

# HIGH PRESSURE /HIGH TEMPERATURE

## Liquid Float Level Switch

### DESCRIPTION

Magnetrol's B40 liquid level switch is specifically designed and constructed for high pressure, high temperature service conditions. B40 type level switches are completely self-contained units designed for side mounting to a tank or vessel with welded or flanged pipe connections.

### FEATURES

- Cr Mo (Chrome - moly), carbon steel or stainless steel welded float cages
- Process temperature up to 540 °C (1000 °F)
- Single switch level
- Specific gravity as low as 0,65
- Process pressure up to 207 bar @ 370 °C (3000 psi @ 700 °F)
- Standard anti corrosive protection

#### Optional:

- Special tank connections
- Extreme temperature modifications
- Class 1, Group B explosion proof electrical enclosure

### APPLICATIONS

- Accumulators
- Flash tanks
- Receivers
- Knock out drums
- Flare pots
- Storage tanks
- Scrubbers
- Separators

### Standard & tailor made designs



### AGENCY APPROVALS

Agency	Approval
ATEX	II 2G EEx d II C T6, explosion proof
CCE ①	R1 (1) 136/MI/433, explosion proof
FM	Class I, Div. 1, Groups C & D Class II, Div. 1, Groups E, F & G, Type NEMA 7/9
FM/CSA ②	Non-Hazardous area
	Explosion proof area – Groups B, C, D, E, F & G Type NEMA 4X/7/9
SAA ②	Explosion proof area
LRS	Lloyds Register of Shipment (marine applications)
GOST/ GOSGORTECHNADZOR ②	Russian Authorisation Standards
Other approvals are available, consult factory for more details	

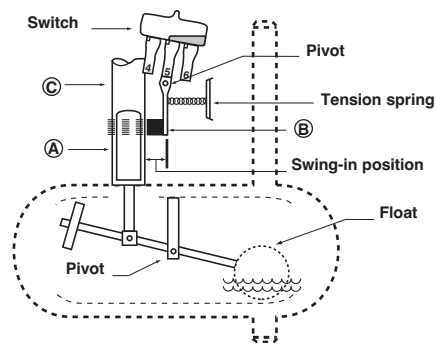
① For CCE approved units, use the ATEX explosion proof model numbers.

② Consult factory for proper model numbers.

## PRINCIPLE OF OPERATION

B40 level switches employ permanent magnetic force as the only link between the float and the switching element. As the pivoted float follows liquid level changes, it moves a magnetic sleeve (A) into or out of the field of a switch actuating magnet (B) causing switch operation.

A non-magnetic barrier tube (C) effectively isolates the switch mechanism from the controlled liquid.



## AVAILABLE SWITCH MECHANISMS

Type of switch module <sup>①</sup>	Max. Process Temp. <sup>②</sup>	Switch ratings – A res. <sup>③</sup>			Code
		24 V DC	240 V AC	120 V AC	
Micro switch - AC current	max 290 °C (550 °F)	10	15	15	S
Micro switch - DC current	max 200 °C (400 °F)	10	–	10	S
Hermetically sealed micro switch	max 400 °C (750 °F)	4	–	2,5	F
Mercury switch	max 540 °C (1000 °F)	10	6,5	13	L

<sup>①</sup> For applications with heavy vibration, consult factory for suited switch modules.

<sup>②</sup> Max process temperature is specified at 40 °C (100 °F) ambient temperature.

<sup>③</sup> For more details - see bulletin 42-120.



Type S



Type L



Type F

## AVAILABLE HOUSINGS



- For Non Ex use with F&S type switches
- IP 66
- Die cast Aluminium
- 2 Entries (one plugged)
- Standard blue anti corrosive coating
- Housing drain available, consult factory



- For Ex d use with F&S type switches
- IP 66
- Die cast Aluminium
- 2 Entries (one plugged)
- Standard blue anti corrosive coating
- ATEX II 2G EEx d II C T6
- FM Class I, Div. 1, Groups C & D
- FM Class II, Div. 1, Groups E, F & G



- For Non Ex use with L type switches
- IP 65
- Alu base / cold rolled steel cover
- One entry
- Standard blue anti corrosive coating
- Housing drain available, consult factory



