	Page
	EBN	On-off or proportional	30-60 (8-16)	210-320 (3000-4600)	19.10.**000**
	EBL	Load sensing, on-off or proportional	30-60 (8-16)	210-320 (3000-4600)	19.20.**000**
	Accessories	-	-	-	19.90.**000**

EBN series

MONOBLOCK DIRECTIONAL VALVE ON-OFF OR PROPORTIONAL

ATLANTIC Fluid Tech



FEATURES

- Compact dimensions
- Low weight
- Custom spools
- Custom inlet blocks
- Sandwich valves for extra functions
- Cast iron monoblock and aluminum inlet block for standard applications
- High resistance cast iron monoblock and steel inlet block for high pressure systems
- Optional levers for manual operation
- No leak risk between sections
- Spools not under rod tension
- Zinc plated/anodized components for corrosion resistance

SPECIFICATION\DESCRIPTION

MAXIMUM OPERATING PRESSURE	Steel inlet block: 320 bar (4600 PSI) Aluminium inlet block: 210 bar (3000 PSI)
MAXIMUM TANK PRESSURE	20 bar (290 PSI)
RATED FLOW	030 series: 30 l/min (8 GPM) 060 series: 60l/min (16 GPM)
COIL POWER	030 series: 26 W 060 series: 33 W
VOLTAGE	12 VDC, 24 VDC, others on request
COIL CONNECTOR	DIN43650, AMP Junior, Deutsch DT04-2P
PORTS	Inlet: G1/2", 1/2 JiS, 7/8-14 UNF-2B (SAE#10) Outlet: G3/8",3/8 JIS, 3/4-16 UNF-2B (SAE#8)
OPERATING TEMPERATURE	NBR (ISO 1629) seals:-30,+100°C (-22,+212°F) FKM (ISO 1629) seals:-20,+200°C (-4,+392°F)
FILTRATION	ISO 4406:1999: class 19/17/14 NAS 1638: class 8
MOUNTING POSITION	No restrictions
MATERIAL	Spool body: cast iron Spool: hardened and grounded steel Inlet block: Aluminium or steel
SURFACE TREATMENT	Steel: zinc plating Aluminium: anodization

EBN series is a new directional valve that has innovative features in terms of performance, dimension, manufacturing reliability and customization. The valve consists in an inlet block flanged to a monoblock with spools. This construction gives the advantages of high flexibility in inlet block schemes, combined with the reliability and simplicity of monoblock spool valve construction, eliminating the risk of spools blocking due to overtightening of tie rods or the risk of leakage between sections. The spool monoblock is a 2 or 3 position, 4 ways, direct acting solenoid operated type. All sections have threaded ports at the top and removable plugs for tank connections to allow the installation of flanged blocks with additional functions like crossover reliefs, reliefs to tank, relief and anticavitations, counterbalance valves, P.O. checks, flow restrictors and flow regulators. All sections are equipped with standard push button override and they can be equipped with lever for manual use.

HOW ORDER IT

To order an assembled block, contact AFT sales network specifying the part numbers following page 19.90.900 path.

For special versions please contact AFT sales network.

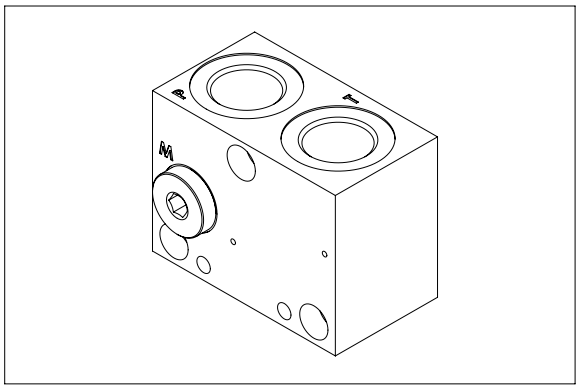
To order the separate parts please refer to each catalogue page.

EBN series - INLET SECTION

SFNL-060-ZNNN-01

P, T PORTS
M PORTS

ATLANTIC Fluid Tech

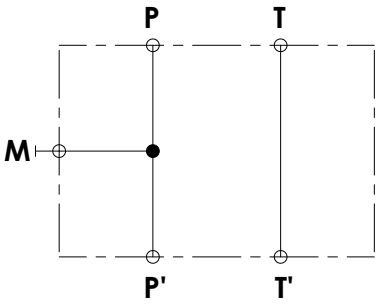


This inlet section is equipped with two thread ports (P, T) available in two different types G 1/2" or 3/4"-16 UNF plus a third threaded port M for pressure measuring available in G 1/4" or 7/16"-20.
The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

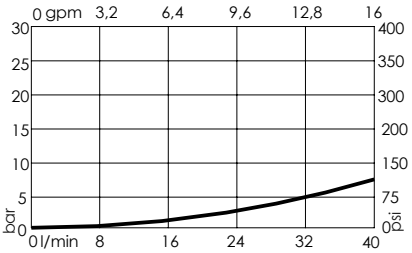
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,3 kg (0,66 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

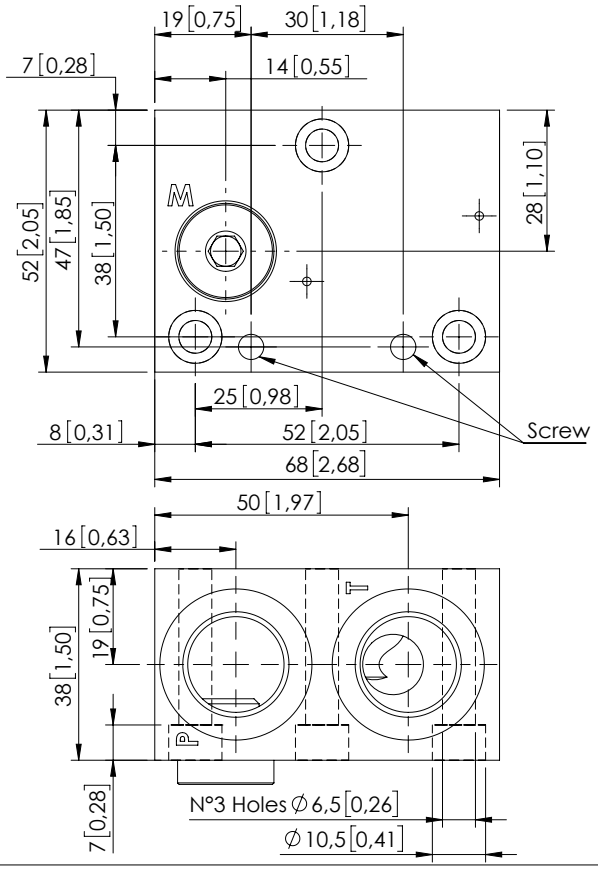
SFNL-060-[*]NNN-01-[***]-N

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFNL-060-ZNNN-01-G12-N	SF000004

OVERALL DIMENSIONS



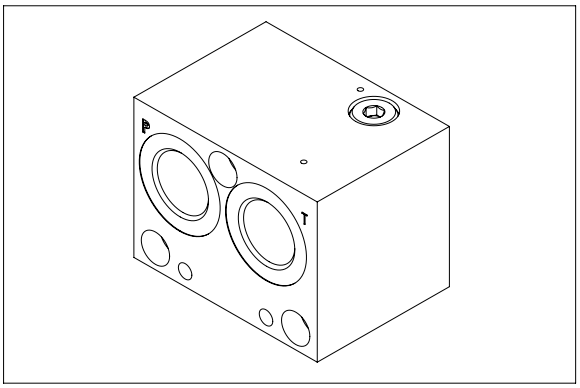
Dimensions: mm [inches]

EBN series - INLET SECTION

SFNL-060-ZNNN-02

CHECK VALVE OPTIONS

ATLANTIC Fluid Tech

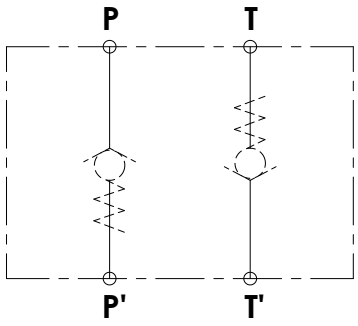


This inlet section is equipped with threaded ports (P, T) available in two different sizes G 1/2" or 3/4"-16 UNF, M ports is not available in this inlet section. The ports have extra threads to allow the installation of check valve on P and T ports. The manifold material is aluminium for applications up to 210 bar (3000 psi)or zinc plated steel for applications up to 320 bar (4600 psi).

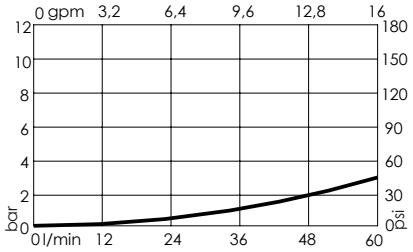
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,4 kg (0,88 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

SFNL-060-[*]NN[*]-02-[***]-N

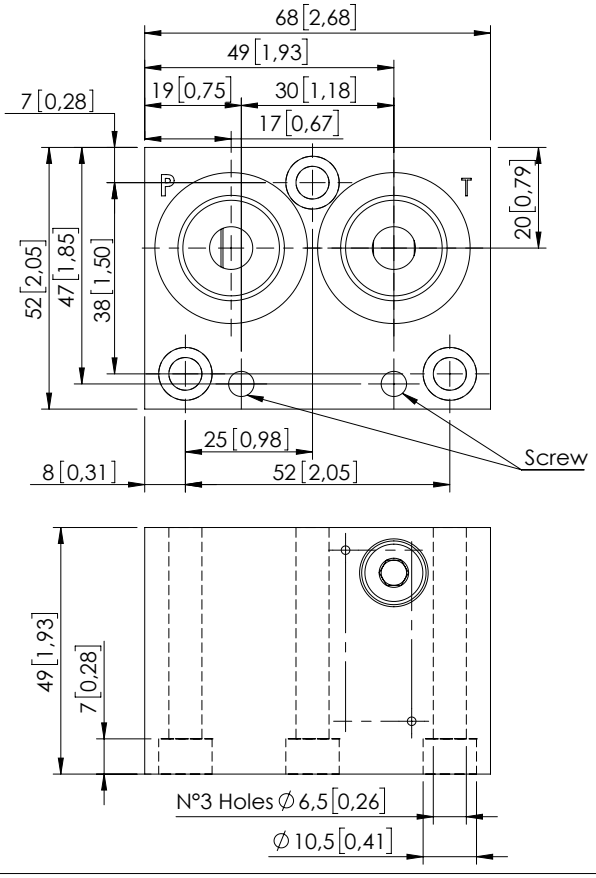
*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

*	CHECK VALVE OPTION
N	No check valve
D	Check valve on P e T ports
P	Check valve only P port
T	Check valve only T port

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	/
U34	3/4"-16 UNF	3/4"-16 UNF	/

QUICK CODE	
DESCRIPTION	CODE
SFNL-060-ZNNN-02-G12-N	SF000008
Check valve on P	CD000181
Check valve on T	CD000175

OVERALL DIMENSIONS



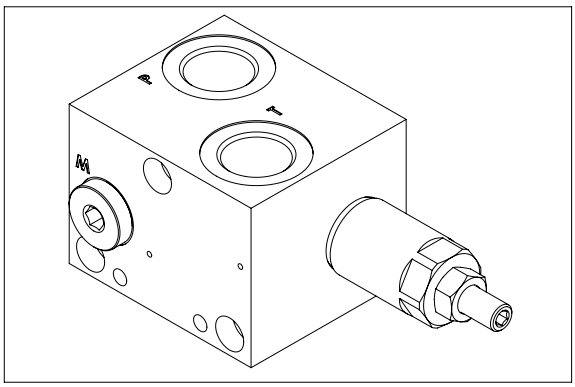
Dimensions: mm [inches]

EBN series - INLET SECTION

SFNL-060-ZNNN-03

RELIEF VALVE
M PORT

ATLANTIC Fluid Tech

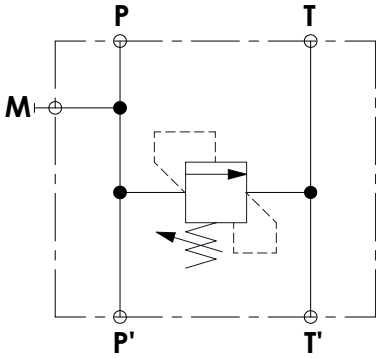


This inlet section is equipped with threaded ports (P, T) available in two different sizes G 1/2" or 3/4"-16 UNF, an M ports is available in sizes G 1/4" or 9/16-18 UNF.
It is also present a with relief valve with adjustable setting, the adjustment is made by socket screw; the max flow on the relief valve is 30 l/min.
The manifold material is aluminium for applications up to 210 bar (3000 psi)or zinc plated steel for applications up to 320 bar (4600 psi).

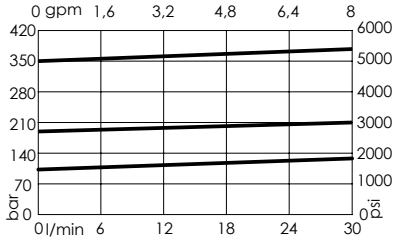
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,6 kg (1,32 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

SFNL-060-[*]N[*][*]-03-[***]-N

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

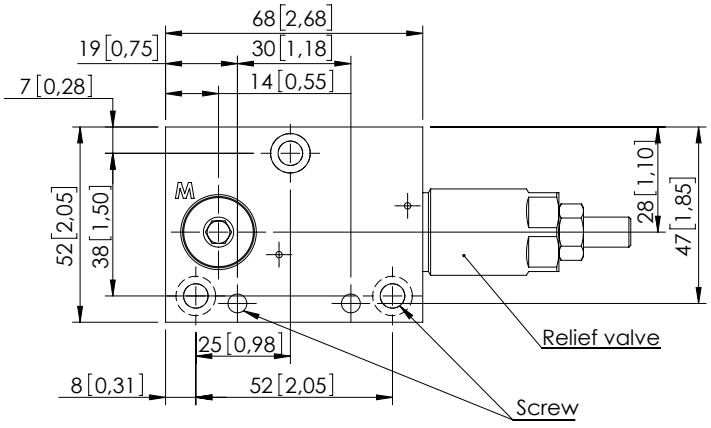
*	SETTING RANGE
N	Max setting 210 bar (3000 psi)(CP000083)
A	Max setting 110 bar (1600 psi)(CP000084)
B	Max setting 350 bar (5000 psi)(CP000082)

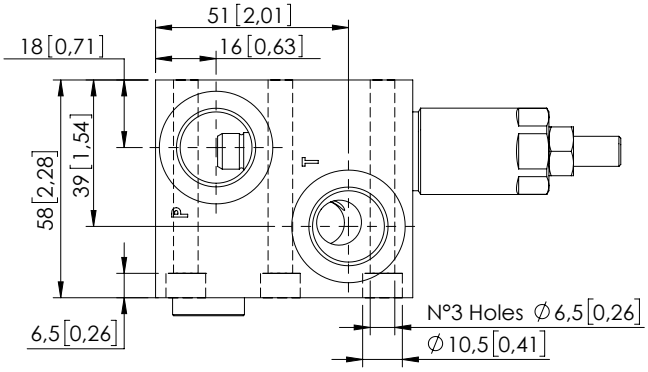
*	ADJUSTMENT OPTION
N	Screw adjustment
V	Knob adjustment

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFNL-060-ZNNN-03-G12-N	SF000003

OVERALL DIMENSIONS





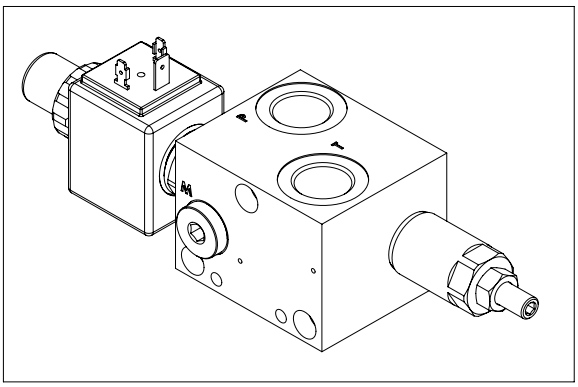
Dimensions: mm [inches]

EBN series - INLET SECTION

SFNL-060-ZNNN-05

RELIEF VALVE
UNLODING VALVE

ATLANTIC Fluid Tech

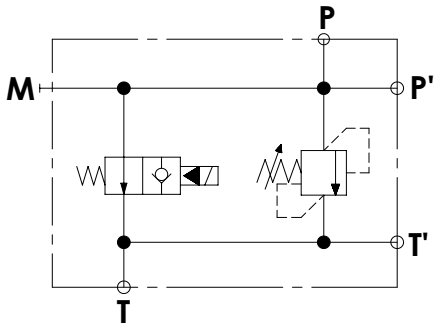


This inlet section is equipped with threaded ports (P, T) available in two different sizes G 1/2" or 3/4"-16 UNF, an M ports is available in sizes G 1/4" or 9/16-18 UNF.
A with relief valve with adjustable setting protect from peak pressure; the max flow on the relief valve is 30 l/min.
A solenoid valve normally open allow to unload the system and is equipped with manual override, max flow on the solenoid valve is 40 l/min (11 gpm).The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

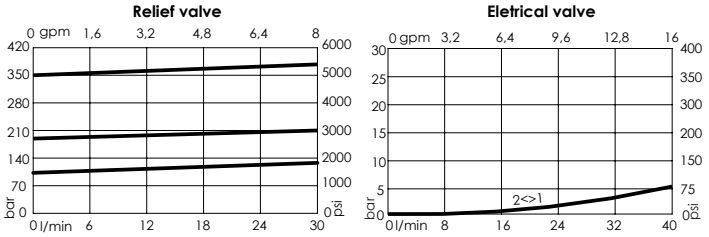
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,75 kg (1,65 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

SFNL-060-[*]N[*][*]-05-[***]-[*][**]N

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi)(CP000083)
A	Max setting 110 bar (1600 psi)(CP000084)
B	Max setting 350 bar (5000 psi)(CP000082)

*	ADJUSTMENT OPTION
N	Screw adjustment
V	Knob adjustment

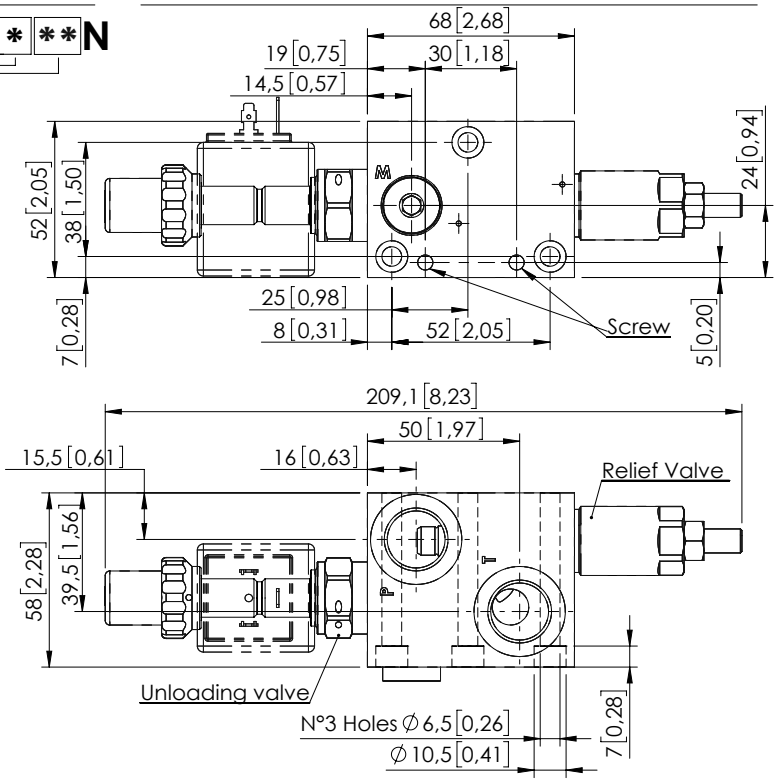
***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SFNL-060-ZNNN-05-G12-N	SF000002
Unloading valve	CE000868

OVERALL DIMENSIONS



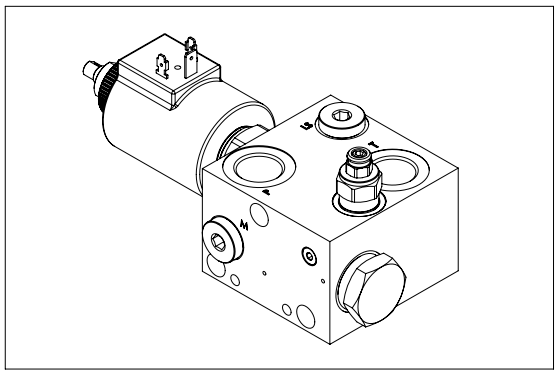
Dimensions: mm [inches]

EBN series - INLET SECTION

SFNL-060-ZDNN-07

PROPORTIONAL COMPENSATED FLOW REGULATOR

ATLANTIC Fluid Tech

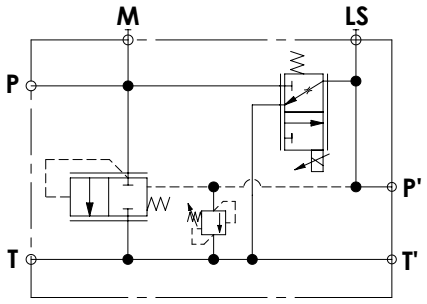


This inlet section is equipped with threaded ports (P, T) available in two different sizes G 1/2" or 3/4"-16 UNF, an M ports is available in sizes G 1/4" or 9/16-18 UNF; an LS port allows to measure of the load pressure.
A proportional flow regulator with external flow compensator controls the meetering, the maximum flow is 40 l/min (11 gpm); when not energized the compensator is unloading the flow.
A relief valve with adjustable setting protect from peak of pressure. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

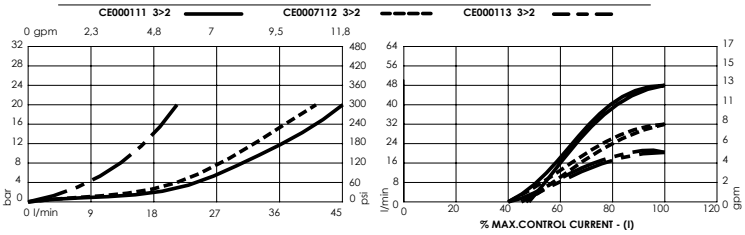
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated inlet	60 l/min (16 gpm)
Regulated flow	40 l/min (11 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,75 kg (1,65 lb)

HYDRAULIC SCHEME



PROPORTIONAL FLOW REGULATOR CURVES



ORDERING DETAILS: SEPARATE ELEMENTS

SFNL-060-[*]D[*][*]-07-[***]-[*][**]N

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

*	REALIF VALVE SETTING
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi) (CP000030)
B	Max setting 350 bar (5000 psi) (CP000002)

*	ADJUSTMENT FLOW
N	30 l/min (8 gpm) (CE000112)
A	20 l/min (5 gpm) (CE000113)
B	10 l/min (2,5 gpm) (CE000111)

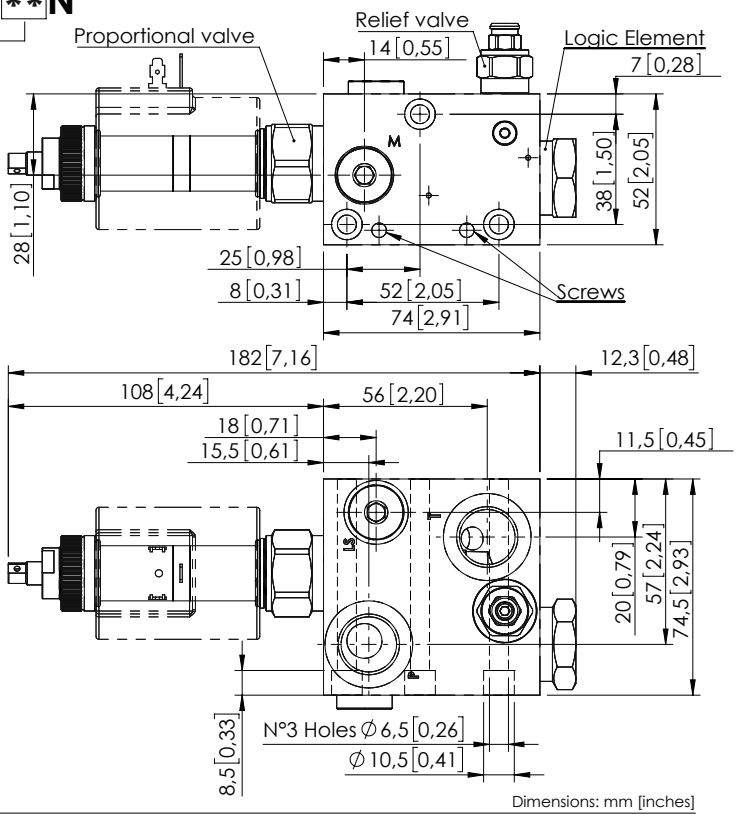
***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SFNL-060-ZNNN-05-G12-N	SF000001

OVERALL DIMENSIONS



Dimensions: mm [inches]

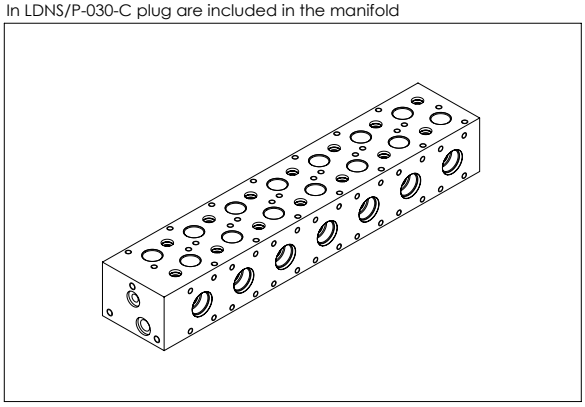
EBN series - MONOBLOCK

LDNP-060-NNNN

CAST-IRON MANIFOLD

ATLANTIC Fluid Tech

In LDNS/P-030-C plug are included in the manifold



The monoblock valve can be ordered with a number of spool's section from 1 to 7, each section is equipped with side monting holes for lever option and with treaded holes at the top for flangeable modular valve. There are also two removable plugs connecting to a T line to allow to flange special blocks.
The standard version has G 3/8" ports and can be supplied with top blocks with 9/16"-18 UNF (SAE6) or M16x1,5.
The manifold it is made with cast-iron and protected from corrosion with zinc-plating surface treatment.
The inlet face has 3 threaded holes to flange an inlet block that can be customized for each application, giving high flexibility to the project.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Material	Cast-iron
Surface treatment	Zinc-plated black
Weight for single section	1,6 kg (3,5 lb)
Wight for additional sections	+ 1 kg (2,2 lb) each

ORDERING DETAILS: SEPARATE ELEMENTS

LDN [*] -060-NNNN- [**] - [***]

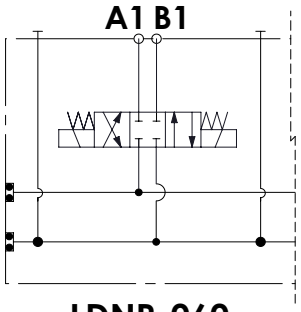
*	TYPE OF MANIFOLD
S	Series connection
P	Parallel connection

**	NUMBER OF SECTION
01	manifold with one section
02	manifold with two sections
03	manifold with three sections
04	manifold with four sections
05	manifold with five sections
06	manifold with six sections
07	manifold with seven sections

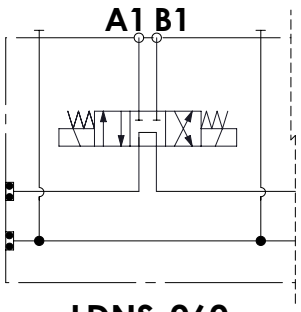
***	PORTS		
	P line	**T** line	**M**
G38	G 3/8"	G 3/8"	G 1/4"
U09	9/16"-18 UNF	9/16"-18 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
LDNP-060-NNNN-01-G38	LD000156
LDNP-060-NNNN-02-G38	LD000155
LDNP-060-NNNN-03-G38	LD000147
LDNP-060-NNNN-04-G38	LD000146
LDNP-060-NNNN-05-G38	LD000154
LDNP-060-NNNN-06-G38	LD000153
LDNP-060-NNNN-07-G38	LD000157

MANIFOLD CONFIGURATIONS



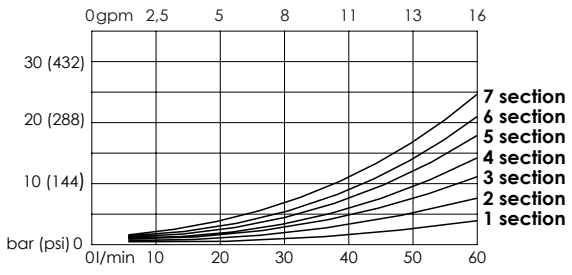
LDNP-060



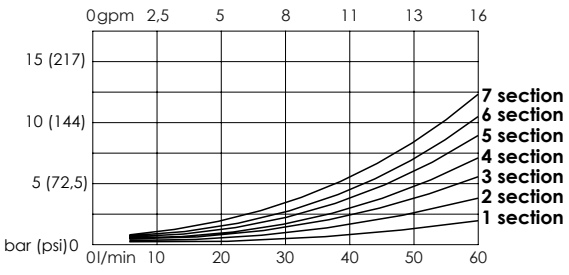
LDNS-060

MONOBLOCK PRESSURE DROP

P line pressure drop



T line pressure drop



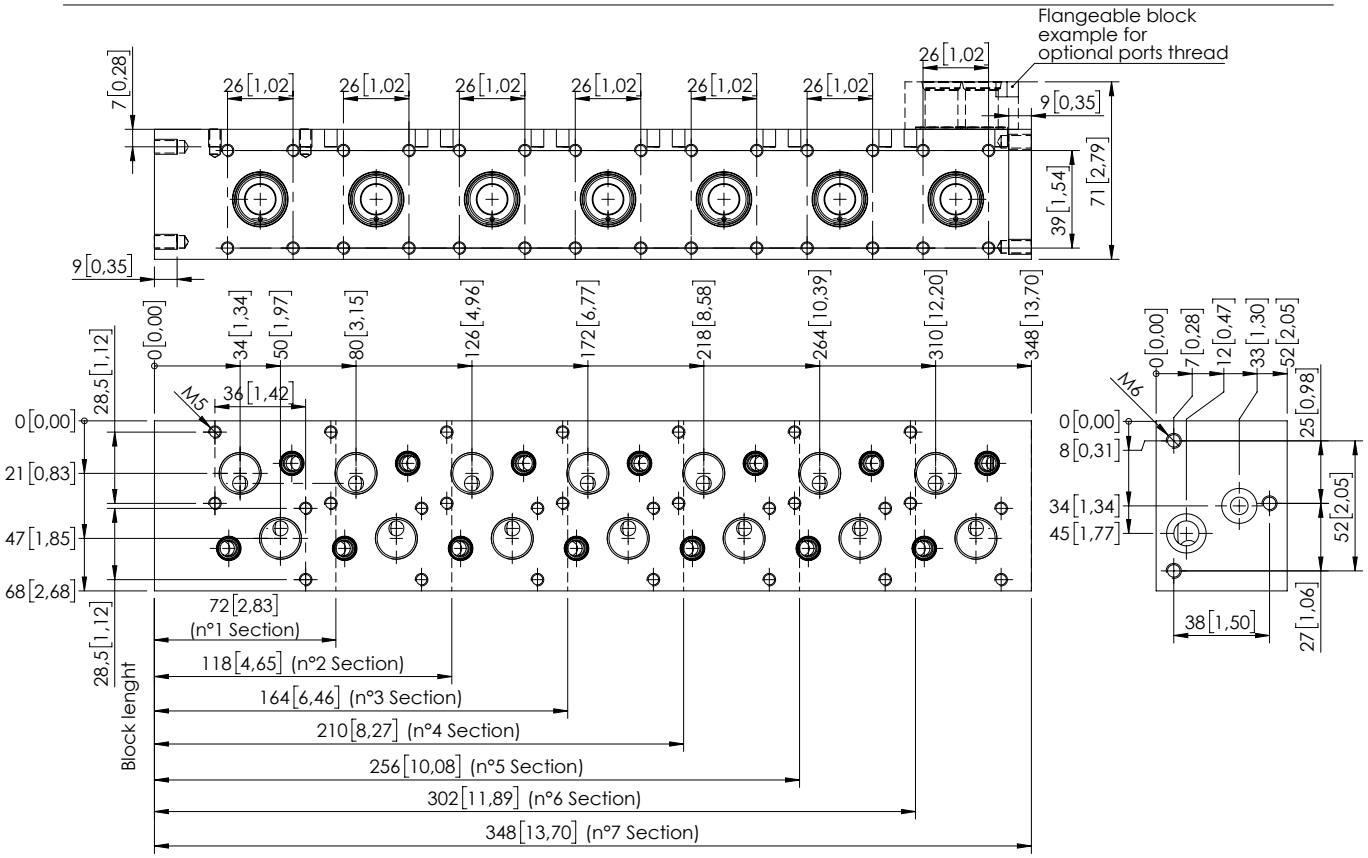
EBN series - MONOBLOCK

LDNS-060-NNNN

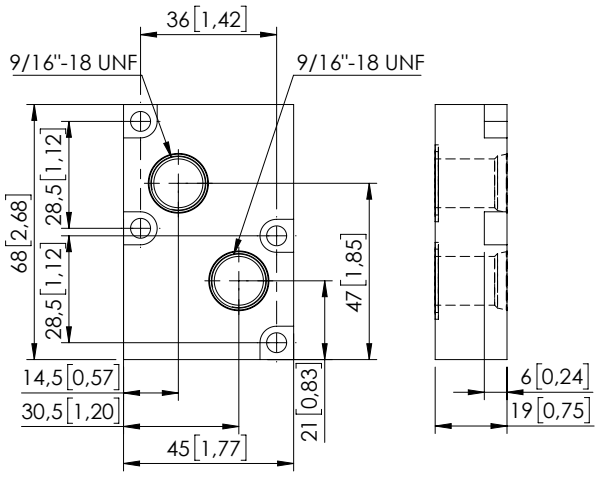
CAST-IRON MANIFOLD

ATLANTIC Fluid Tech

GAS VERSION



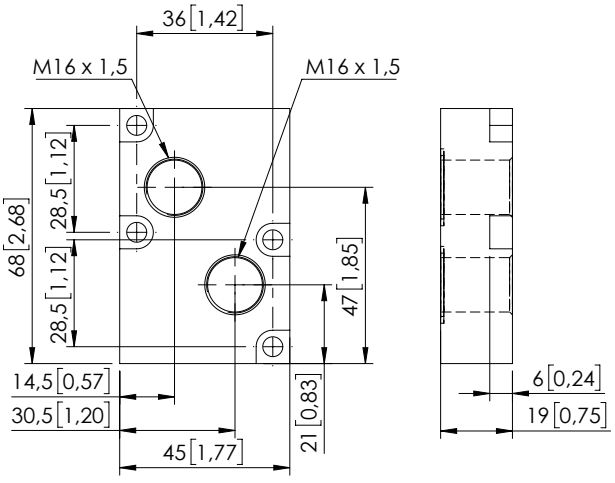
SAE VERSION



This top flangeable block transform the monoblock to a UNF version.

Quick code: MP000096

METRIC VERSION



This top flangeable block transform the monoblock to a Metric version.

Quick code: MP000097

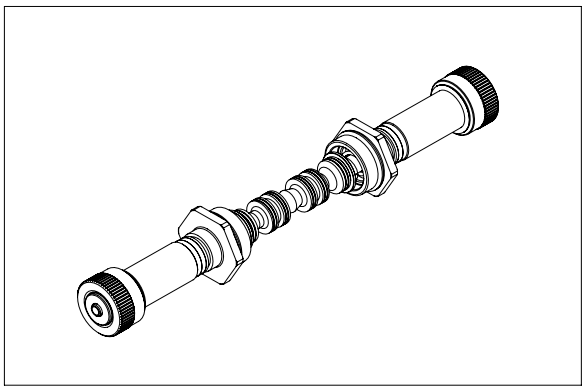
Dimensions: mm [inches]

EBN series - SPOOL SECTION

SHNE-030-NNON

30 L/MIN (8 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech



This spool group is rated for 30 lpm (8gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes. Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	30 l/min (8 gpm)
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,15 kg (0,33 lb)
Weight with two solenoid	0,12 kg (0,26 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*] - 030 - NN[**]-[**]-321-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

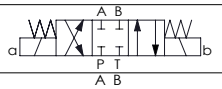
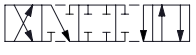
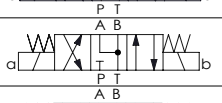
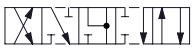
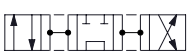
*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

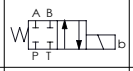
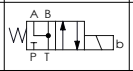
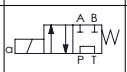
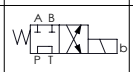
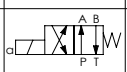
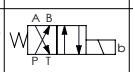
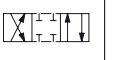
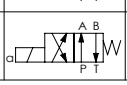
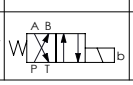
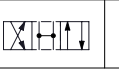
**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-NNON-46-321	
SHNE-030-NNON-10-321	
SHNE-030-NNON-07-321	

HYDRAULIC SYMBOLS

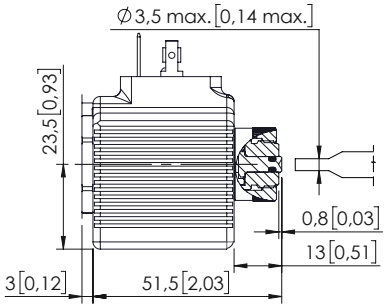
Table n°1

SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
46		
10		
07		

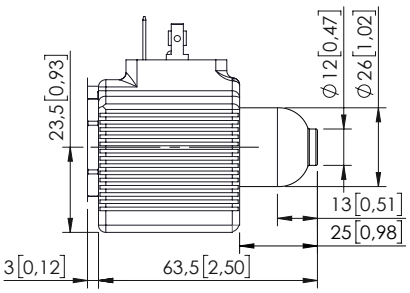
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	**b**	**a**	**b**	**a**	**b**
23					
21					
22					
17					
18					

OVERRIDE TYPE

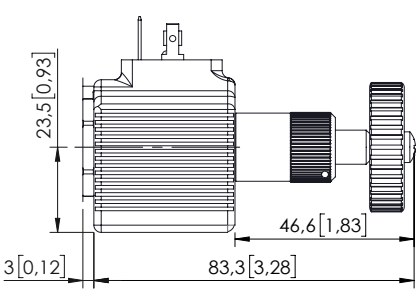
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



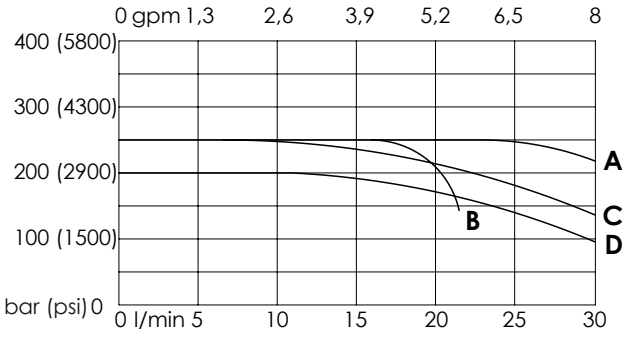
OVERRIDE TYPE "V"

SHNE-030-NNON

30 L/MIN (8 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech

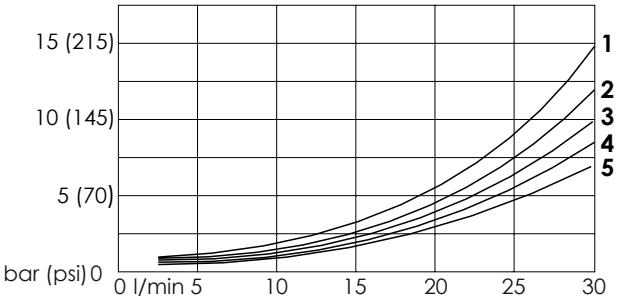
PERFORMANCE LIMITS CURVES - STANDARD SECTION



Spool type	Performance limits curve
46	A
10	A
07	B
23	A
21	A
22	A
17	C
18	D

The tests are carried out with hot solenoids , powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature.
The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F).
The value in the diagram refer to test carried aut with flow simultaneously in both directions (P > A, B > T).
In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION



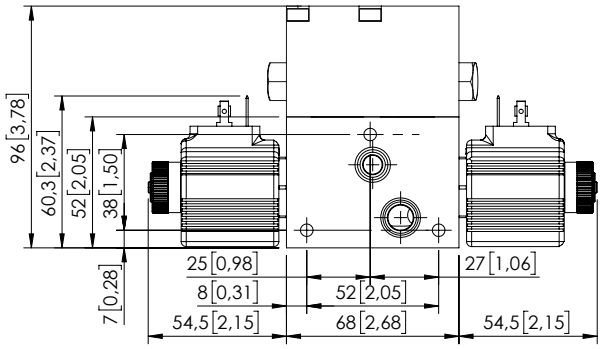
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
46	3	3	4	4	/
10	3	3	5	5	/
07	2	2	1	1	2
23	/	3	4	/	/
21	/	3	5	/	/
22	2	/	/	1	/
17	/	3	4	/	/
18	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F); the tests are performed at a 40 °C (104°F) temperature.

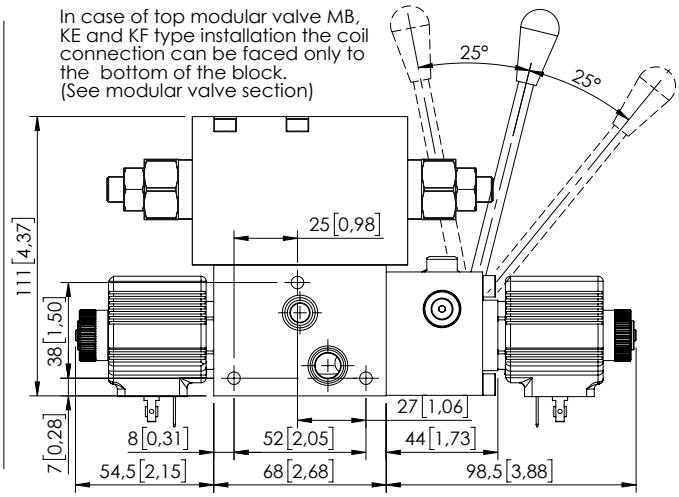
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)

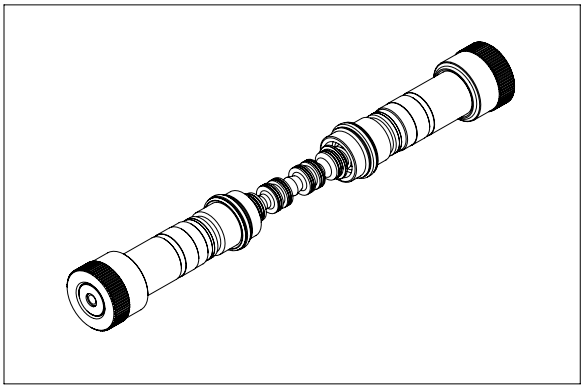


EBN series - SPOOL SECTION

SHNE-060-NNON

60 L/MIN (16 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech



This spool group is rated for 60 lpm (16 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes.
Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,2 kg (0,44 lb)
Weight with two solenoid	0,4 kg (0,88 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH [*] [*] - 060 - NN [**] - [**] - 321 - [*] [**] N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

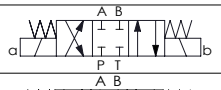
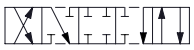
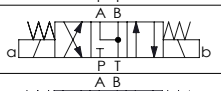
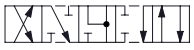
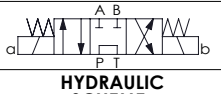
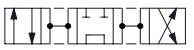
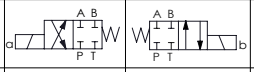
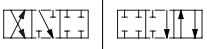
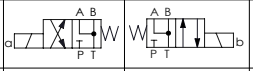
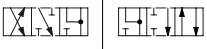
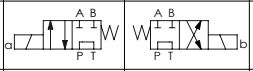
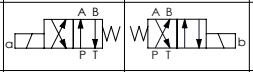
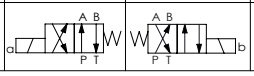
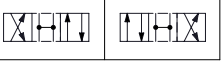
*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-060-NNON-46-321	
SHNE-060-NNON-10-321	
SHNE-060-NNON-07-321	

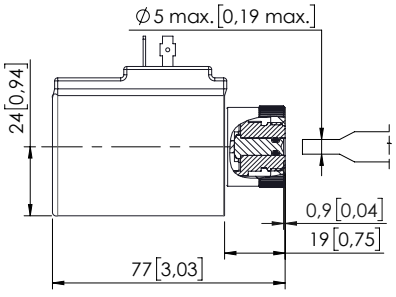
HYDRAULIC SYMBOLS

Table n°1

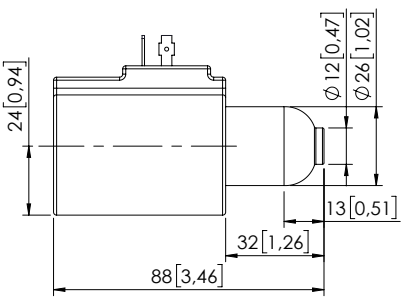
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
46					
10					
07					
SPOOL CODE		**HYDRAULIC SCHEME**		**TRANSITORY POSITION**	
a	**b**	**a**	**b**	**a**	**b**
23					
21					
22					
17					
18					

OVERRIDE TYPE

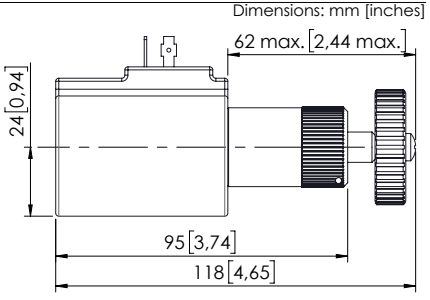
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



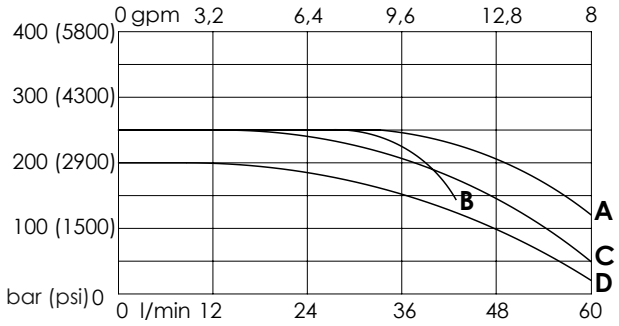
OVERRIDE TYPE "V"

SHNE-060-NNON

60 L/MIN (16 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech

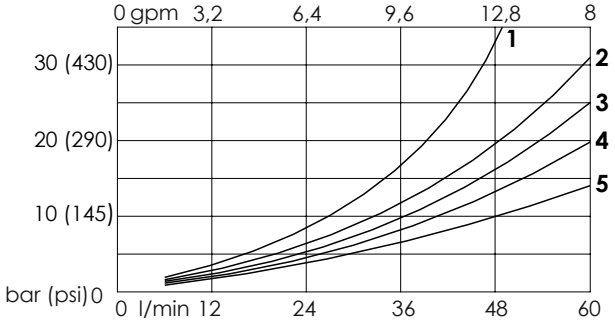
PERFORMANCE LIMIT CURVES - STANDARD SECTION



Spool type	Performance limits curve
46	A
10	A
07	B
23	A
21	A
22	A
17	C
18	D

The tests are carried out with hot solenoids , powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature.
The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F).
The value in the diagram refer to test carried aut with flow simultaneously in both directions (P > A, B > T).
In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION



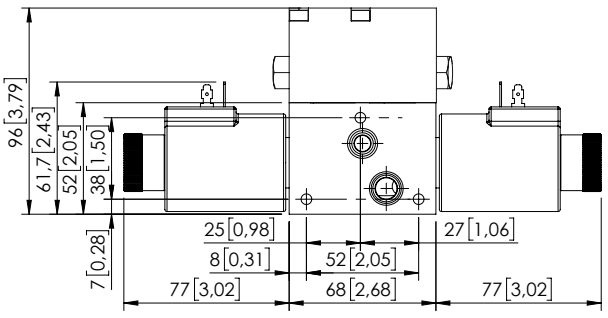
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
46	3	3	4	4	/
10	3	3	5	5	/
07	2	2	1	1	2
23	/	3	4	/	/
21	/	3	5	/	/
22	2	/	/	1	/
17	/	3	4	/	/
18	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F);the tests are performed at a 40 °C (104°F) temperature.