- For Ex d use with L type switches
- IP 66 (NEMA 7/9)
- Cast Iron
- One entry
- Standard blue anti corrosive coating
- Housing drain available, consult factory
- Class I, Groups C & D
- Class II, Groups E, F & G

# SELECTION DATA

A complete measuring system consists of:

- Order code for high temperature / high pressure liquid float level switch in an external cage

## BASIC MODEL NUMBER

B 4 0	cage mounted float switch for high temperature / high pressure applications	Down to S.G. 0,65
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## MATERIALS OF CONSTRUCTION

Code	Cage	Float	Tank connections	Pressure & temperature ratings
R F 3 0	Cr Mo (Chrome-moly)	347 SST (1.4550) or 321 SST (1.4541)	1" welding nipples	115 bar @ 425°C - 59,8 bar @ 540°C max (1668 psi @ 800°F - 867 psi @ 1000°F max)
R B 6 0			1" socket weld	
C F 3 0	304 SST (1.4301)	316 SST (1.4401)	1" welding nipples	85,5 bar @ 425°C max (1240 psi @ 800°F max)
C B 6 0			1" socket weld	
A C 3 0	Carbon steel	347 SST (1.4550) or 321 SST (1.4541)	1 1/2" socket weld	103 bar @ 340°C - 75,9 bar @ 425°C max (1500 psi @ 650°F - 1100 psi @ 800°F max)
D C 4 0				316 SST (1.4401)

## SWITCH MECHANISM & ENCLOSURE

qty and switch type		Weather proof (IP 66)		ATEX (IP 66)		FM (IP 66)
		cast Aluminium		II 2G EEx d II C T6		NEMA 7/9
		M20 x 1,5	1" NPT	cast Aluminium		cast Alu.
				M20 x 1,5	1" NPT	1" NPT
F	1 x SPDT	FCB	FAB	FK9	FC9	FKB
	1 x DPDT	FGB	FDB	FN9	FF9	FNB
S for AC current	1 x SPDT	S2B	SAB	SH9	SA9	SKB
	1 x DPDT	S8B	SDB	SJ9	SB9	SNB
S for DC current	1 x SPDT	S2R	SBB	SK9	SC9	SLB
	1 x DPDT	S8R	SEB	SN9	SF9	SOB

qty and switch type		Weather proof (IP 65)		NEMA 7/9 (IP 66)	
		Alu base / cold rolled steel cover		cast Iron	
		3/4" NPT		1" NPT	
L	1 x SPDT	LAM		LKM	
	1 x DPDT	LDM		LNM	

B 4 0 [ ] [ ] [ ] 0 [ ] [ ] [ ] complete order code for B40 models

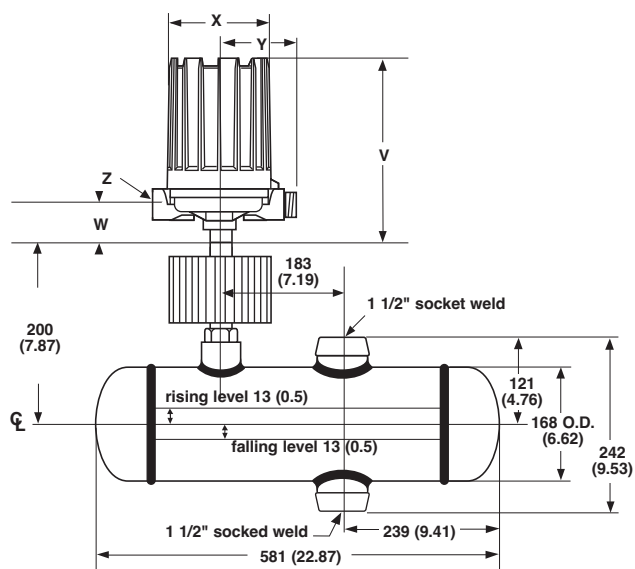
## DIMENSIONS in mm (inches)