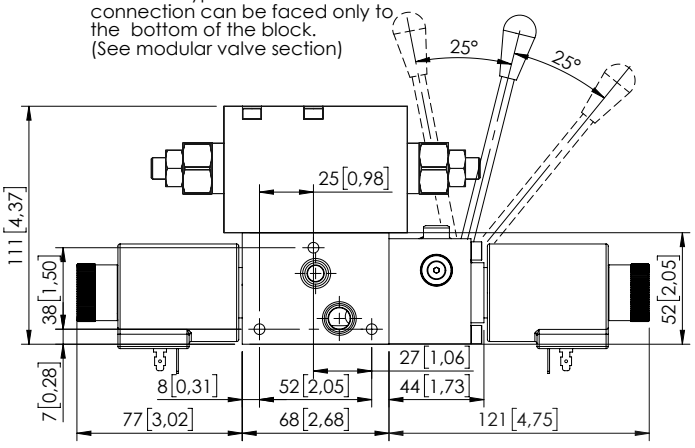
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)

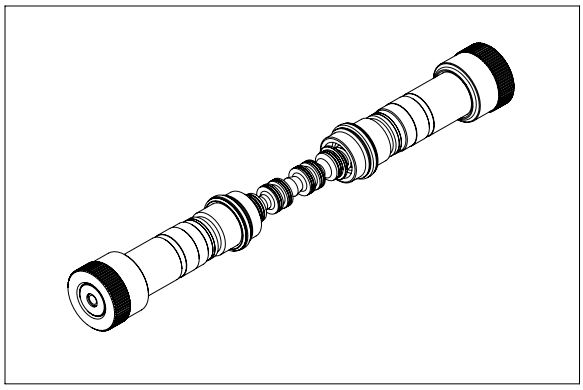


EBN series - SPOOL SECTION

SHNE-050-NNPR

**50 L/MIN (13 gpm)
PROPORTIONAL
SOLENOID VALVE**

ATLANTIC Fluid Tech



This spool group is rated for 50 lpm (13 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by proportional tubes and can be ordered with different hydraulic schemes.
Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	50 l/min (13 gpm)
Duty cycle	100 % ED
Max current	1.76A(12 V dc) 0.88A (24 V dc)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,2 kg (0,44 lb)
Weight with two solenoid	0,4 kg (0,88 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*]-0[**]-NNPR-[**]-321-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

*	SPOOL FLOW
20	20 l/min at 12 bar - 10 l/min at 6 bar (5 gpm at 174 psi - 2,5 gpm at 87 psi)
35	35 l/min at 12 bar - 20 l/min at 6 bar (9 gpm at 174 psi - 5 gpm at 87 psi)
50	50 l/min at 12 bar - 30 l/min at 6 bar (13 gpm at 174 psi - 8 gpm at 87 psi)

**	
...	See table n°1

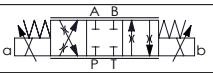
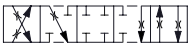
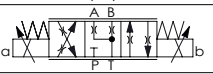
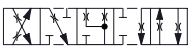
*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-NNPR-59-321	
SHNE-030-NNPR-55-321	

HYDRAULIC SYMBOLS

Table n°1

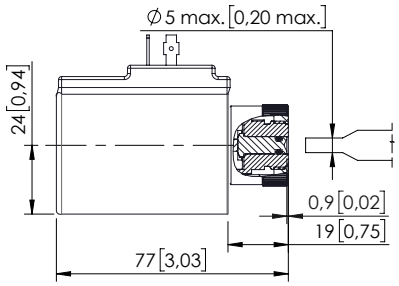
SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
59		
55		

SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	**b**	**a**	**b**	**a**	**b**

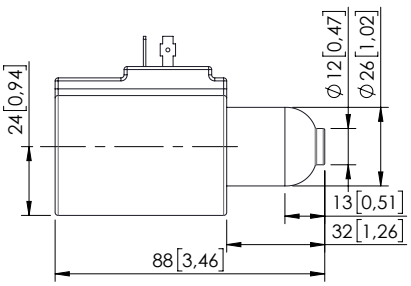
For single solenoid operation please contact AFT sales network.

OVERRIDE TYPE

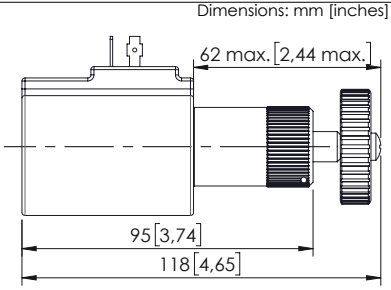
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



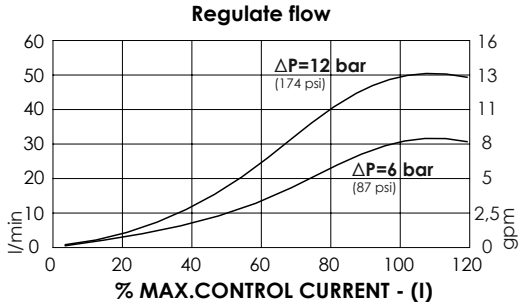
OVERRIDE TYPE "V"

SHNE-050-NNPR

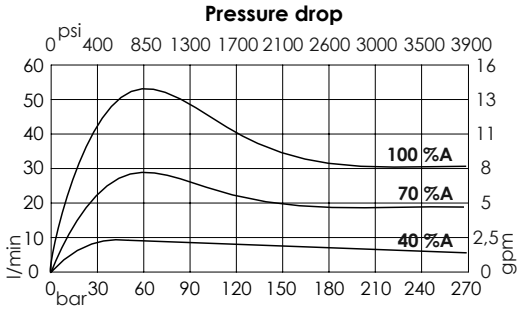
**50 L/MIN (13 gpm)
PROPORTIONAL
SOLENOID VALVE**

ATLANTIC Fluid Tech

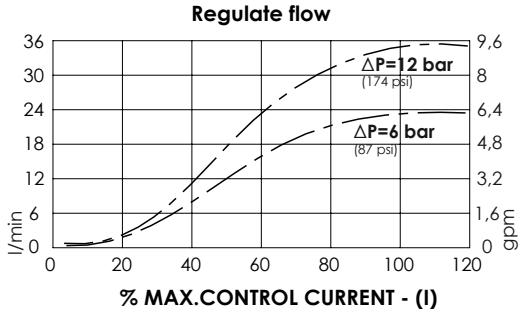
FLOW DIAGRAM - 050



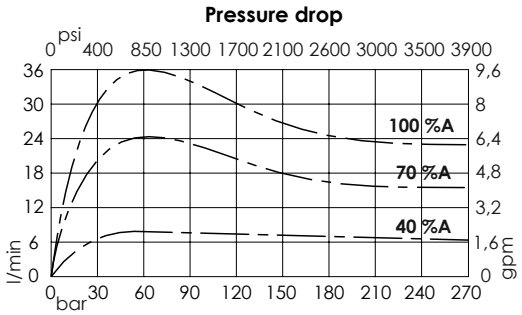
REGULATION DIAGRAM - 050



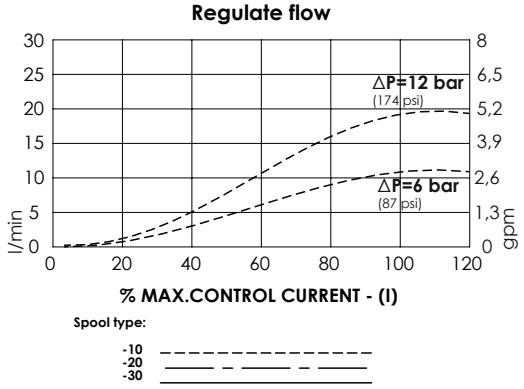
FLOW DIAGRAM - 035



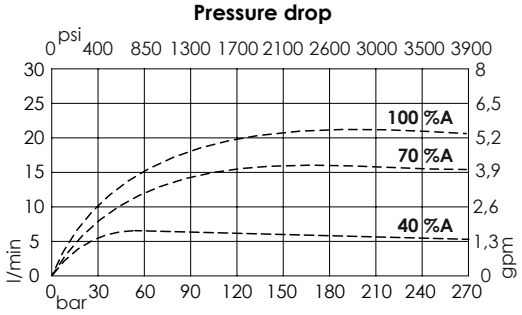
REGULATION DIAGRAM - 035



FLOW DIAGRAM - 020



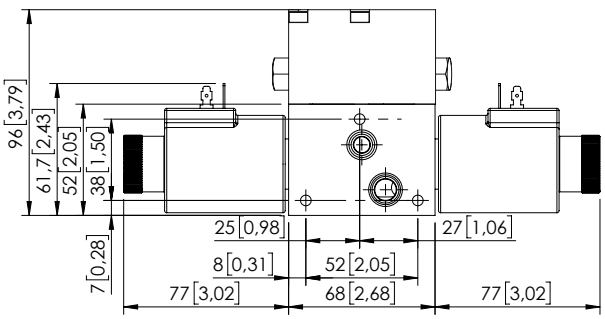
REGULATION DIAGRAM - 020



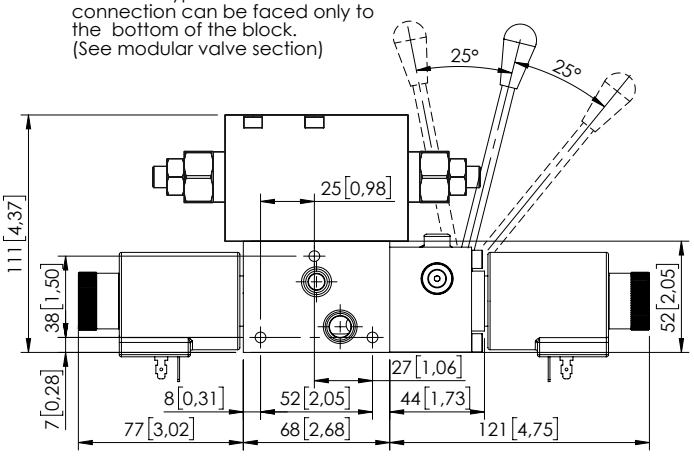
The diagram shows the performance limit curve of a standard section. The fluid used is mineral oil with viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F); the tests are performed at a 40 °C (104°F) temperature.

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)

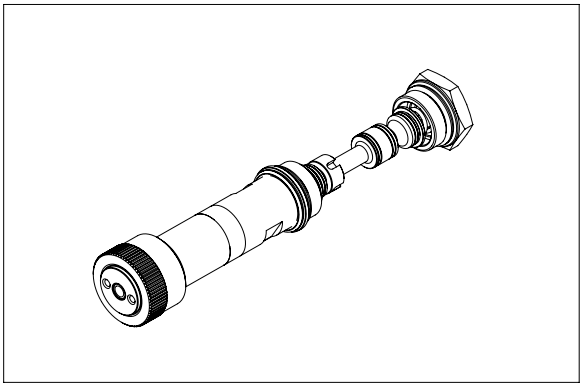


EBN series - SPOOL SECTION

SHNE-030-POPR

30 L/MIN (8 gpm)
PROPORTIONAL
FLOW UNLOADING

ATLANTIC Fluid Tech



The solenoid valve can be ordered with 3 types of ports for connection nipples, G 3/8" 9/16"-18 UNF (SAE6) and M16x1,5. Spool actuation is electrical and the center position is maintained through centering springs with calibrated length, upon termination of the solenoid action, springs immediately reposition the cursor in the central position.The solenoids are only available in the continues current (the most common strains); the coil will be supply with terminals DIN 43650 ISO 4400 (for stadard versions). The valve have cast iron body with black galvanizing surface treatment with sealant.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	25 l/min (6,5 gpm)
Duty cycle	100 % ED
Max current	1.76A(12 V dc) 0.88A (24 V dc)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	2 kg (4,4 lb)
Weight with two solenoid	2,5 kg (5,5 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*]-0[**]-POPR-[**]-321-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	SPOOL FLOW
10	12 l/min at 10 bar (2,5 gpm at 145 psi)
20	18 l/min at 10 bar (5 gpm at 145 psi)
30	25 l/min at 10 bar (6,5 gpm at 145 psi)

**	PROPORTIONAL TYPE
88	Not compesated

*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

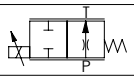
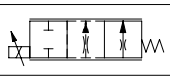
QUICK CODE	
DESCRIPTION	CODE
SHNE-030-POPR-88-321	
SHNE-020-POPR-88-321	
SHNE-010-POPR-88-321	

TECHNICAL FEATURES

Spool Flow	Rated flow with 10 bar (140 psi) ΔP	Maximum flow	Max. operating pressure
10	10 l/min (2,5 gpm)	12 l/min (3 gpm)	320 bar (4600 psi)
20	16 l/min (4 gpm)	18 l/min (5 gpm)	320 bar (4600 psi)
30	23 l/min (6 gpm)	28 l/min (7 gpm)	320 bar (4600 psi)

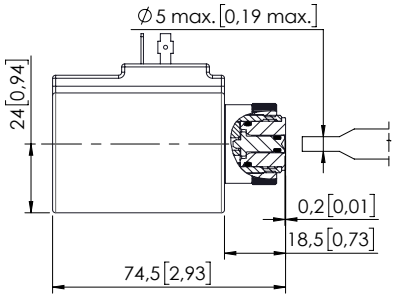
HYDRAULIC SYMBOLS

Table n°1

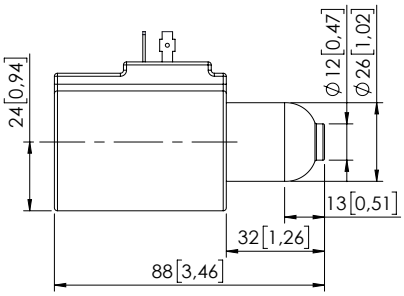
SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
88		

OVERRIDE TYPE

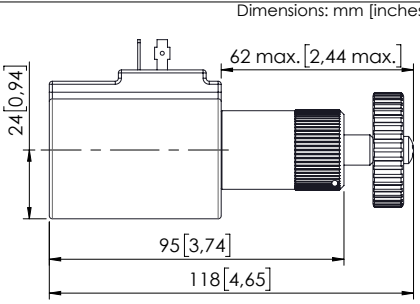
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



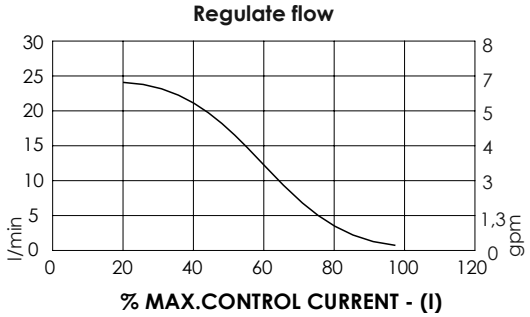
OVERRIDE TYPE "V"

SHNE-030-PRPO

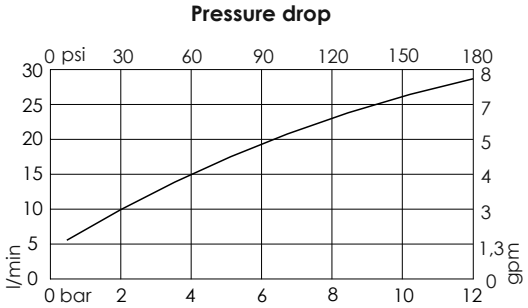
30 L/MIN (8 gpm)
PROPORTIONAL FLOW
UNLOADING

ATLANTIC Fluid Tech

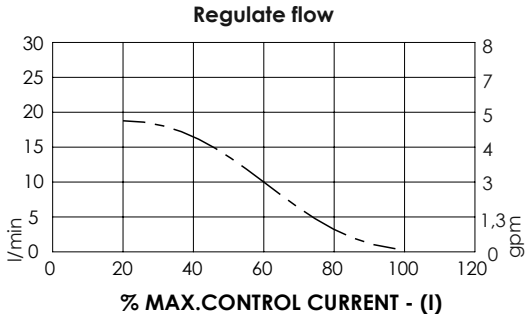
FLOW DIAGRAM - 030



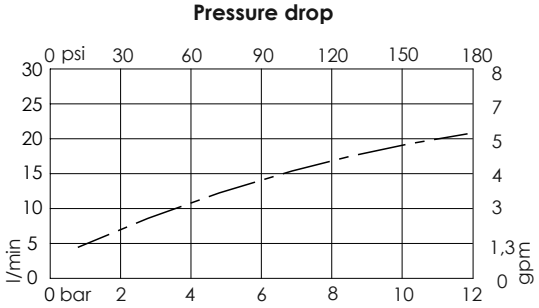
PRESSURE DROP DIAGRAM - 030



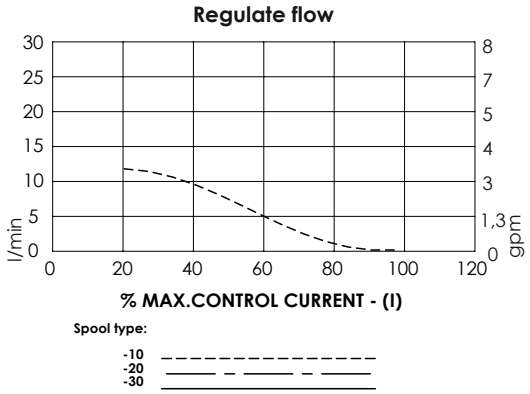
FLOW DIAGRAM - 020



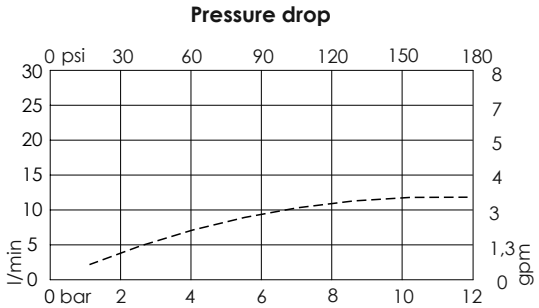
PRESSURE DROP DIAGRAM - 020



FLOW DIAGRAM - 010



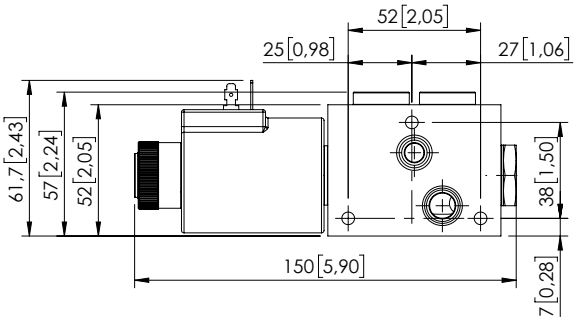
PRESSURE DROP DIAGRAM - 010

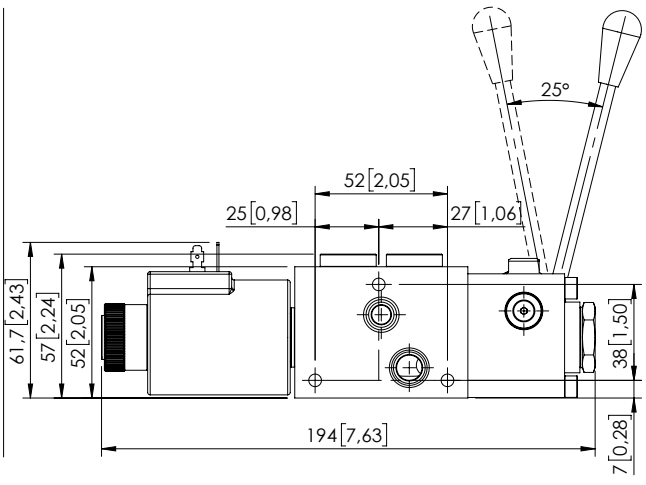


The diagram shows the performance limit curve of a standard section. The fluid used is mineral oil with viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F); the tests are performed at a 40 °C (104°F) temperature.

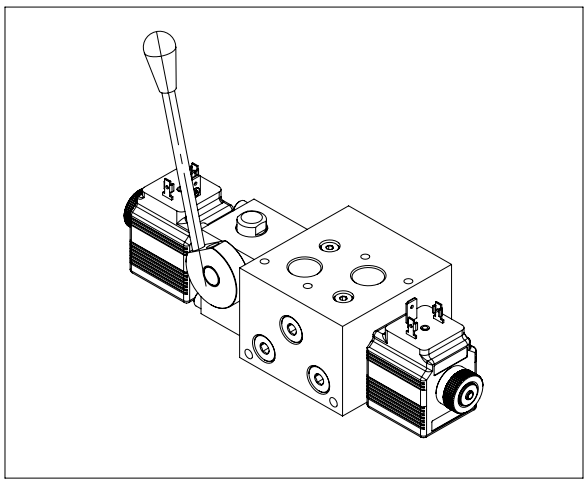
OVERALL DIMENSION - STANDARD SECTION

Dimensions: mm [inches]





MANUAL LEVER



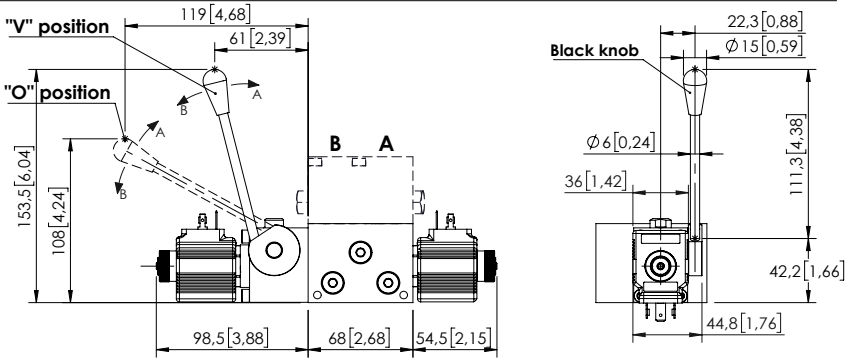
The lever option allow to operate manually the spool and can be ordered for all hydraulic schemes; in the standard version it is installed between monoblock and B port side coil.
The lever is normally installed on the monoblock port side but can be installed also rotated of 180°; , in each of these two positions the lever can be mounted vertical or horizontal simply removing the lever and reinstalling.
The lever is not engaged during solenoid operation and doesn't move when a coil is energized.

TECHNICAL DATA

Tabella generale	
Max pressure	210/320 bar (3000/4600 psi)
Max pressure series version	210 bar (3000 psi)
Rated flow	30/60 l/min (8-16 gpm)
Duty cycle	100 % ED
Weight more than standard	2 kg (4,4 lb)
Weight more than standard	2,5 kg (5,5 lb)

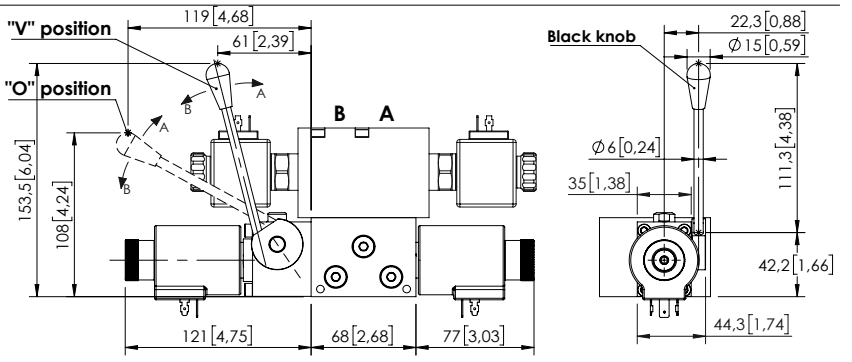
OVERALL DIMENSIONS/ LEVER FOR 30 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



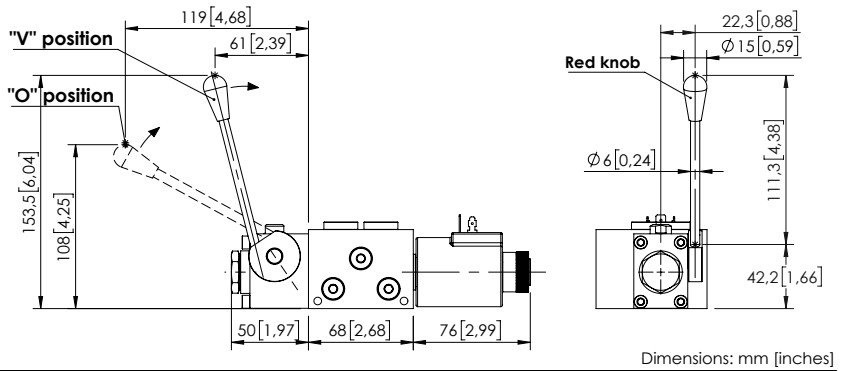
OVERALL DIMENSIONS/ LEVER FOR 60 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



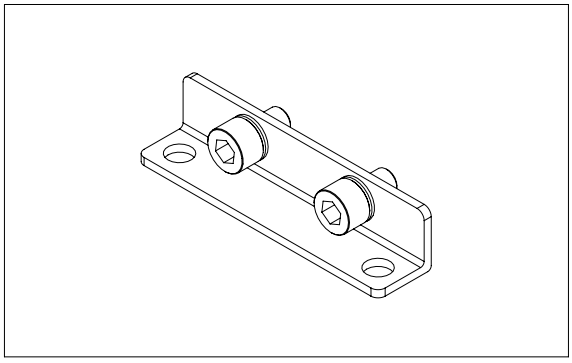
OVERALL DIMENSION/ LEVER FOR 30 L/MIN UNLOADING SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



Dimensions: mm [inches]

MOUNTING ELEMENTS

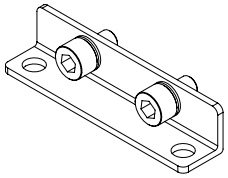


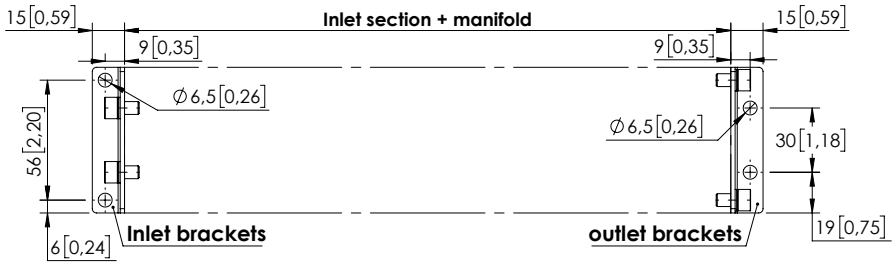
These parts are used to mount the directional valve on the application or to install modular valves and inlet section on the monoblock.

TECHNICAL DATA

Screw type	ISO 4762
Thread type	coarse thread
Standard screw	resistence class 8.8
High resistence screw	resistence class 12.9
Standard screw treatment	zinc-plated (white)
High res. screw treatment	Anodized (black)

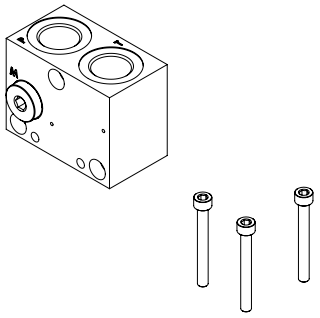
MOUNTING BRACKETS





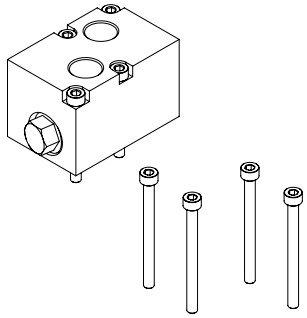
Mounting brackets	Screw lenght	Reference	Tightening Torque
PV000371	M6x10 [M6x0,39]	AV000015 + PR000129	6-7 N/m [4-5 ft-lb]

MOUNTING INLET SECTION



Inlet section	Screw lenght	Reference	Tightening Torque
SF000004	M6X40 [M6x1,57]	AV000051	6-7 N/m [4-5 ft-lb]
SF000016	M6X50 [M6x1,97]	PE000100	6-7 N/m [4-5 ft-lb]
SF000003	M6X60 [M6x2,36]	AV000074	6-7 N/m [4-5 ft-lb]
SF000002	M6X60 [M6x2,36]	AV000074	6-7 N/m [4-5 ft-lb]
SF000001	M6X75 [M6x2,95]	PE000418	6-7 N/m [4-5 ft-lb]

FIXING STACKING MODULES



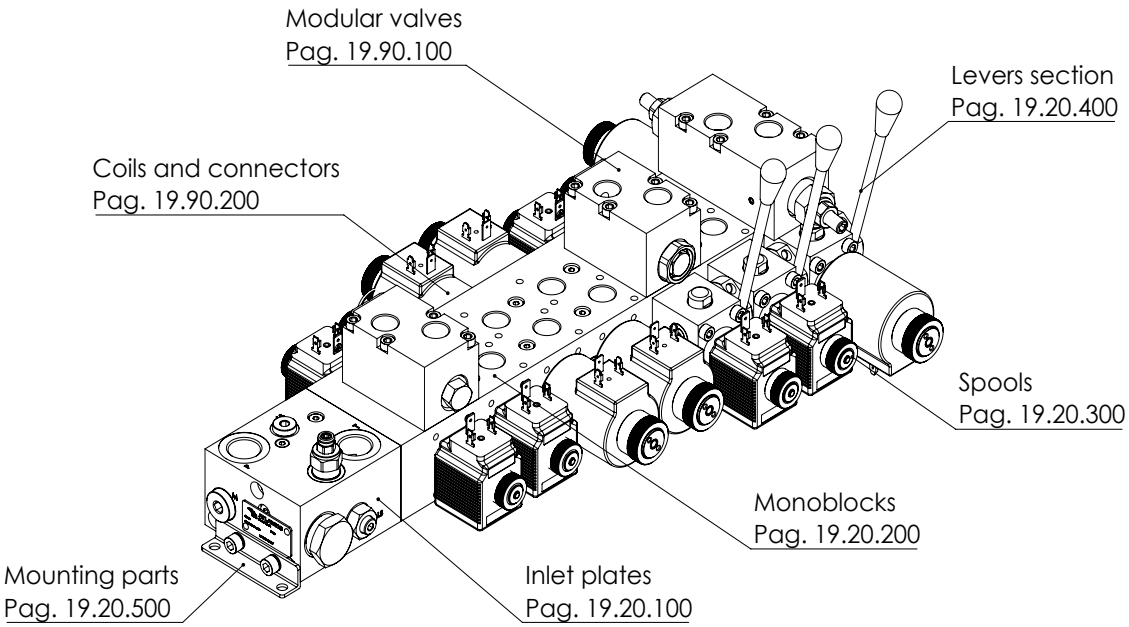
Flangiable valve	Screw lenght	Reference	Tightening Torque
MP	M5x16 [M5x0,63]	AV000035	3-4 N/m [2-3 ft-lb]
MA, MC and MB	M5x45 [M5x1,77]	PE000148	3-4 N/m [2-3 ft-lb]
KE and MF	M5x60 [M5x2,36]	AV000016	3-4 N/m [2-3 ft-lb]

Dimensions: mm [inches]

EBL series

MONOBLOCK LOAD SENSING VALVE ON-OFF OR PROPORTIONAL

ATLANTIC Fluid Tech



FEATURES

- Compact dimensions
- Low weight
- Custom spools
- Custom inlet blocks
- LS line on each spool section
- Sandwich valves for extra functions
- Cast iron monoblock and aluminum inlet block for standard applications
- High resistance cast iron monoblock and steel inlet block for high pressure systems
- Optional levers for manual operation
- No leak risk between sections
- Spools not under rod tension
- Zinc plated/anodized components for corrosion resistance

SPECIFICATION\DESCRIPTION

MAXIMUM OPERATING PRESSURE	Steel inlet block: 320 bar (4600 PSI) Aluminium inlet block: 210 bar (3000 PSI)
MAXIMUM TANK PRESSURE	20 bar (290 PSI)
RATED FLOW	030 series: 30 l/min 8 GPM) 060 series: 60 l/min (16 GPM)
COIL POWER	030 series: 26 W 060 series: 33 W
VOLTAGE	12 Vdc, 24 V DC, others on request
COIL CONNECTOR	DIN43650, AMP Junior, Deutsch DT04-2P
PORTS	Inlet: G1/2", 1/2 JIS, 7/8-14 UNF-2B (SAE#10) Outlet: G3/8",3/8 JIS, 3/4-16 UNF-2B (SAE#8)
OPERATING TEMPERATURE	NBR (ISO 1629) seals:-30,+100°C (-22,+212°F) FKM (ISO 1629) seals:-20,+200°C (-4,+392°F)
FILTRATION	ISO 4406:1999: class 19/17/14 NAS 1638: class 8
MOUNTING POSITION	No restrictions
MATERIAL	Spool body: cast iron Spool: Herdened and grounded steel Inlet block: Aluminium or steel
SURFACE TREATMENT	Steel: zinc plating Aluminium: anodization

EBL series is a new directional load sensing valve that has innovative features in terms of performance, dimension, manufacturing reliability and customization. The valve consists in an inlet block flanged to a monoblock with spools. This construction gives the advantages of high flexibility in inlet block schemes, combined with the reliability and simplicity of monoblock spool valve construction, eliminating the risk of spools blocking due to overtightening of tie rods or the risk of leakage between sections. The spool monoblock is a 2 or 3 position, 4 ways, direct acting solenoid operated type. All sections have threaded ports at the top and removable plugs for tank connections to allow the installation of flanged blocks with additional functions like crossover reliefs, reliefs to tank, relief and anticavitations, counterbalance valves, P.O. checks, flow restrictors and flow regulators. All sections are equipped with standard push button override and they can be equipped with lever for manual use.

HOW ORDER IT

To order the separate parts please refer to each catalogue page.

To order an assembled block, contact AFT sales network specifying the part numbers following page 19.90.900 path.

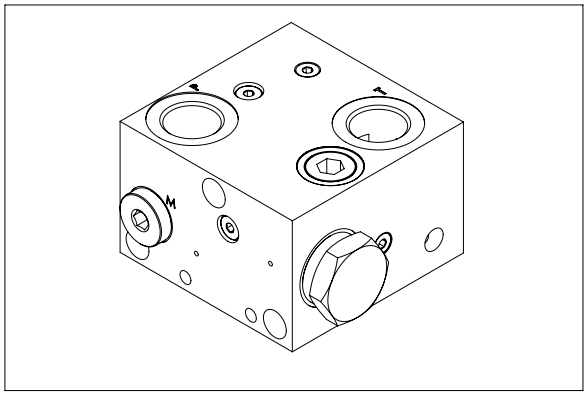
For special versions please contact AFT sales network.

EBL series - INLET SECTION

SFLL-060-ZDNN-16

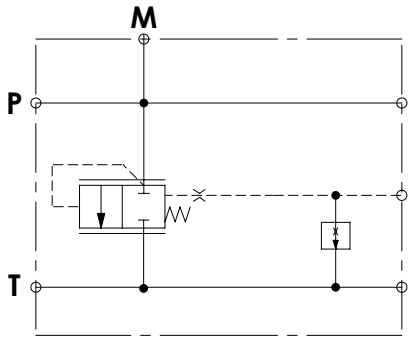
P, T PORTS
M PORT

ATLANTIC Fluid Tech



This inlet section is equipped with two thread ports (P,T) available in two different types G 1/2" or 3/4"-16 UNF plus a third threaded port M for pressure measuring available in G 1/4" or 7/16"-20. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

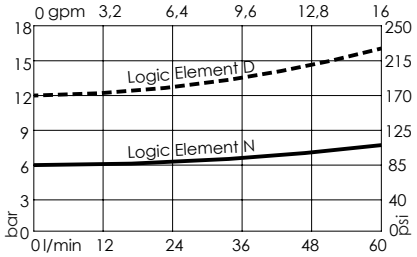
HYDRAULIC SCHEME



TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,9 kg (2 lb)

PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-[*][*]NN-16-[***]-N

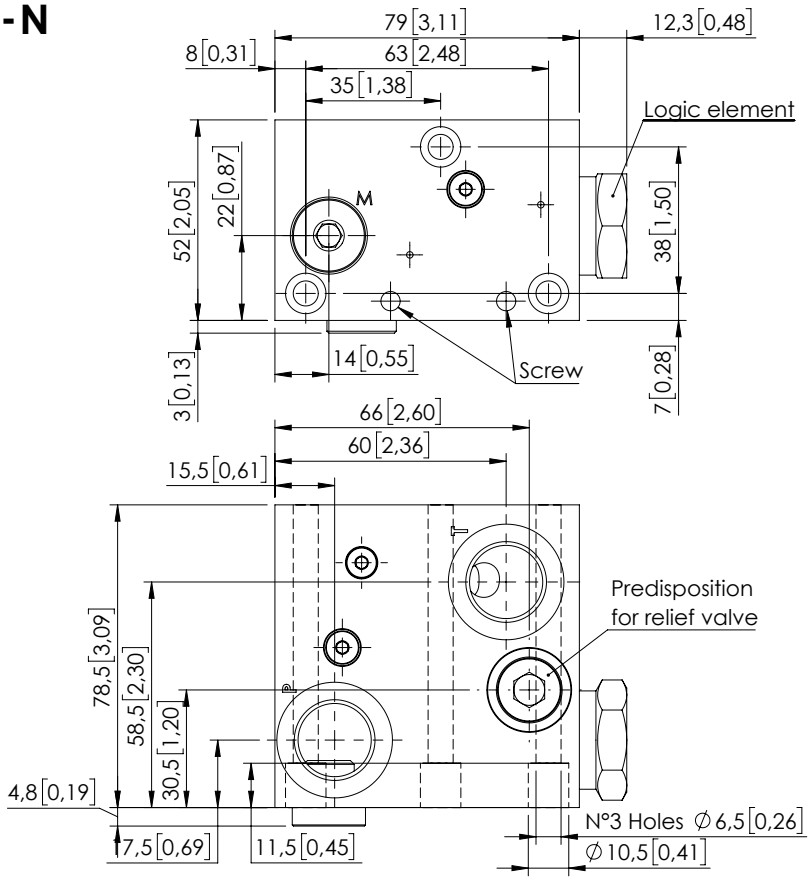
*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi) (CD000103)
N	Spring setting 6 bar (87 psi) (CD000073)

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-16-G12-N	SF000045

OVERALL DIMENSIONS



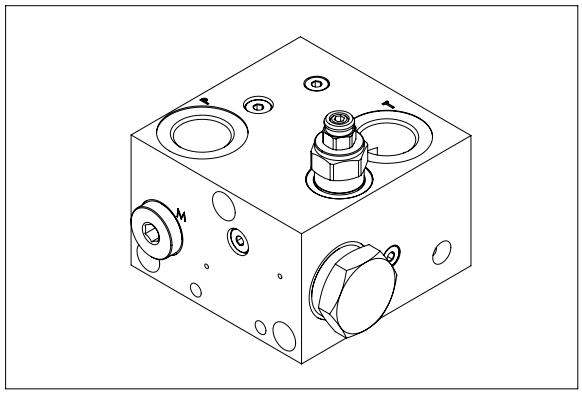
Dimensions: mm [inches]

EBL series - INLET SECTION

SFLL-060-ZDNN-17

RELIEF VALVE
M PORT

ATLANTIC Fluid Tech

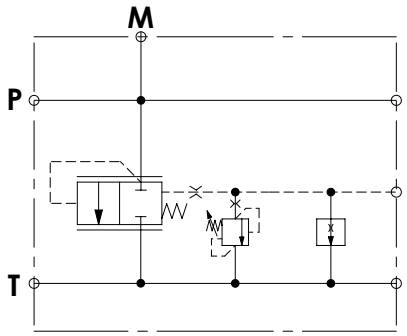


This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw. This inlet section is equipped with two thread ports (P,T) available in two different types G 1/2" or 3/4"-16 UNF plus a third threaded port M for pressure measuring available in G 1/4" or 7/16"-20. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

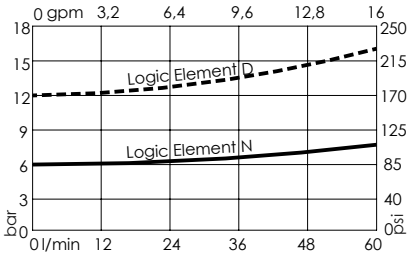
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,9 kg (2 lb)

HYDRAULIC SCHEME



PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-[*][*][*]N-17-[***]-N

*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)

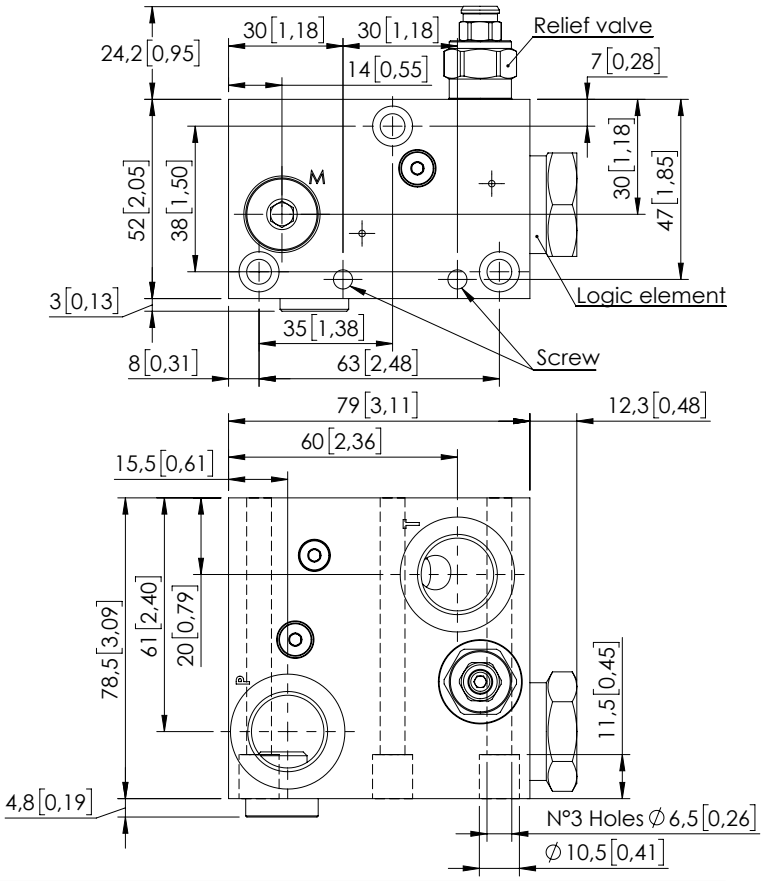
*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi)(CD000103)
N	Spring setting 6 bar (87 psi)(CD000073)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi)(CP000030)
B	Max setting 350 bar (5000 psi)(CP000002)

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-17-G12-N	SF000010
SFLL-060-ZNNN-17-G12-N	SF000032

OVERALL DIMENSIONS



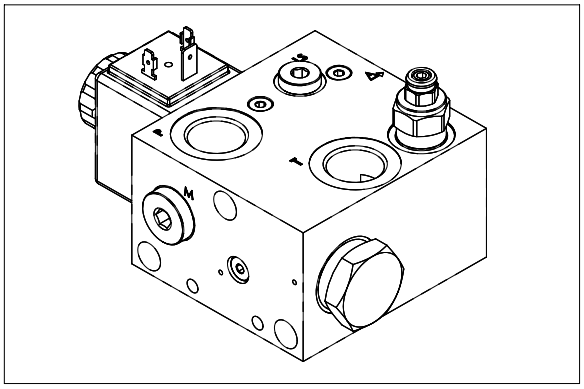
Dimensions: mm [inches]

EBL series - INLET SECTION

SFLL-060-ZDNN-19

RELIEF VALVE
UNLOADING VALVE

ATLANTIC Fluid Tech

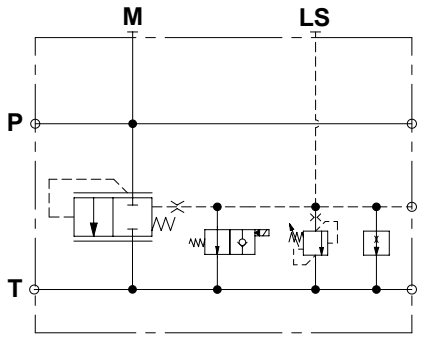


This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw. It is present an unloading solenoid valve normally open with emergency operating on Ls signal. There are two thread ports (P, T) available in two different types G 1/2" or 3/4"-16 UNF plus M port available in G 1/4". Max inlet flow 60 l/min. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

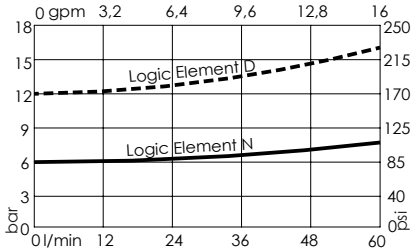
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	1,05 kg (2,3 lb)

HYDRAULIC SCHEME



PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-[*][*][*]N-19-[***]-[*][**]N

*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)

*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi)(CD000103)
N	Spring setting 6 bar (87 psi)(CD000073)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi)(CP000030)
B	Max setting 350 bar (5000 psi)(CP000002)

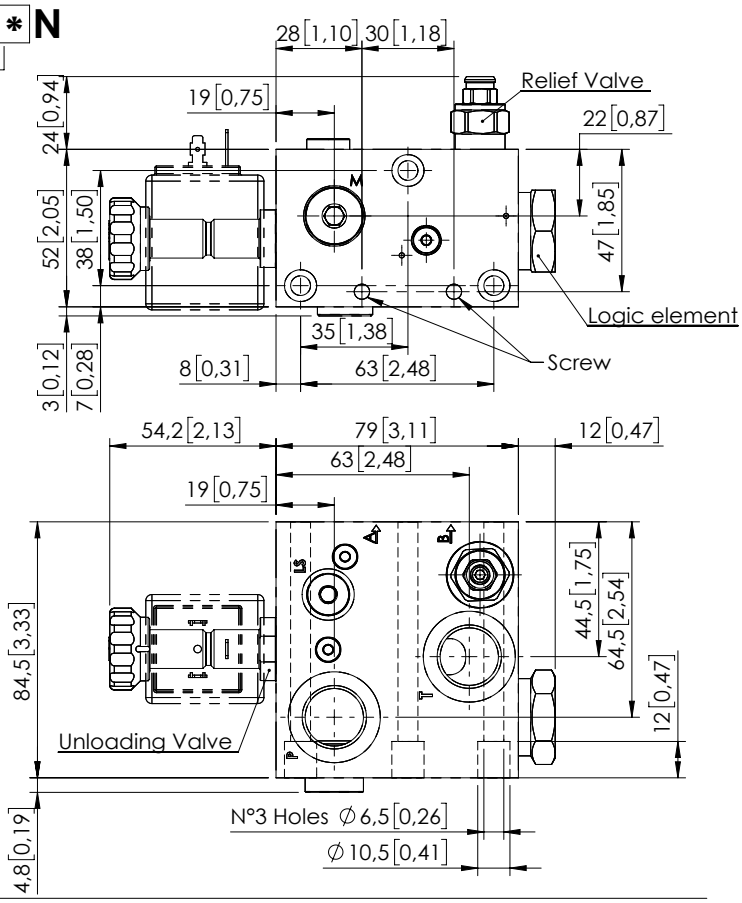
***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

*	VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirshmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-19-G12-N	SF000019
Unloading Valve	CE000873

OVERALL DIMENSIONS



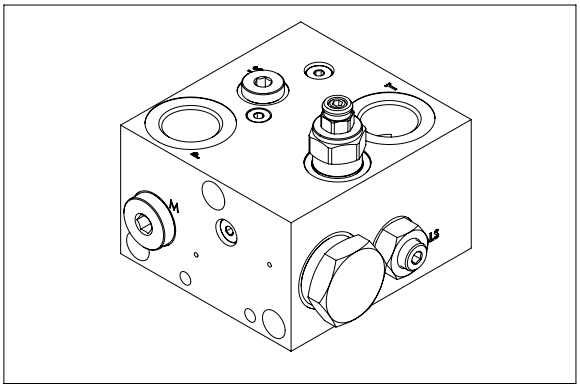
Dimensions: mm [inches]

EBL series - INLET SECTION

SFLL-060-ZDNN-18

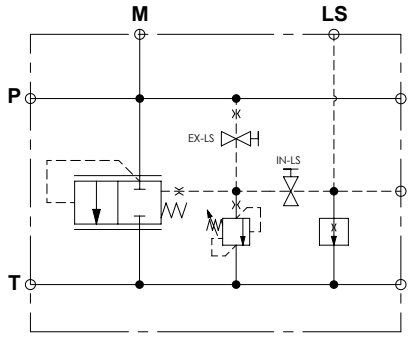
RELIEF VALVE
EXTERNAL OR INTERNAL LS

ATLANTIC Fluid Tech



This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw.It is present an unloading compensator normally closed operating with Ls signal.
There are two thread ports (P, T) available in two different types G 1/2" or 3/4"-16 UNF plus M port available in G 1/4".
Max inlet flow 60 l/min. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