	Switch Types	V		W		ø X		Y		Z
		mm	inches	mm	inches	mm	inches	mm	inches	
Weatherproof- ATEX - FM (NEMA 7/9) - (Cast Aluminium)	F or S	257	10.12	42	1.66	151	5.93	109	4.29	M20 x 1,5 <sup>(*)</sup> or 1" NPT (2 entries - 1 plugged) <sup>(*)</sup> not for FM (NEMA 7/9)
Weatherproof- (Alu/Steel)	L	216	8.50	39	1.54	118	4.65	83	3.27	3/4" NPT (single entry)
NEMA 7/9- (Cast Iron)		246	9.68	42	1.66	143	5.63	100	3.94	1" NPT (single entry)

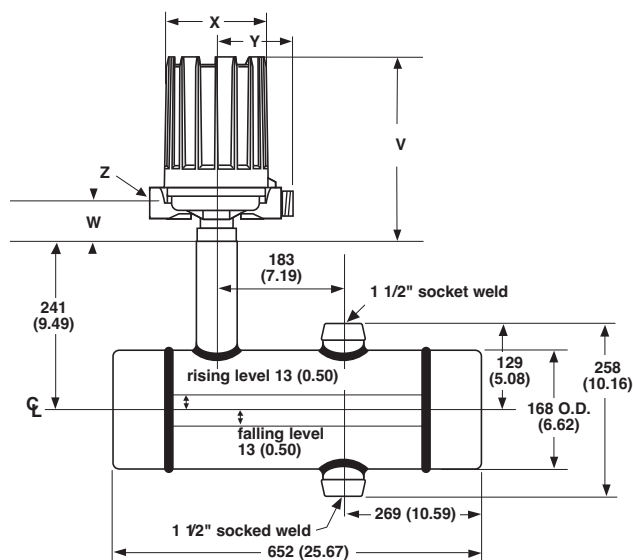
Allow 200 mm (7.87") overhead clearance / All housings are 360 ° rotatable

DIMENSIONS in mm (inches)

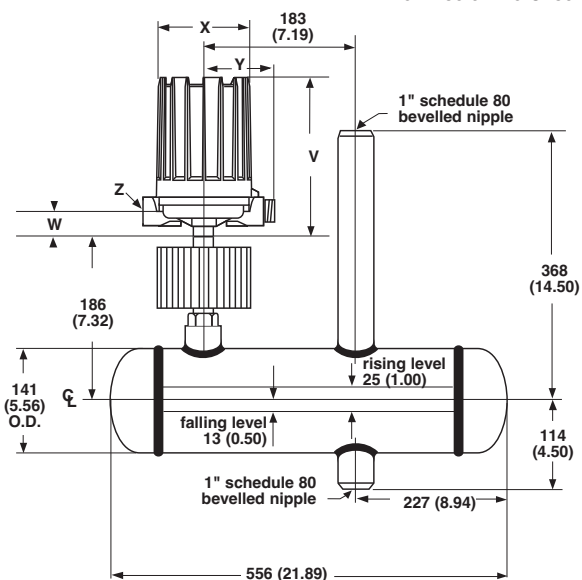
B40-AC30



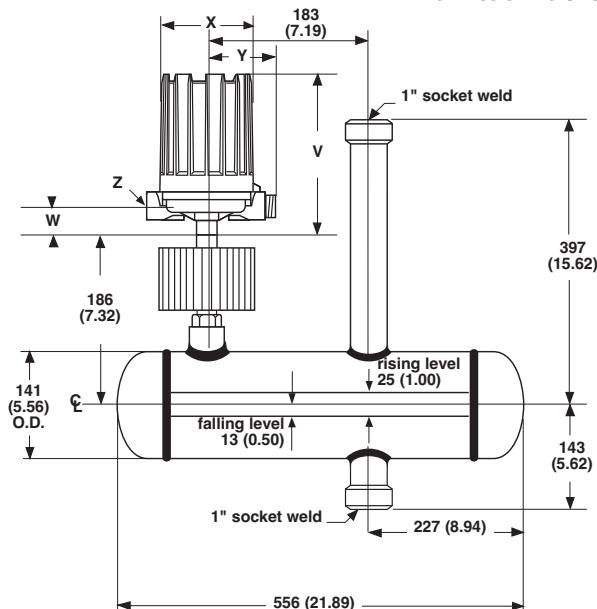
B40-DC40



B40-RF30 & B40-CF30



B40-RB60 & B40-CB60



QUALITY ASSURANCE - ISO 9001

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UNDER RESERVE OF MODIFICATIONS

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