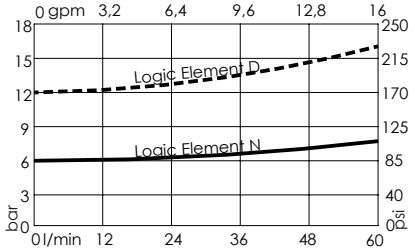
HYDRAULIC SCHEME



TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	1,0 kg (2,3 lb)

PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-[*][*][*]N-18-[***]-N

*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)

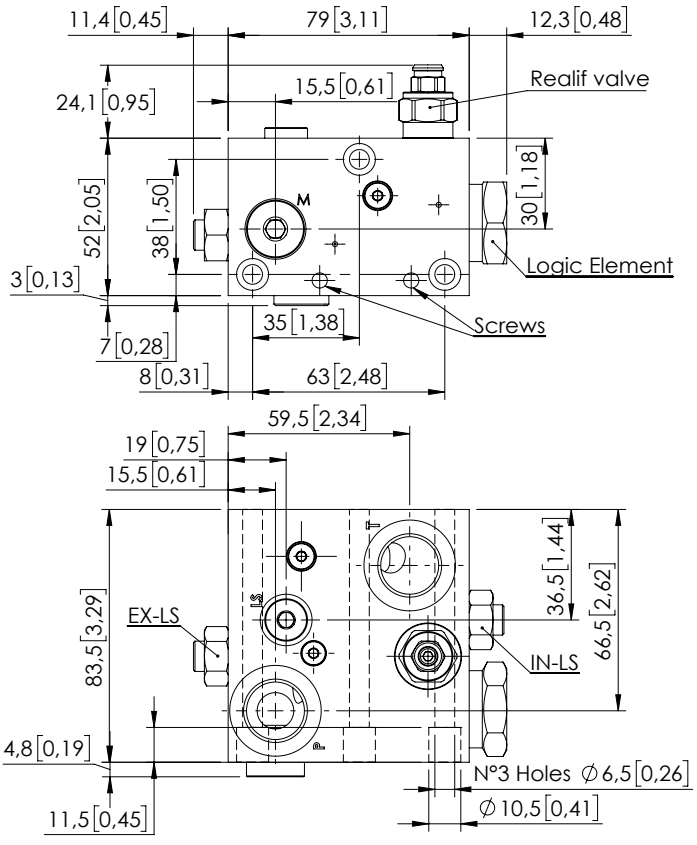
*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi)(CD000103)
N	Spring setting 6 bar (87 psi)(CD000073)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi)(CP000030)
B	Max setting 350 bar (5000 psi)(CP000002)

***	PORTS		
	P line	**T** line	**M**
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-18-G12-N	SF000011
SFLL-060-ZNNN-18-G12-N	SF000031

OVERALL DIMENSIONS



Dimensions: mm [inches]

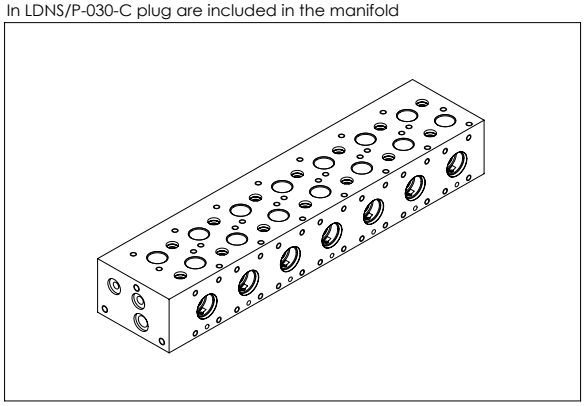
EBL series - MONOBLOCK

LDLP-060-NNNN

CAST-IRON MANIFOLD

ATLANTIC Fluid Tech

In LDNS/P-030-C plug are included in the manifold



The monoblock valve can be ordered with a number of spool's section from 1 to 7, each section is equipped with side monting holes for lever option and with treaded holes at the top for flangeable modular valve. There are also two removable plugs connecting to a T line to allow to flange special blocks.
The standard version has G 3/8" ports and can be supplied with top blocks with 9/16"-18 UNF (SAE6) or M16x1,5.
The manifold it is made with cast-iron and protected from corrosion with zinc-plating surface treatment.
The inlet face has 3 threaded holes to flange an inlet block that can be customized for each application, giving high flexibility to the project.

ORDERING DETAILS: SEPARATE ELEMENTS

LDL [*] -060- NNNN - [**] - [***]

*	TYPE OF MANIFOLD
S	Series connection
P	Parallel connection

**	NUMBER OF SECTION
01	manifold with one section
02	manifold with two sections
03	manifold with three sections
04	manifold with four sections
05	manifold with five sections
06	manifold with six sections
07	manifold with seven sections

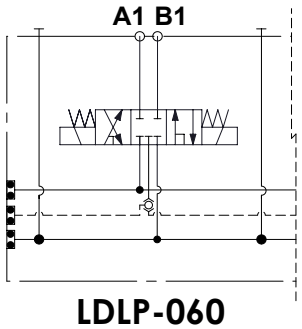
***	PORTS		
	P line	**T** line	**M**
G38	G 3/8"	G 3/8"	G 1/4"
U09	9/16"-18 UNF	9/16"-18 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
LDLP-060-NNNN-01-G38	LD000183
LDLP-060-NNNN-02-G38	LD000184
LDLP-060-NNNN-03-G38	LD000185
LDLP-060-NNNN-04-G38	LD000187
LDLP-060-NNNN-05-G38	LD000188
LDLP-060-NNNN-06-G38	LD000189
LDLP-060-NNNN-07-G38	LD000190

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Material	Cast-iron
Surface treatment	Zinc-plated black
Weight for single section	1,9 kg (4,18 lb)
Wight for additional sections	+ 1,1 kg (2,4 lb) each

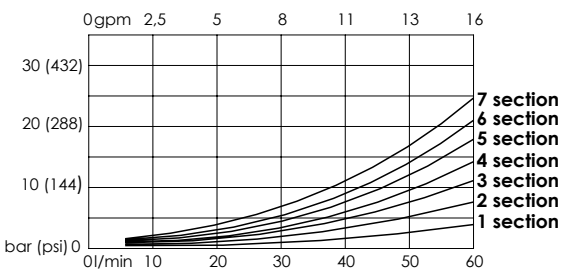
MANIFOLD CONFIGURATIONS



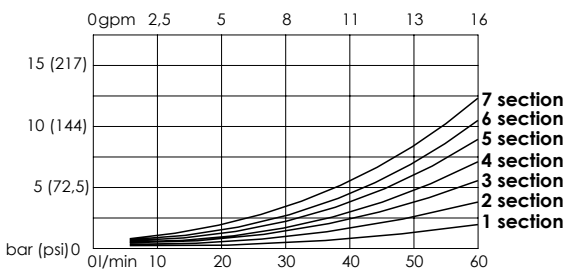
LDLP-060

MONOBLOCK PRESSURE DROP

P line pressure drop



T line pressure drop



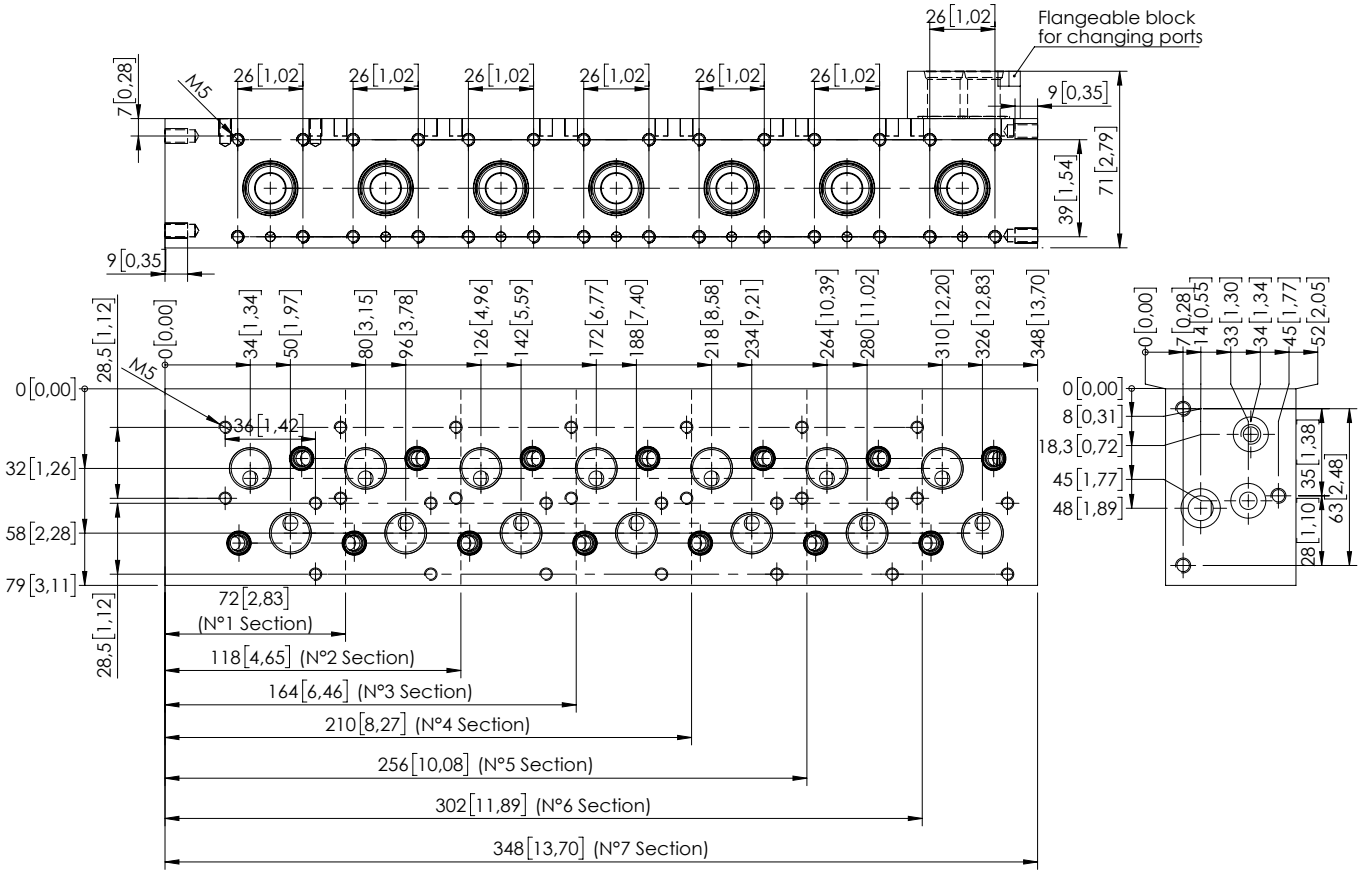
EBL series - MONOBLOCK

LDLP-060-NNNN

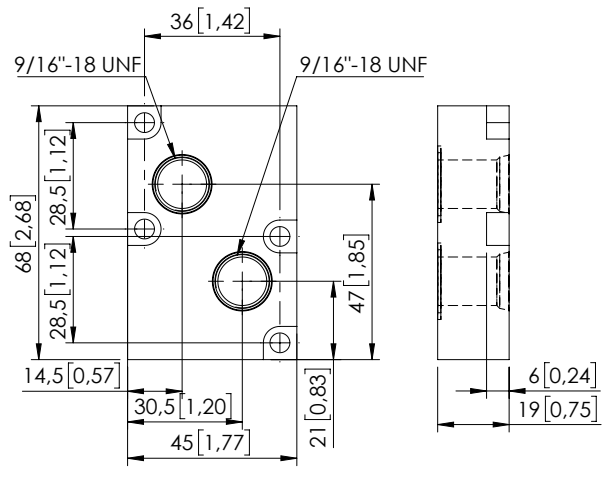
CAST-IRON MANIFOLD

ATLANTIC Fluid Tech

GAS VERSION



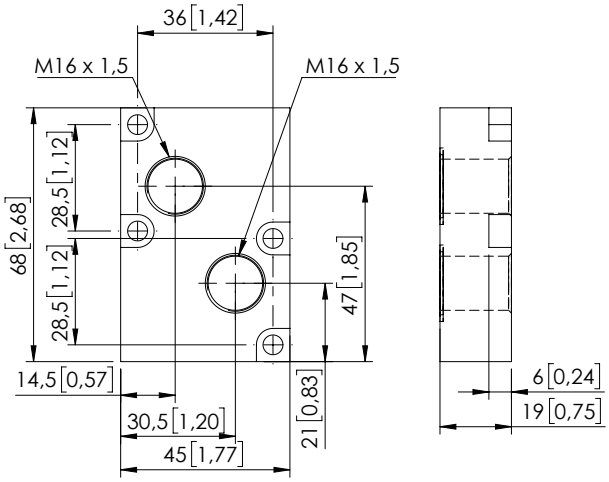
SAE VERSION



This top flangeable block transform the monoblock to a UNF version.

Quick code: MP000096

METRIC VERSION



This top flangeable block transform the monoblock to a Metric version.

Quick code: MP000097

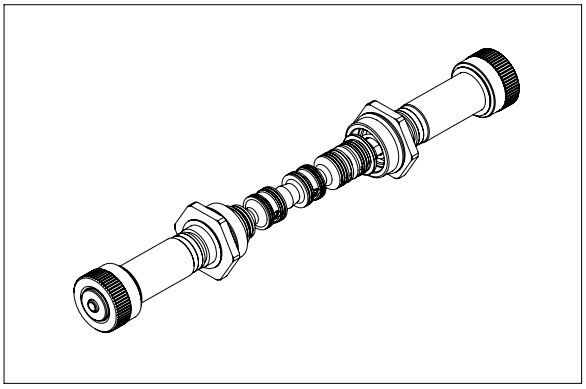
Dimensions: mm [inches]

EBL series - SPOOL SECTION

SHNE-030-LSON

30 L/MIN (8 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech



This spool group is rated for 30 lpm (8 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes. Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	30 l/min (8 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,12 kg (0,26 lb)
Weight with two solenoid	0,15 kg (0,33 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*] - 030 - LS[**]-[**]-396-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

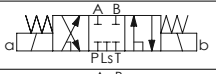
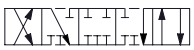
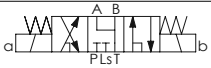
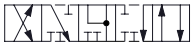
*	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutshc (DT04-2P)
AJ	Amp Junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-LSON-74-396	
SHNE-030-LSON-75-396	

HYDRAULIC SYMBOLS

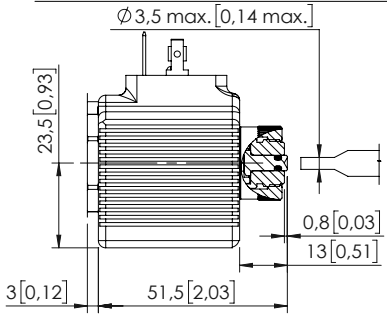
Table n°1

SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
74		
75		

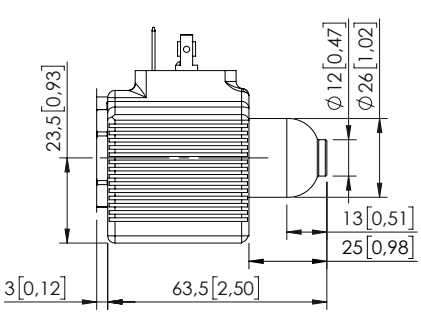
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	b	a	b	a	b

OVERRIDE TYPE

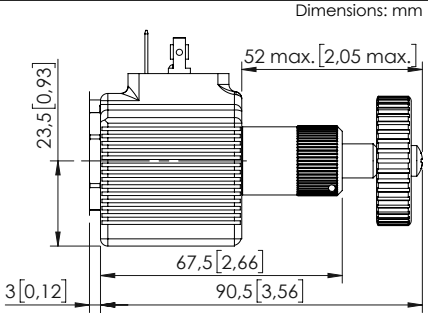
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



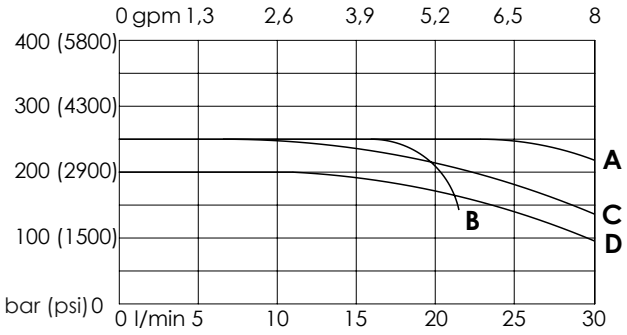
OVERRIDE TYPE "V"

SHNE-030-LSON

30 L/MIN (8 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech

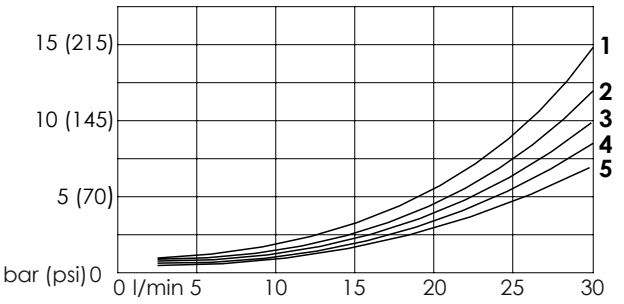
PERFORMANCE LIMITS CURVES - STANDARD SECTION



Spool type	Performance limits curve
74	A
75	A
	B
	A
	A
	A
	C
	D

The tests are carried out with hot solenoids , powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature.
The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F).
The value in the diagram refer to test carried aut with flow simultaneously in both directions (P > A, B > T).
In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION



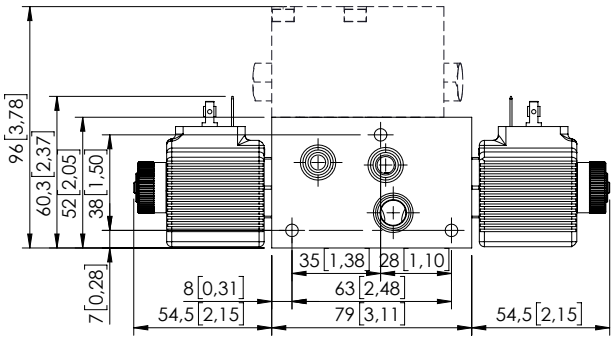
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
74	3	3	4	4	/
75	3	3	5	5	/
	2	2	1	1	2
	/	3	4	/	/
	/	3	5	/	/
	2	/	/	1	/
	/	3	4	/	/
	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F); the tests are performed at a 40 °C (104°F) temperature.

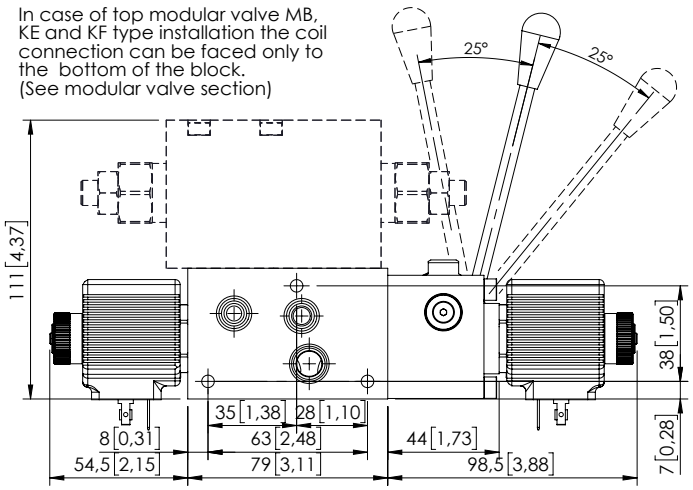
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)

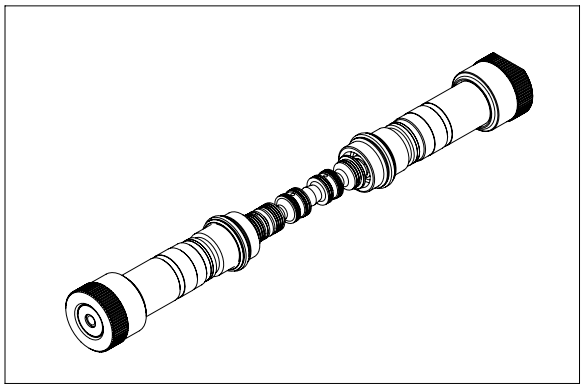


EBL series - SPOOL SECTION

SHNE-060-LSON

60 L/MIN (16 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech



This spool group is rated for 60 lpm (16 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes.
Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,2 kg (0,44 lb)
Weight with two solenoid	0,4 kg (0,88 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*] - 060 - LS [**]-[**]-396-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

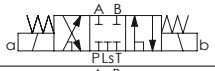
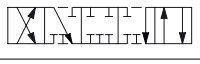
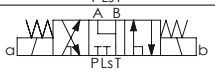
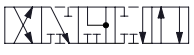
**	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutshc (DT04-2P)
AJ	Amp Junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-060-LSON-74-396	
SHNE-060-LSON-75-396	

HYDRAULIC SYMBOLS

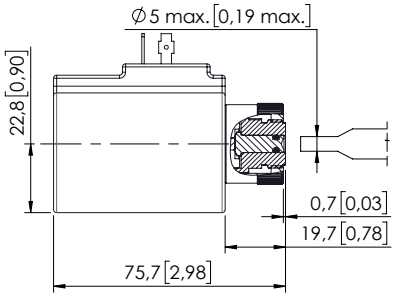
Table n°1

SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
74		
75		

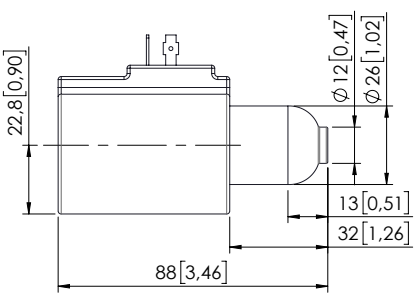
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	**b**	**a**	**b**	**a**	**b**

OVERRIDE TYPE

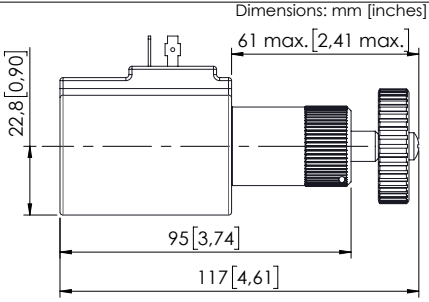
Dimensions: mm [inches]



OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



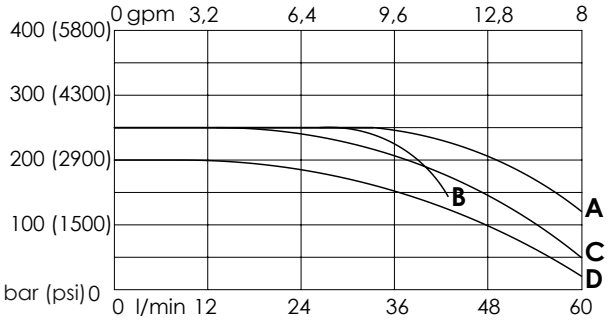
OVERRIDE TYPE "V"

SHNE-060-LSON

60 L/MIN (8 gpm)
SOLENOID VALVE

ATLANTIC Fluid Tech

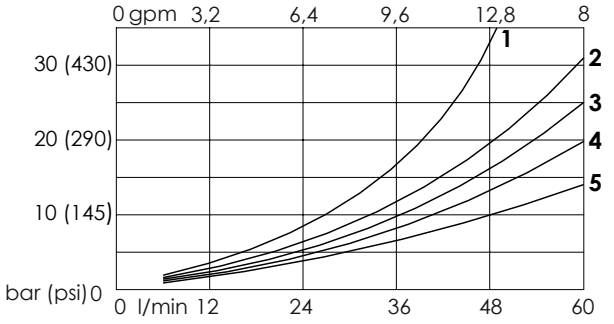
PERFORMANCE LIMIT CURVES - STANDARD SECTION



Spool type	Performance limits curve
74	A
75	A
	B
	A
	A
	A
	C
	D

The tests are carried out with hot solenoids , powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature.
The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F).
The value in the diagram refer to test carried aut with flow simultaneously in both directions (P > A, B > T).
In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION



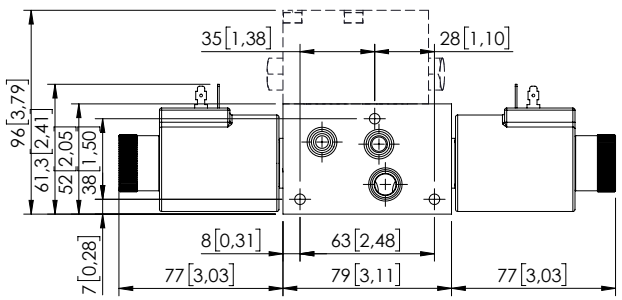
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
74	3	3	4	4	/
75	3	3	5	5	/
	2	2	1	1	2
	/	3	4	/	/
	/	3	5	/	/
	2	/	/	1	/
	/	3	4	/	/
	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F);the tests are performed at a 40 °C (104°F) temperature.

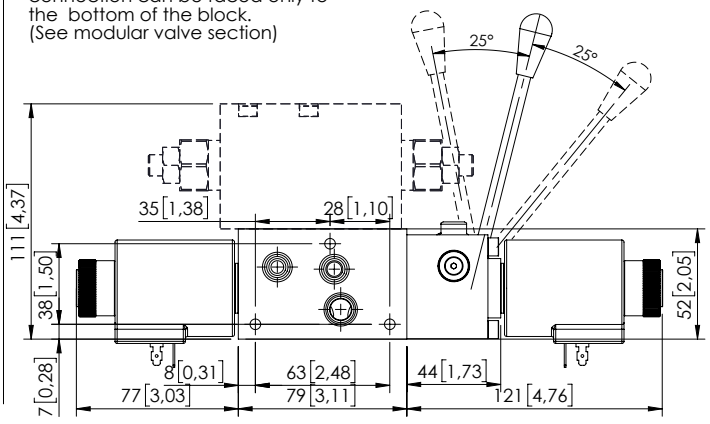
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block.
(See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block.
(See modular valve section)

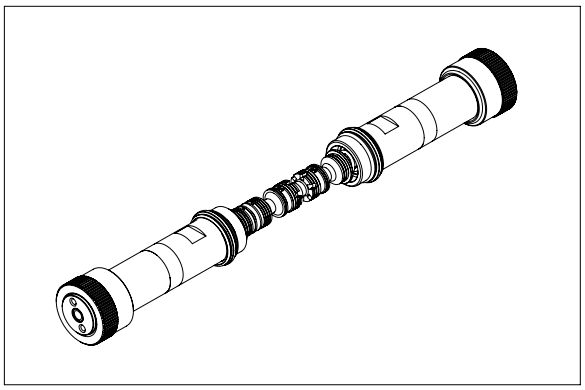


EBL series - SPOOL SECTION

SHNE-050-LSPR

**50 L/MIN (13 gpm)
PROPORTIONAL
SOLENOID VALVE**

ATLANTIC Fluid Tech



This spool group is rated for 50 lpm (13 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by proportional tubes and can be ordered with different hydraulic schemes.
Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.
The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	50 l/min (13 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Max current	1.76A(12 V dc) 0.88A (24 V dc)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,5 kg (1,1 lb)
Weight with two solenoid	0,7 kg (1,5 lb)

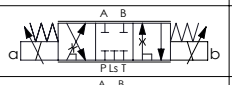
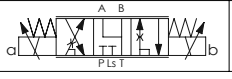
TECHNICAL FEATURES

Propor. type	Spool flow	Rated flow with 12 bar ΔP	Maximum flow	Max. operating pressure
All	20	15 l/min (4 gpm)	20 l/min (5 gpm)	320 bar (4600 psi)
All	35	30 l/min (8 gpm)	35 l/min (9 gpm)	
All	50	45 l/min (12 gpm)	50 l/min (13 gpm)	

Propor. type	Spool flow	Rated flow with 6 bar ΔP	Maximum flow	Max. operating pressure
All	20	10 l/min (2,5 gpm)	15 l/min (4 gpm)	320 bar (4600 psi)
All	35	20 l/min (5 gpm)	25 l/min (6,5 gpm)	
All	50	30 l/min (8 gpm)	35 l/min (9 gpm)	

HYDRAULIC SYMBOLS

Table n°1

SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
77		
78		

ORDERING DETAILS: SEPARATE ELEMENTS

SH[*][*]-0[**]-LSPR-[**]-396-[*][**]N

*	OVERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	SPOOL FLOW
20	20 l/min at 12 bar - 10 l/min at 6 bar (5 gpm at 174 psi - 2,5 gpm at 87 psi)
35	35 l/min at 12 bar - 20 l/min at 6 bar (9 gpm at 174 psi - 5 gpm at 87 psi)
50	50 l/min at 12 bar - 30 l/min at 6 bar (13 gpm at 174 psi - 8 gpm at 87 psi)

**	PROPORTIONAL TYPE
...	See table n°1

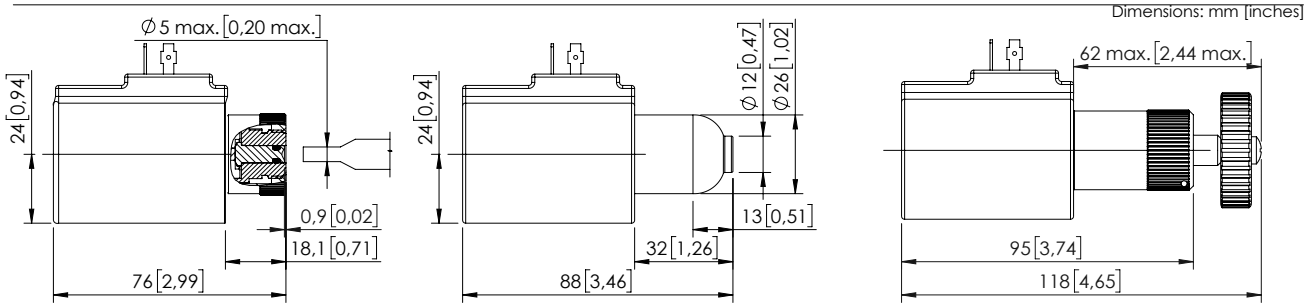
*	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp Junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-LSPR-77-396	
SHNE-030-LSPR-78-396	

OVERRIDE TYPE

Dimensions: mm [inches]



OVERRIDE TYPE "N" OVERRIDE TYPE "P" OVERRIDE TYPE "V"

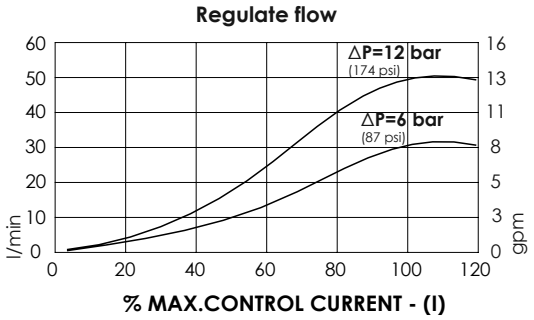
EBL series - SPOOL SECTION

SHNE-050-LSPR

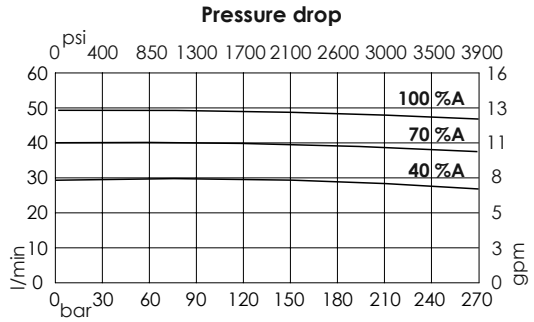
50 L/MIN (13 gpm)
PROPORTIONAL
SOLENOID VALVE

ATLANTIC Fluid Tech

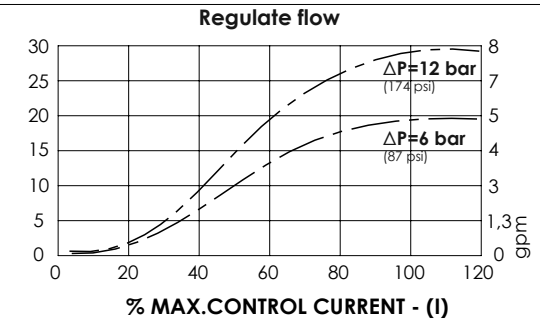
FLOW DIAGRAM - 050



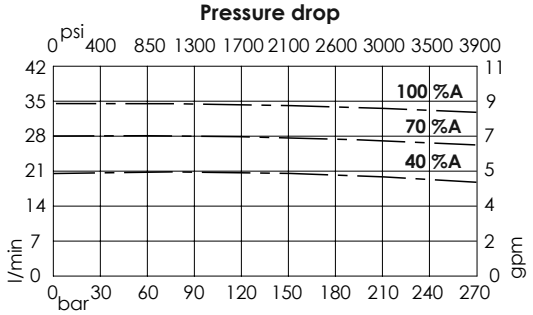
COMPESATION DIAGRAM - 050



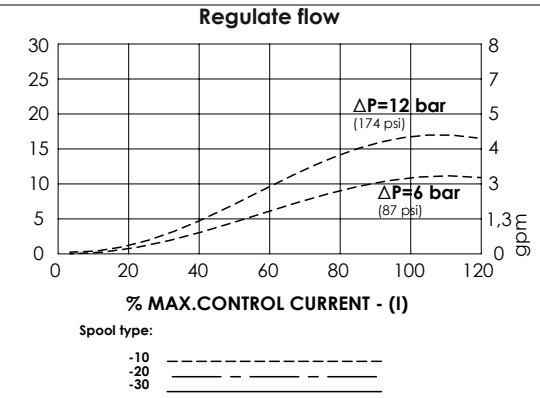
FLOW DIAGRAM - 035



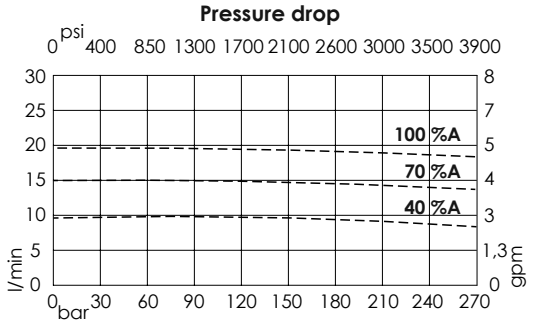
COMPENSATION DIAGRAM - 035



FLOW DIAGRAM - 020



COMPENSATION DIAGRAM - 020

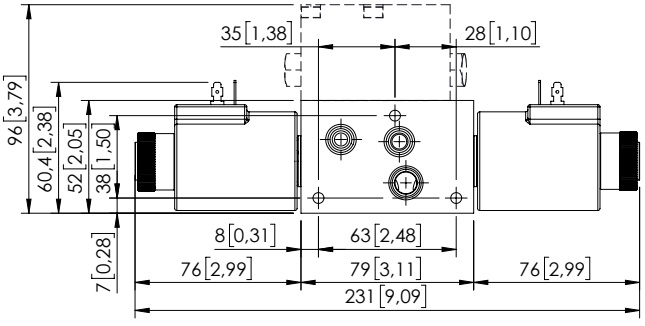


In the diagram shows the performance limits curves of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F); the tests were performed at a 40 °C(104°F) temperature.

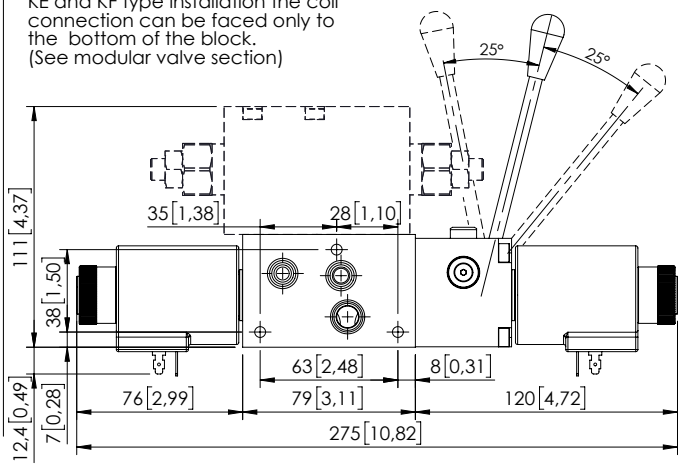
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)

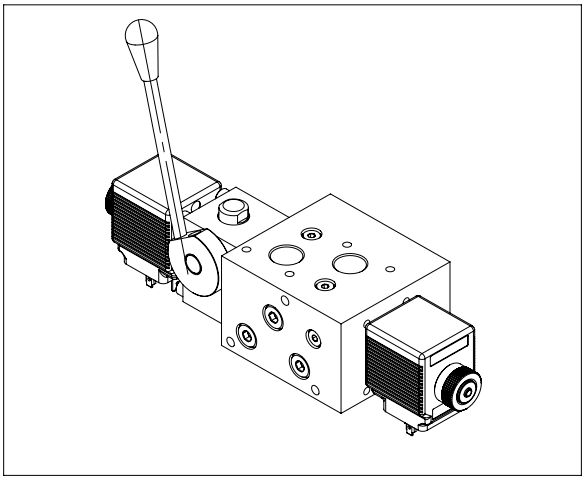


In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)



EBL series - LEVER SECTION

MANUAL LEVER



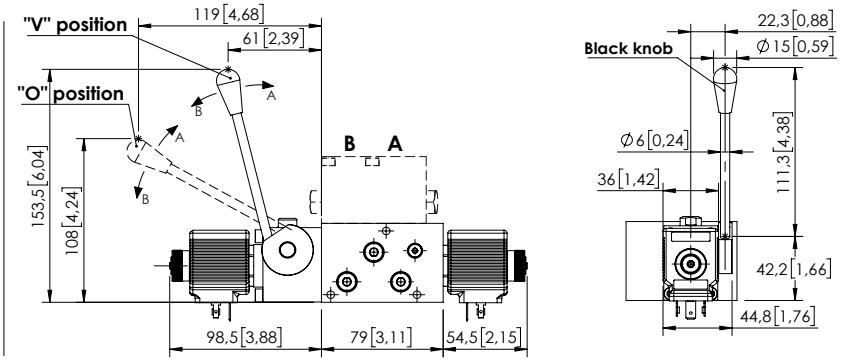
The lever option allow to operate manually the spool and can be ordered for all hydraulic schemes; in the standard version it is installed between monoblock and B port side coil.
The lever is normally installed on the monoblock port side but can be installed also rotated of 180°; , in each of these two positions the lever can be mounted vertical or horizontal simply removing the lever and reinstalling.
The lever is not engaged during solenoid operation and doesn't move when a coil is energized.

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Max pressure in line type	210 bar (3000 psi)
Rated flow	30/60 l/min (8/16 gpm)
Insertion	100 % ED
Weight more than standard	2 kg (4,4 lb)
Weight more than standard	2,5 kg (5,5 lb)

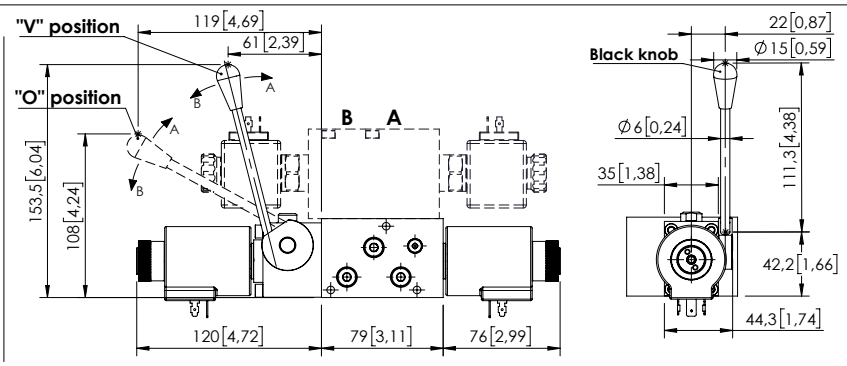
OVERALL DIMENSIONS/ LEVER FOR 30 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



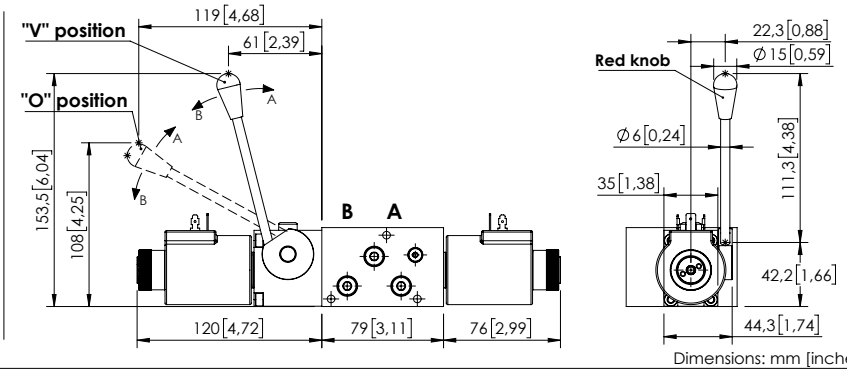
OVERALL DIMENSIONS/ LEVER FOR 60 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



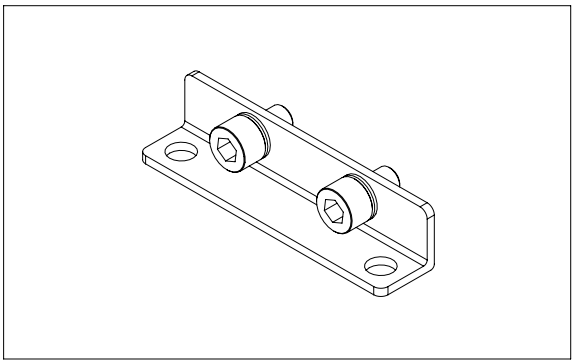
OVERALL DIMENSION/ LEVER FOR 50 L/MIN PROPORTIONAL SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever.
The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network.
The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



Dimensions: mm [inches]

MOUNTING SCREW

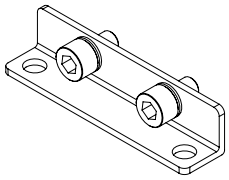


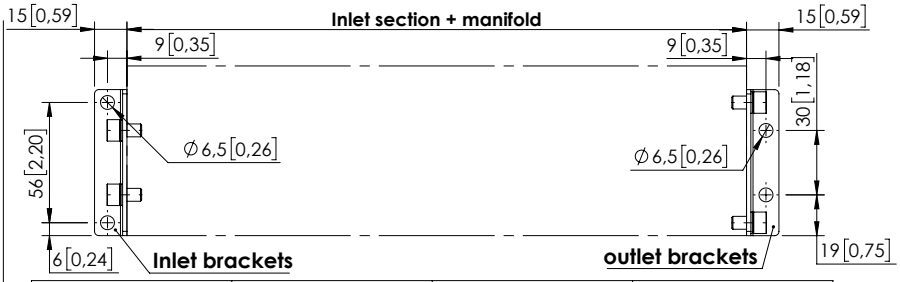
These parts are used to mount the directional valve on the application or to install modular valves and inlet section on the monoblock.

TECHNICAL DATA

Screw type	ISO 4762
Thread type	coarse thread
Standard screw	resistence class 8.8
High resistence screw	resistence class 12.9
Standard screw treatment	zinc-plated (white)
High res. screw treatment	Anodized (black)

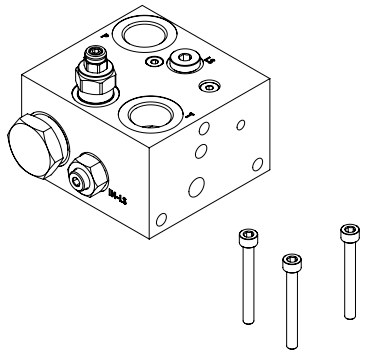
MOUNTING BRACKETS





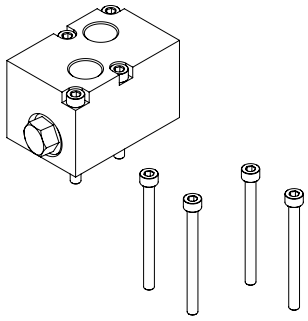
Mounting brackets	Screw lenght	Reference	Tightening Torque
PV000371	M6x10 [M6x0,39]	AV000015 + PR000129	6-7 N/m [4-5 ft-lb]

MOUNTING INLET SECTION



Inlet section	Screw lenght	Reference	Tightening Torque
SF000011	M6X80 [M6x3,15]	AV000073	6-7 N/m [4-5 ft-lb]
SF000019	M6X80 [M6x3,15]	AV000073	6-7 N/m [4-5 ft-lb]
SF000042	M6X75 [M6x2,95]	PE000418	6-7 N/m [4-5 ft-lb]
SF000045	M6X75 [M6x2,95]	PE000418	6-7 N/m [4-5 ft-lb]

FIXING STACKING MODULES



Flangiable valve	Screw lenght	Reference	Tightening Torque
MP	M5x16 [M5x0,63]	AV000035	3-4 N/m [2-3 ft-lb]
MA, MC and MB	M5x45 [M5x1,77]	PE000148	3-4 N/m [2-3 ft-lb]
KE and MF	M5x60 [M5x2,36]	AV000016	3-4 N/m [2-3 ft-lb]

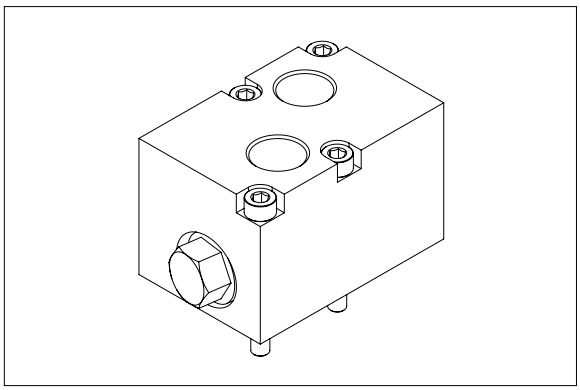
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

MADN-060-ZNFD

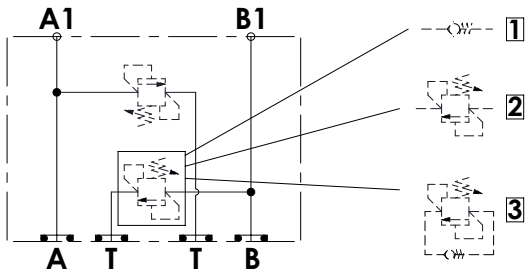
ANTI SHOCK/CAVITATION FLANGEABLE VALVE

ATLANTIC Fluid Tech



This flangeable valve can be mounted on top of the monoblock after removing the T line plugs; it has different configurations such as anti-shock, anti-cavitation or anti-shock/cavitation.
The are three mounting options, single valve on A or on B for single effect operation or valves on A and B for double effect operation. The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

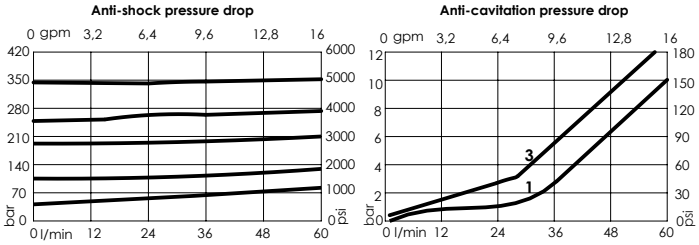
HYDRAULIC SCHEME



TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,4 kg (0,88 lb)

PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

MA[*][*]-060-[*]NFD-[**]-[***]-N[***]

*	VALVE TYPE
S	Single effect
D	Double effect

*	VALVE OPTION
N	Valves in both ports
A	Valve only A port
B	Valve only B port

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

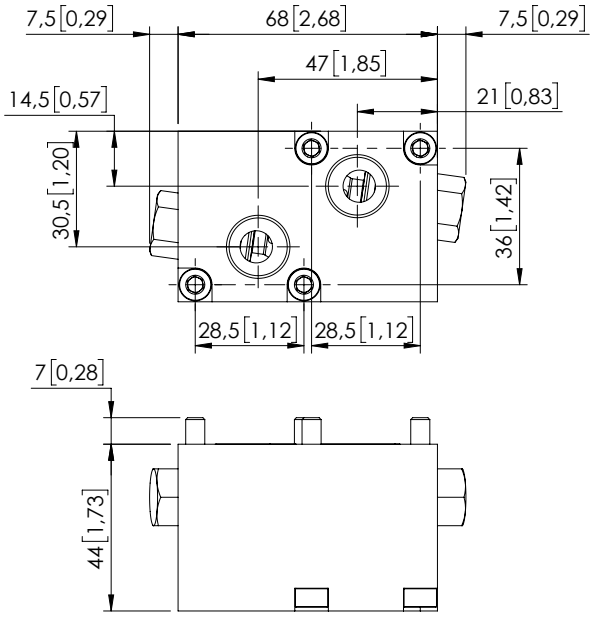
**	VALVE TYPE	
	A line	**B** line
	no valve	no valve
1	anti-cavitation	anti-cavitation
2	anti-shock	anti-shock
3	anti-cav/shock	anti-cav/shock

***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

*	SETTINGS RANGE
...	10 - 310 bar
../..	For differenceA e B setting sign it

QUICK CODE	
DESCRIPTION	CODE

OVERALL DIMENSIONS



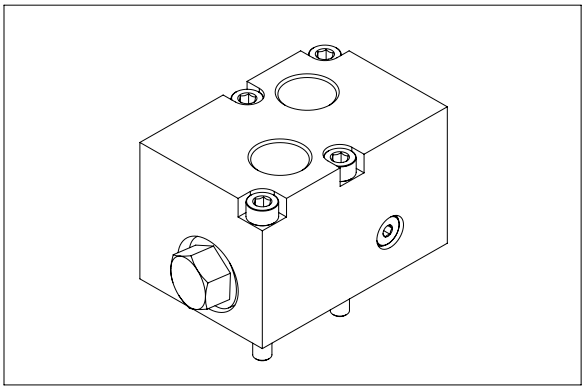
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

MADN-060-ZNFR

ANTI SHOCK FLANGEABLE VALVE

ATLANTIC Fluid Tech

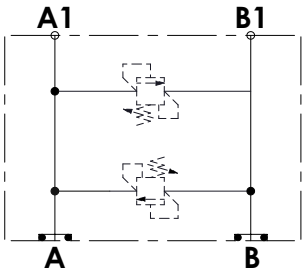


This flangeable valve can be mounted on top of the monoblock.
The are three mounting options, single valve on A or on B for single effect operation or valves on A and B for double effect operation. The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

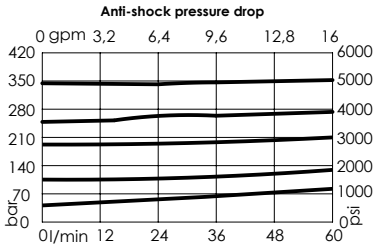
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,4 kg (0,88 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

MA[*][*]-060-[*]NFR-[**]-[***]-N[***]

*	VALVE TYPE
S	Single effect
D	Double effect

*	VALVE OPTION
N	Valves in both ports
A	Valve only A port
B	Valve only B port

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

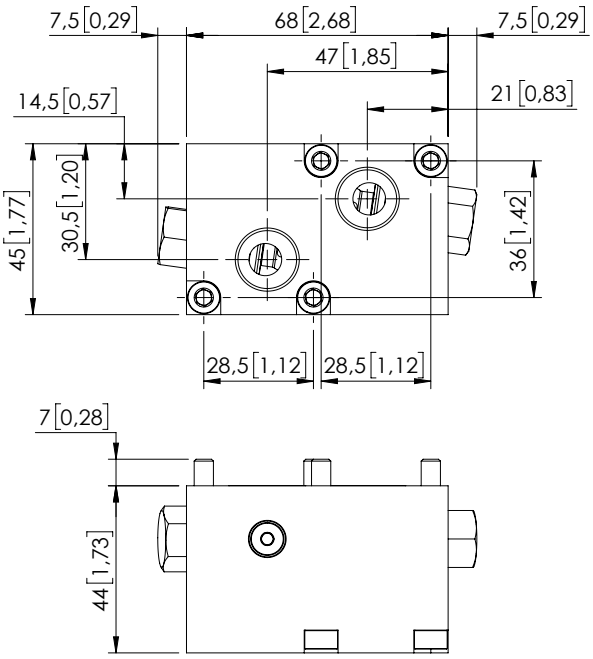
**	VALVE TYPE	
	A line	**B** line
	no valve	no valve

***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

*	SETTINGS RANGE
...	10 - 310 bar
../..	For difference A e B setting sign it

QUICK CODE	
DESCRIPTION	CODE

OVERALL DIMENSIONS



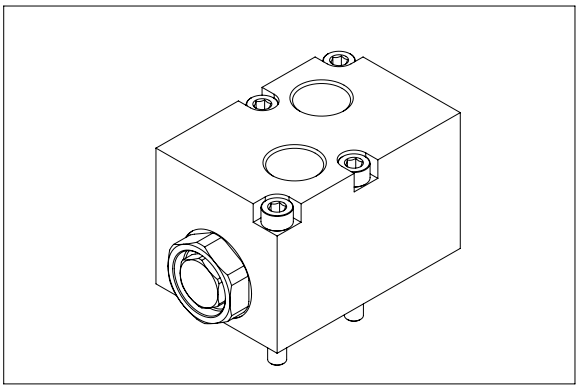
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

MCDN-060-ZNFD

PO CHECK VALVE
FLANGIABLE VALVE

ATLANTIC Fluid Tech

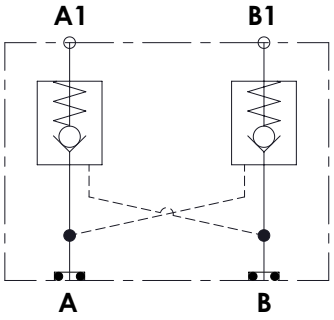


This flangeable valve can be mounted on top of the monoblock keeping the T line plugs.
The valve consist in two pilot operated check piloted by the opposite line and is poppet type.
The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

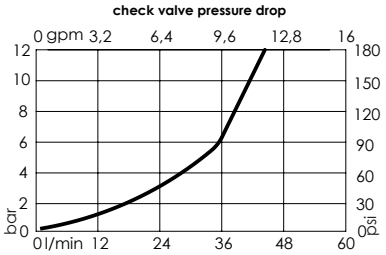
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Pilot ratio	6:1
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,9 kg (1,9 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

MC[*][*]-060-[*]NFD-06-[***]-N

*	VALVE TYPE
S	Single effect
D	Double effect

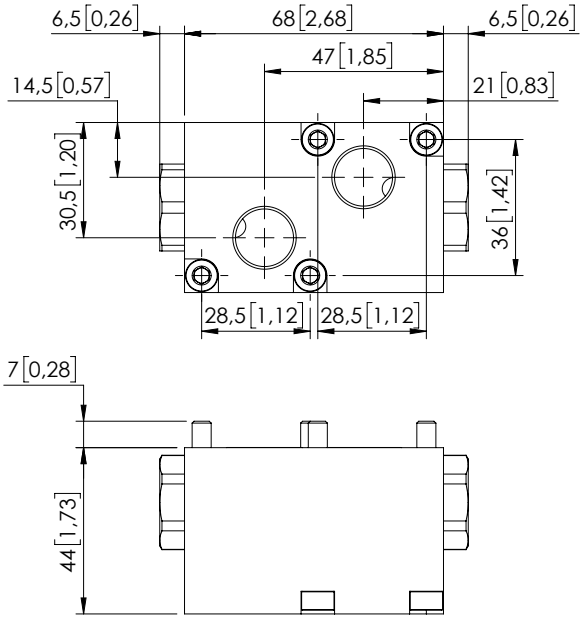
*	VALVE OPTION
N	Check valve on A e B ports
A	Check valve only A port
B	Check valve only B port

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

QUICK CODE	
DESCRIPTION	CODE
MCDN-060-ZNFD-06-G38-N210	MC000173
MCSA-060-ZNFD-06-G38-N210	MC000185

OVERALL DIMENSIONS



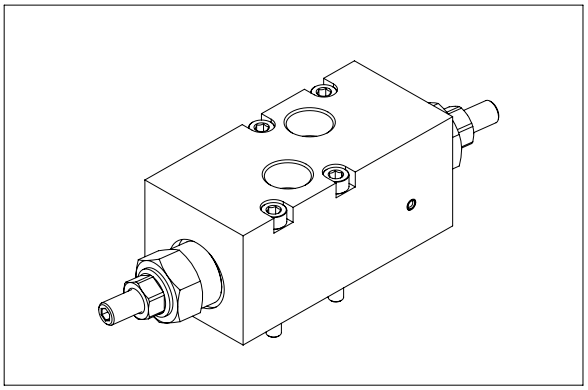
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

MBDN-060-ZNFD

OVERCENTER FLANGEABLE VALVE

ATLANTIC Fluid Tech

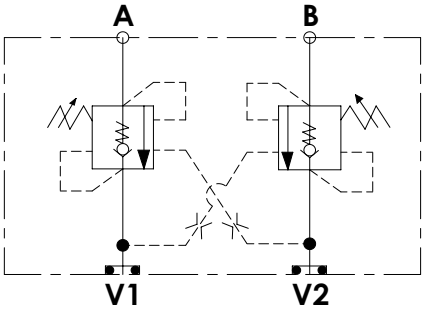


This modular block is made with overcenter valves to control the load on A and B port. The valves are poppet type with a pilot ratio of 4:1, other pilot ratios are available on request.
The standard configuration provides valves on both lines, it is possible to order also valves on only one side.
The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

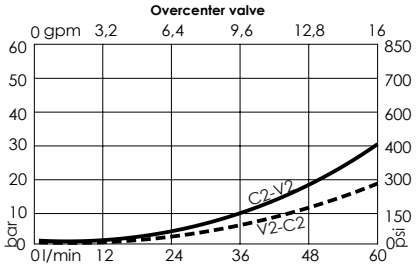
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Pilot ratio	4:1
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	1,4 kg (3,08 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

MB [*] [*] - 060 - [*] NFD-04 - [***] - N [***]

*	VALVE TYPE
S	Single effect
D	Double effect

*	VALVE OPTION
N	Check valve on A e B ports
A	Check valve only A port
B	Check valve only B port

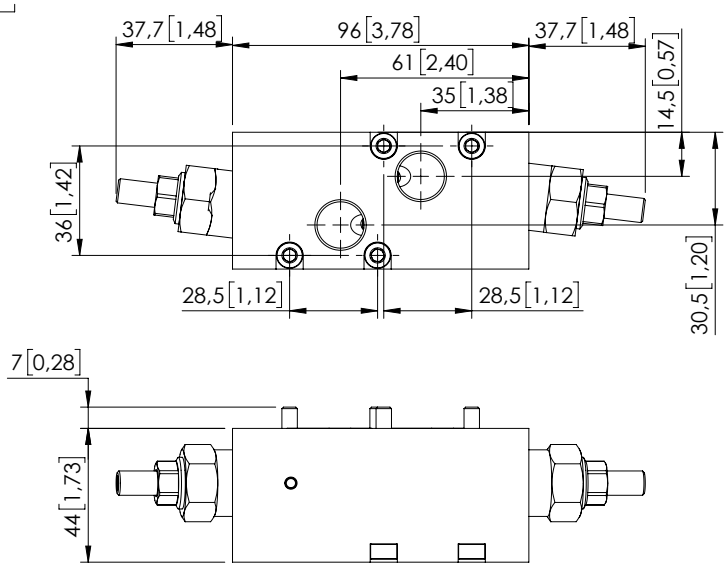
*	MATERIAL TYPE	
A	Steel zinc-plated	(320 bar/4600 psi)
Z	Aluminium anodized	(210 bar/3000 psi)

***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

*	O-RING TYPE
100	100 bar settings
210	210 bar settings (standard)
320	320 bar settings (steel manifold)

QUICK CODE	
DESCRIPTION	CODE
MBDN-060-ZNFD-04-G38-N210	MB000874
MBSA-060-ZNFD-04-G38-N210	MB000875

OVERALL DIMENSIONS



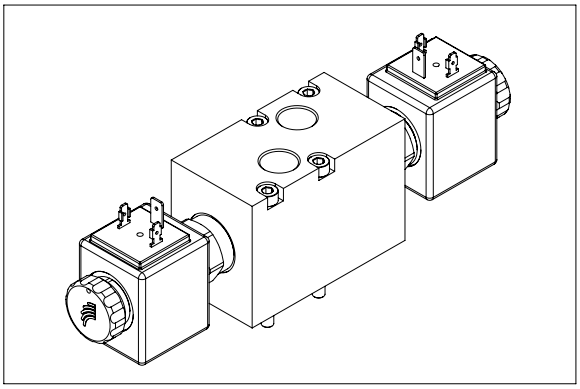
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

KEDN-060-ZNFD

IN LINE ELETTRICAL FLANGEABLE VALVE

ATLANTIC Fluid Tech

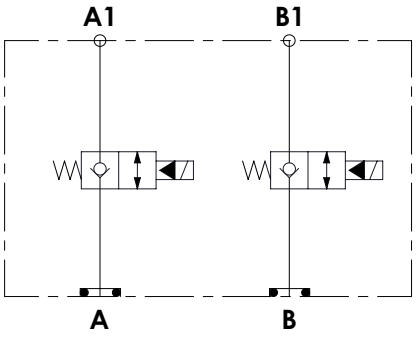


This modular block is equipped with solenoid valves, normally closed, poppet type and can be used to obtain a leek free function on the spool valve or to stop functions. It is available in three configurations, with valves on both lines or on A or on B line.
The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

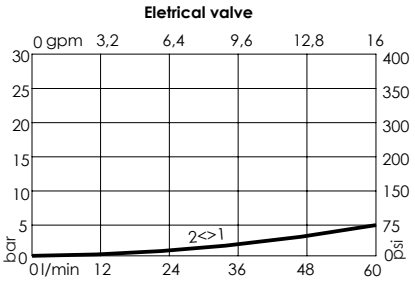
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Insertion	100% ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,8 kg (1,8 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

KE[*][*]- 060-[*]NFD-04-[***]-[*][**]N

*	VALVE TYPE
S	Single effect
D	Double effect

*	VALVE OPTION
N	EV on A e B ports
A	EV only A port
B	EV only B port

*	MATERIAL TYPE	
A	Steel zinc-plated	(320 bar/4600 psi)
Z	Aluminium anodized	(210 bar/3000 psi)

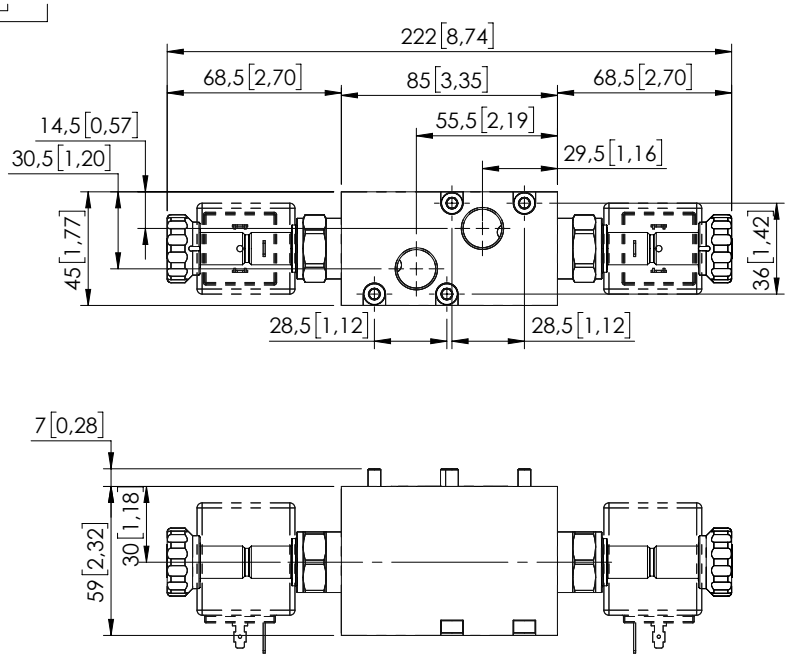
***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

*	VOLTAGE
	no coils
A	12 V dc
B	24 V dc

**	COILS TYPE	
	no coils	
HR	Hirschmann	(ISO 4400 DIN 43650)
DT	Deutsch	(DT04-2P)
AJ	Amp junior	(AJ type)

QUICK CODE	
DESCRIPTION	CODE

OVERALL DIMENSONS



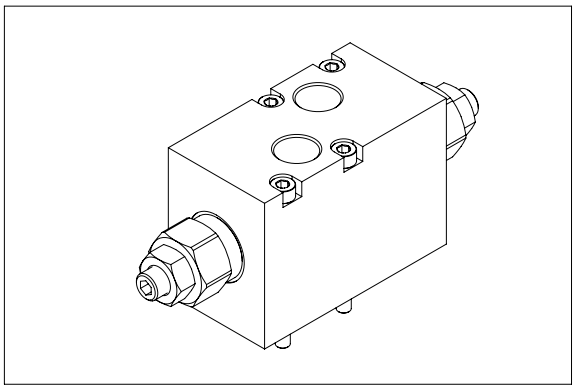
Dimensions: mm [inches]

EB - MODULAR VALVE SECTION

KFDN-060-ZNFD

IN LINE FLOW RESTRICTOR FLANGIABLE VALVE

ATLANTIC Fluid Tech

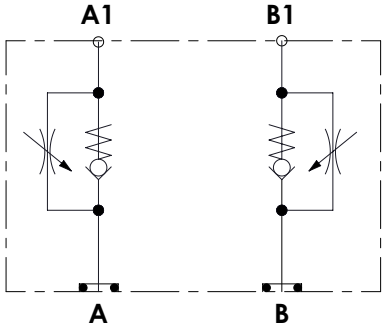


This modula valve is equipped with mono directional flow restrictor not compensated to adjust the speed of the application; it is available in three configurations, with valves on A line, on B line(single effect) or A and B line (double effect). The manifold is made in aluminium with anodization surface treatment or on request in steel with zinc plating treatment.

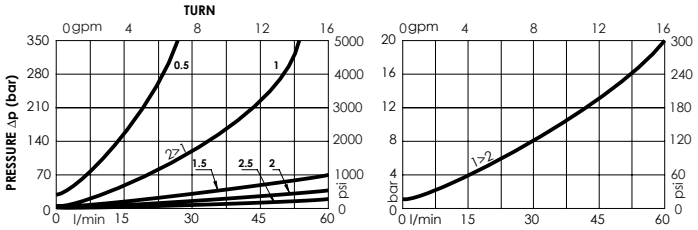
TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm²/s (0,02-0,78 in²/s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,8 kg (1,8 lb)

HYDRAULIC SCHEME



PRESSURE DROP



ORDERING DETAILS: SEPARATE ELEMENTS

KF [*][*]-060-[*]NFD-04-[***]-N

*	VALVE TYPE
S	Single effect
D	Double effect

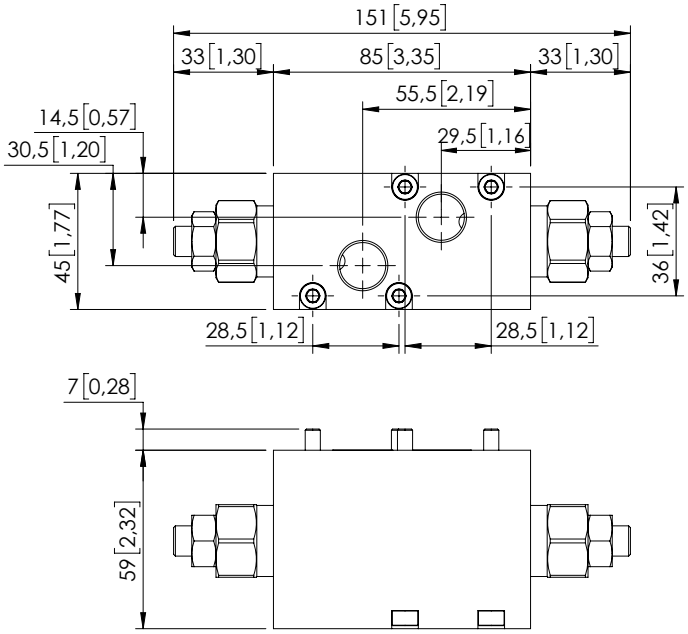
*	VALVE OPTION
N	Flow restrictor on A e B ports
A	Flow restrictor only A port
B	Flow restrictor only B port

*	MATERIAL TYPE	
A	Steel zinc-plated	(320 bar/4600 psi)
Z	Aluminium anodized	(210 bar/3000 psi)

***	PORTS		
	A line	**B** line	**M**
G38	G 3/8"	G 3/8"	/
U09	9/16"-18 UNF	9/16"-18 UNF	/

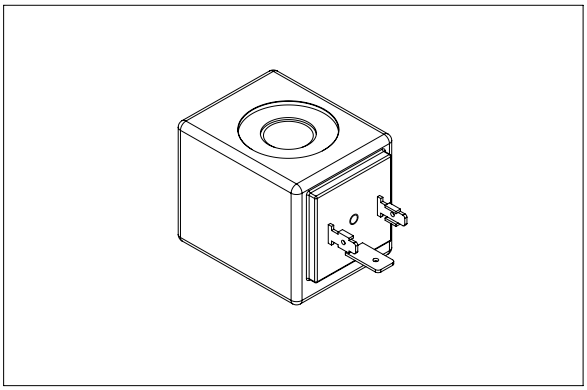
QUICK CODE	
DESCRIPTION	CODE

OVERALL DIMENSIONS



Dimensions: mm [inches]

COIL SERIES M7



The coils have the magnetic circuit coated with black thermoplastic material. All metal parts are protected against oxidation according to RoHS directive.
For proper insulation it is required to install the proper seals supplied with the tubes.

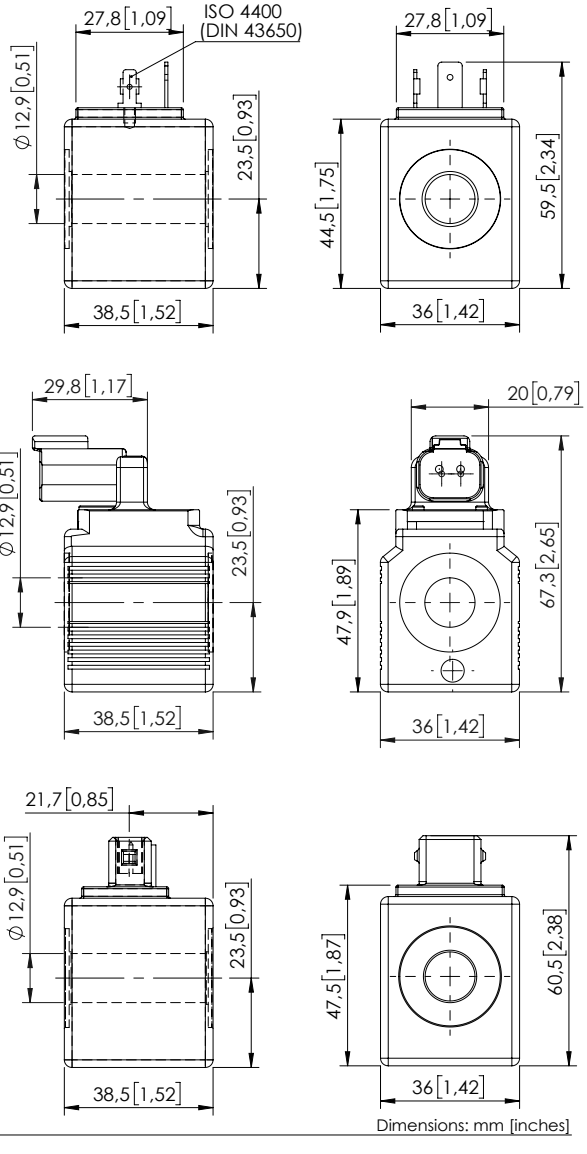
COIL TYPE

Coils are available with three different connections type, special voltage are available on request, please contact AFT sales network.
(1) Ambient temperature 25°C (77°F)
(2) Ambient temperature 20°C (68°F)

TECHNICAL DATA

Protection type	IP 65 with all seal
Protection type	IP 69K with all seal only DT
Alimentation tolerance	+10%
Ambient temperature	-20°C +50°C (-4/+122 °F)
Duty cycle	100% ED (max 40°C ambient) (max 104°F ambient)
Isolation class	Class H (max 180°C) (max 356 °F)
Weight	0,2 kg (0,44 lb)

OVERALL DIMENSIONS



Dimensions: mm [inches]

DIN 43650 (HR)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	20 W	7.2	AB000002
B	24 V DC	135°C	20 W	28.8	AB000003
C	48 V DC	135°C	20 W	115.2	AB000046
D	110 R AC	120°C	20 W	605	AB000012
E	220 R AC	120°C	20 W	2420	AB000007

DEUTSCH (DTV)

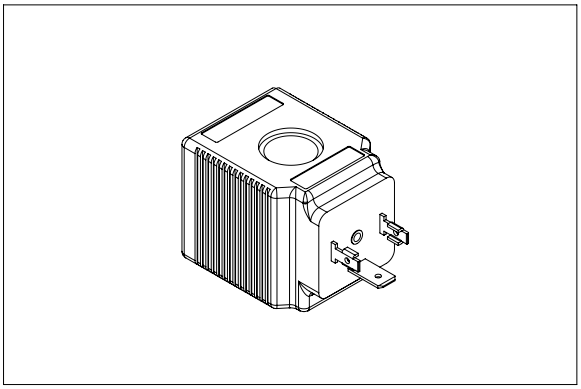
Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	20 W	7.2	AB000022
B	24 V DC	135°C	20 W	28.8	AB000023
C	48 V DC	135°C	20 W	115.2	
D	110 R AC	120°C	20 W	605	
E	220 R AC	120°C	20 W	2420	

AMP JUNIOR (AJ)

Coils		Max winding temperature	Nominal potency	Resistence (±7%)	Code parts
Code	Voltage				
A	12 V DC	135°C	20 W	7.2	AB000005
B	24 V DC	135°C	20 W	28.8	AB000014
C	48 V DC	135°C	20 W	115.2	AB000021
D	110 R AC	120°C	20 W	605	
E	220 R AC	120°C	20 W	2420	

EB - COILS SECTION

COIL SERIES M14



The coils have the magnetic circuit coated with black thermoplastic material. All metal parts are protected against oxidation according to RoHS directive.
For proper insulation it is required to install the proper seals supplied with the tubes.

TECHNICAL DATA

Protection type	IP 65 with all seal
Protection type	IP 69K with all seal only DT
Activation	18000/h
Alimentation tolerance	+10%
Ambient temperature	-20°C +50°C (-4/+122 °F)
Duty cycle	100% ED (max 40°C ambient) (max 104°F ambient)
Isolation class	Class H (max 180°C) (max 356 °F)
Weight	0,20 kg (0,44 lb)

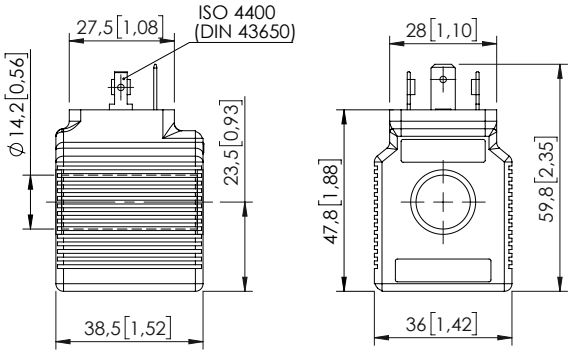
COILS TYPE

Coils are available with three different connections type, special voltage are available on request, please contact AFT sales network.
(1) Ambient temperature 25°C (77°F)
(2) Ambient temperature 20°C (68°F)

OVERALL DIMENSIONS

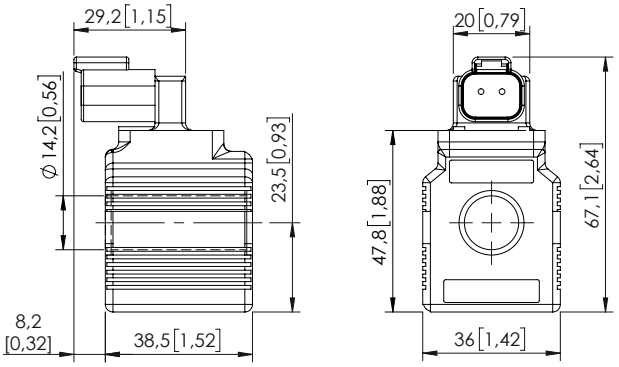
DIN 43650 (HR)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	**Voltage**				
A	12 V DC	135°C	26 W	5.54	AB000143
B	24 V DC	135°C	26 W	22.15	AB000144
C	48 V DC	135°C	26 W	88.6	
D	110 R AC	120°C	26 W	465.4	
E	220 R AC	120°C	26 W	1861.5	



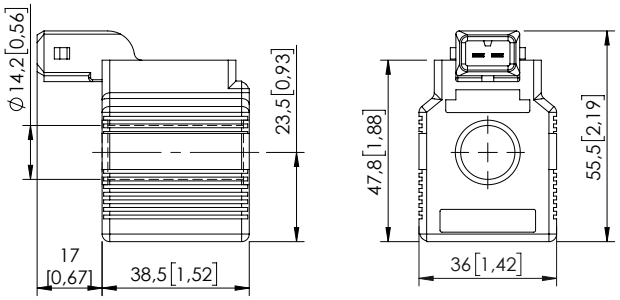
DEUTSCH (DTV)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	**Voltage**				
A	12 V DC	135°C	26 W	5.54	AB000132
B	24 V DC	135°C	26 W	22.15	AB000133
C	48 V DC	135°C	26 W	88.6	
D	110 R AC	120°C	26 W	465.4	
E	220 R AC	120°C	26 W	1861.5	



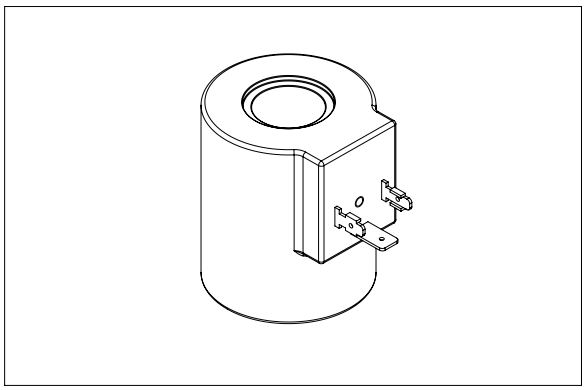
AMP JUNIOR (AJ)

Coils		Max winding temperature	Nominal potency	Resistence (±7%)	Code parts
Code	**Voltage**				
A	12 V DC	135°C	26 W	5.54	AB000136
B	24 V DC	135°C	26 W	22.15	AB000181
C	48 V DC	135°C	26 W	88.6	AB000131
D	110 R AC	120°C	26 W	465.4	
E	220 R AC	120°C	26 W	1861.5	



Dimensions: mm [inches]

COIL SERIES M8



COILS TYPE

Coils are available with three different connections type, special voltage are available on request, please contact AFT sales network.
(1) Ambient temperature 25°C (77°F)
(2) Ambient temperature 20°C (68°F)

HIRSCHMANN (HR)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	33 W	4.36	AB000015
B	24 V DC	135°C	33 W	17.5	AB000029
C	48 V DC	135°C	33 W	69.8	AB000158
D	110 R AC	120°C	33 W	366.7	AB000092
E	220 R AC	120°C	33 W	1466.7	

DEUTSCH (DTV)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	33 W	4.36	AB000104
B	24 V DC	135°C	33 W	17.5	AB000105
C	48 V DC	135°C	33 W	69.8	
D	110 R AC	120°C	33 W	366.7	
E	220 R AC	120°C	33 W	1466.7	

AMP JUNIOR (AJ)

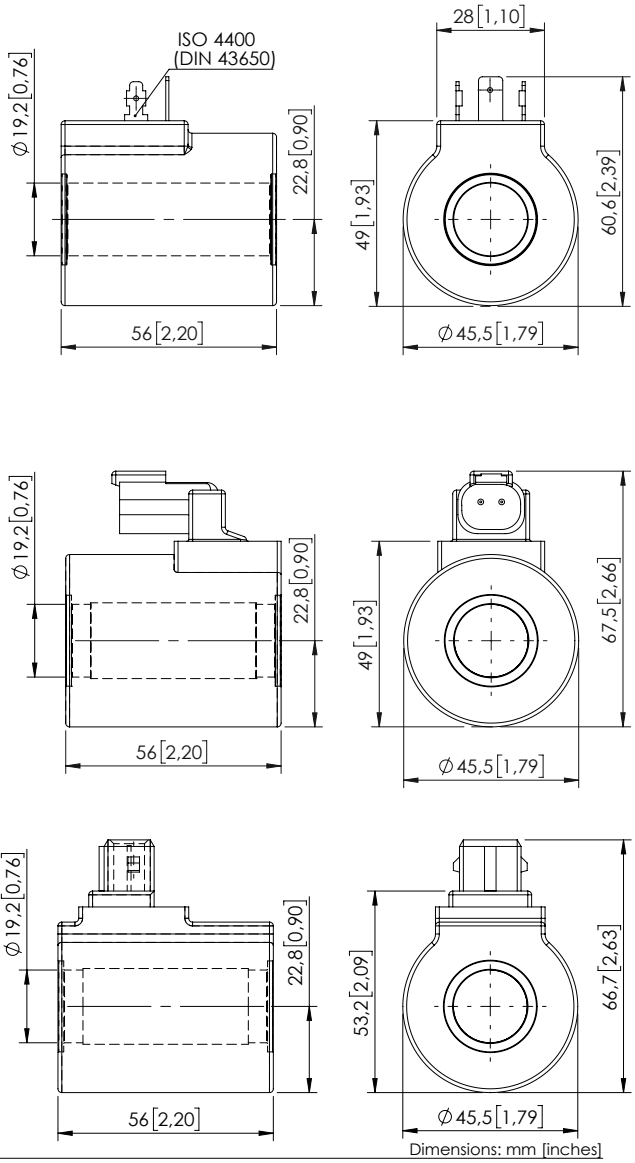
Coils		Max winding temperature	Nominal potency	Resistence (±7%)	Code parts
Code	Voltage				
A	12 V DC	135°C	33 W	4.36	AB000048
B	24 V DC	135°C	33 W	17.5	AB000224
C	48 V DC	135°C	33 W	69.8	
D	110 R AC	120°C	33 W	366.7	
E	220 R AC	120°C	33 W	1466.7	

The coils have the magnetic circuit coated with black thermoplastic material. All metal parts are protected against oxidation according to RoHS directive.
For proper insulation it is required to install the proper seals supplied with the tubes.

TECHNICAL DATA

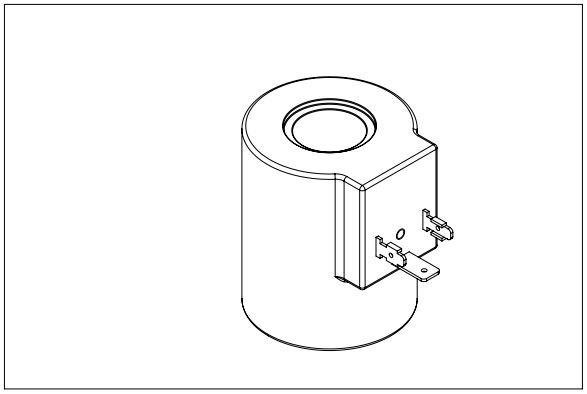
Protection type	IP 65 with all seal
Protection type	IP 69K with all seal only DT
Alimentation tolerance	+10%
Ambient temperature	-20°C +50°C (-4/+122 °F)
Duty cycle	100% ED (max 40°C ambient) (max 104°F ambient)
Isolation class	Class H (max 180°C) (max 356 °F)
Weight	0,380 kg (0,84 lb)

OVERALL DIMENSIONS



Dimensions: mm [inches]

COIL SERIES M15



COILS TYPE

Coils are available with three different connections type, special voltage are available on request, please contact AFT sales network.
(1) Ambient temperature 25°C (77°F)
(2) Ambient temperature 20°C (68°F)

HIRSCHMANN (HR)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	23 W	6.3	AB000137
B	24 V DC	135°C	23 W	25	AB000138
C	48 V DC	135°C	23 W	100.2	
D	110 R AC	120°C	23 W	526	
E	220 R AC	120°C	23 W	2104.3	

DEUTSCH (DTV)

Coils		Max winding temperature (1)	Nominal potency	Resistence (±7%) (2)	Code parts
Code	Voltage				
A	12 V DC	135°C	23 W	6.3	AB000141
B	24 V DC	135°C	23 W	25	AB000142
C	48 V DC	135°C	23 W	100.2	
D	110 R AC	120°C	23 W	526	
E	220 R AC	120°C	23 W	2104.3	

AMP JUNIOR (AJ)

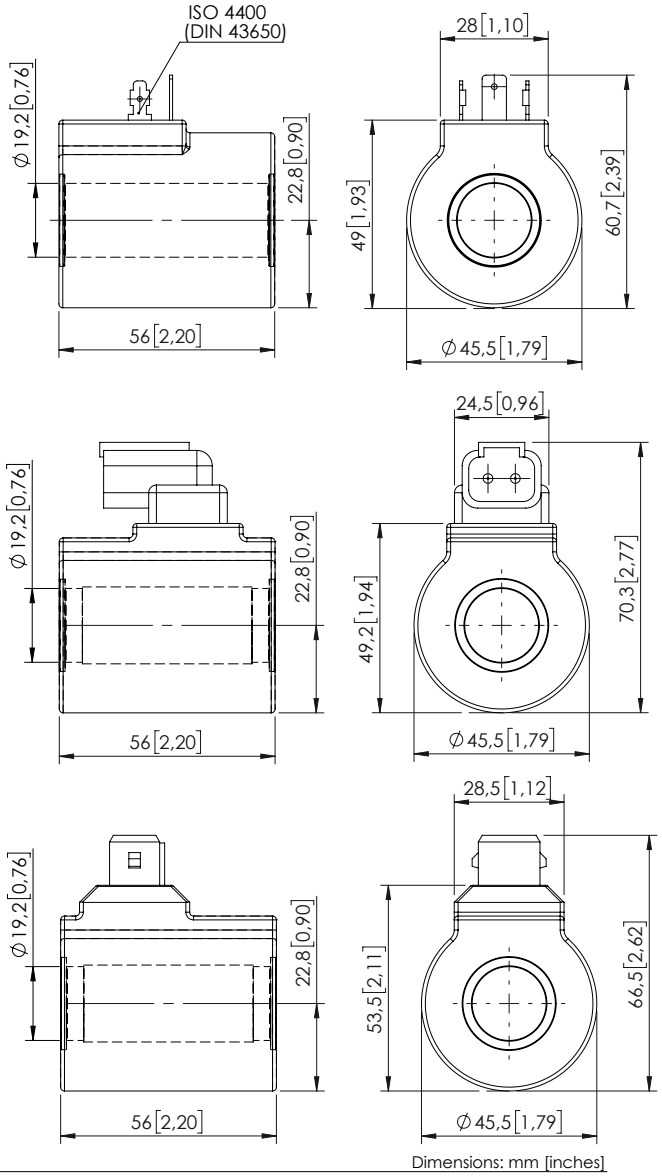
Coils		Max winding temperature	Nominal potency	Resistence (±7%)	Code parts
Code	Voltage				
A	12 V DC	135°C	23 W	6.3	AB000139
B	24 V DC	135°C	23 W	25	AB000140
C	48 V DC	135°C	23 W	100.2	
D	110 R AC	120°C	23 W	526	
E	220 R AC	120°C	23 W	2104.3	

The coils have the magnetic circuit coated with black thermoplastic material. All metal parts are protected against oxidation according to RoHS directive.
For proper insulation it is required to install the proper seals supplied with the tubes.

TECHNICAL DATA

Protection type	IP 65 with all seal
Protection type	IP 69K with all seal only DT
Alimentation tolerance	+10%
Ambient temperature	-20°C +50°C (-4/+122 °F)
Duty cycle	100% ED (max 40°C ambient) (max 104°F ambient)
Isolation class	Class H (max 180°C) (max 356 °F)
Weight	0,360 kg (0,8 lb)

OVERALL DIMENSIONS

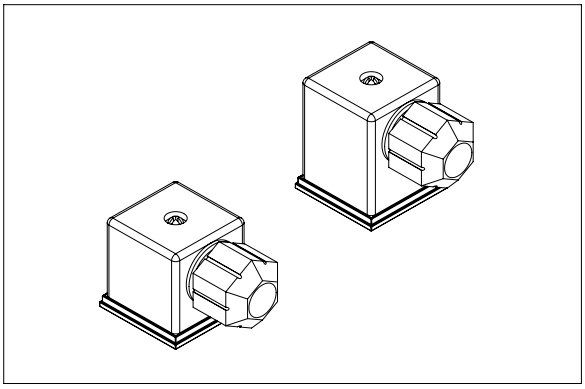


Dimensions: mm [inches]

CONNECTORS

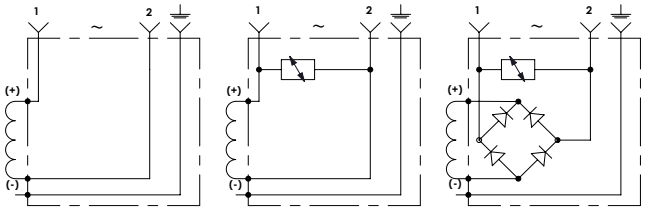
CONNECTOR
FOR SOLENOID VALVE

ATLANTIC Fluid Tech



Connector for solenoid valve according to standards DIN 43650 / ISO 4400, different types of circuits are available, standard circuit, circuit with "VDR", circuit with "VDR+ rectifier" or circuit with LED

ELECTRIC SCHEME



Standard circuit | Circuit with VDR | Circuit with rectifier and VDR

TECHNICAL DATA

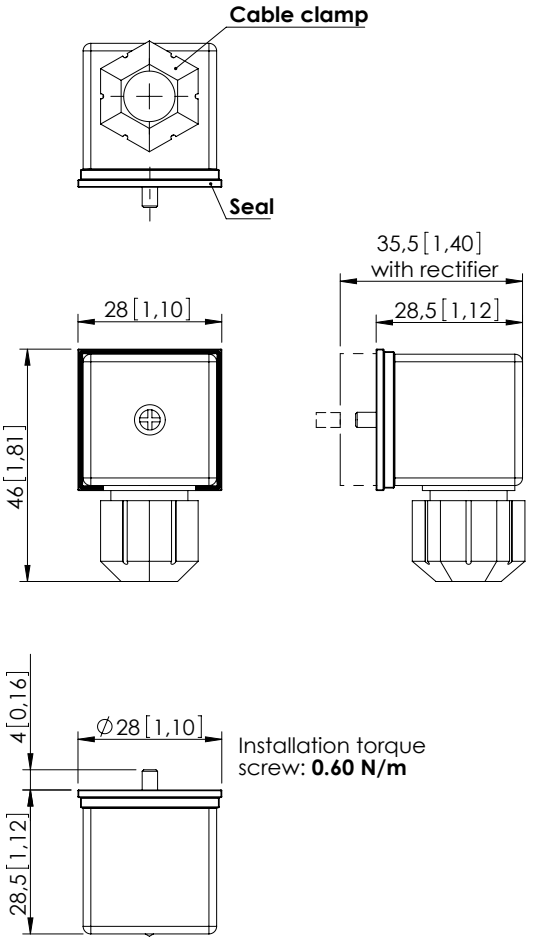
Voltage rating	AC/DC: up to 250/300 V max
Max current	16.0 A
Contact resistence	≤ 4 mΩ
Max conductor	1.5 mm² (1,6 fb2)
Cable range	Ø4.0 to Ø9.0 mm (Ø0,15 to Ø0,35 fb)
Protection class	IP 67 EN60529
Seal	Nitrile rubber
Poles	2 plus ground
Connector	EN 175301-803 (DIN 43650)

ORDERING DETAILS: SEPARATE ELEMENTS

Quick code	Colour	VDR	LED	Rectifier	Voltage
PV000171	Black	No	No	No	12V to 230V
PV000195	Black	Yes	No	No	12V dc
PV000349	Black	Yes	No	No	24V dc
PV000198	Trasparent	Yes	Yes	No	12V dc
PV000196	Trasparent	Yes	Yes	No	24V dc
PV000347	Black	Yes	No	Yes	12V RAC
PV000348	Black	Yes	No	Yes	24V RAC
	Black	Yes	No	Yes	110V RAC
	Black	Yes	No	Yes	220V RAC
	Trasparent	Yes	Yes	Yes	110V RAC
	Trasparent	Yes	Yes	Yes	220V RAC

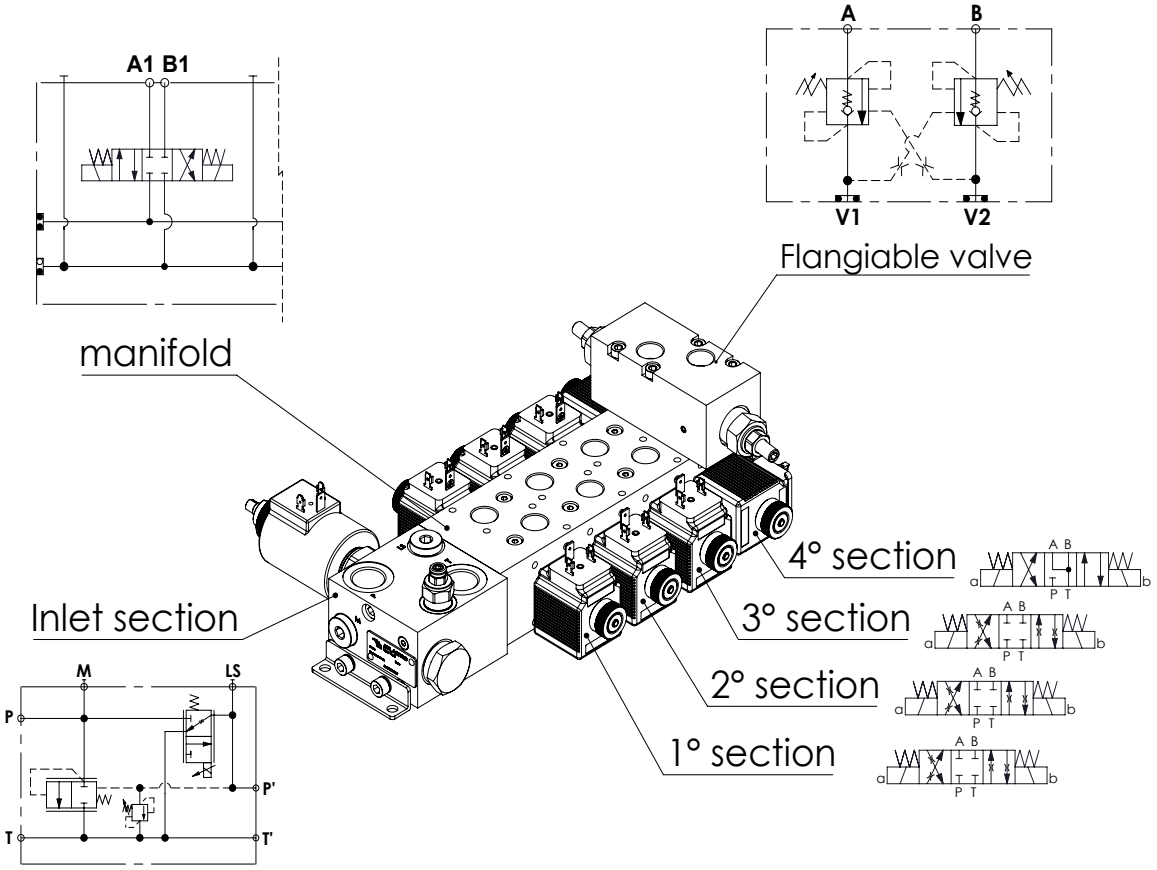
NB: To have full performance and to guarantee the IP 65 level of protection, it is essential to assemble connectors with the supplied seals and with screw properly installed.

OVERALL DIMENSIONS



Dimensions: mm [inches]

EB - ORDERING PART SECTION



ORDER CODE

	QUICK CODE OR DESCRIPTION	COIL QUICK CODE OR DESCRIPTION
INLET SECTION		
MANIFOLD		
SPOOL SECTION 1		
FLANGEABLE VALVE SECTION 1		
SPOOL SECTION 2		
FLANGEABLE VALVE SECTION 2		
SPOOL SECTION 3		
FLANGEABLE VALVE SECTION 3		
SPOOL SECTION 4		
FLANGEABLE VALVE SECTION 4		
SPOOL SECTION 5		
FLANGEABLE VALVE SECTION 5		
SPOOL SECTION 6		
FLANGEABLE VALVE SECTION 6		
SPOOL SECTION 7		
FLANGEABLE VALVE SECTION 7		
SPOOL SECTION 8		
FLANGEABLE VALVE SECTION 8		
COILS		
OPTIONS		
OPTIONS		