

DESCRIPTION

External cage type level switches are completely self-contained units designed for side mounting to a tank or vessel with threaded or flanged pipe connections. These switches are engineered to customer specifications.

FEATURES

- Carbon or stainless steel welded float cages (other materials available at request)
- Process temperature up to 400 °C (750 °F)
- Up to 3 switch levels
- Standard anti corrosive protection

Flanged cages:

- Removable sensing unit from cage allows easy maintenance
- Specific gravity as low as 0,34
- Process pressure up to 62 bar (900 psi)

Sealed cages:

- Sensing unit and cage are self-containing
- Specific gravity as low as 0,35
- Process pressure up to 138 bar (2000 psi)

Optional:

- NACE construction (MR-01-75)
- Interface calibration
- Customized installation dimensions
- Special actuating levels
- Code compliance construction
- Special tank connections
- Extreme temperature modifications
- Class 1, Group B explosion proof electrical enclosure
- Special exterior surface preparation and finish

APPLICATIONS

- Foaming or surging liquids
- Agitated fluids
- Sewage handling
- Dirty liquids
- Paints
- Varnishes
- Heavy oils
- Liquids with solids

Standard & tailor made designs



AGENCY APPROVALS

Agency	Approval
ATEX	II 2G EEx d II C T6, explosion proof II 1G EEx ia II C T6, intrinsically safe
CENELEC	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	

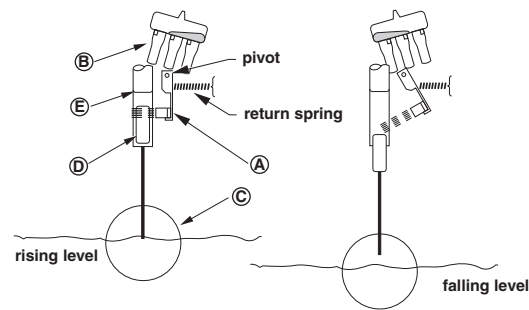
① For CCE approved units, use the ATEX explosion proof model numbers.

② Consult factory for proper model numbers.

PRINCIPLE OF OPERATION

A permanent magnet ④ is attached to a pivoted switch ③. As the float ⑤ rises following the liquid level, it raises the magnet attractor ⑥ into the field of the magnet, which in turn snaps against the non-magnetic barrier tube ⑤, tilting the switch. The barrier tube provides a static seal between the switch mechanism and the float, eliminating the need for a flexing bellows seal, packing gland or other failure prone sealing elements.

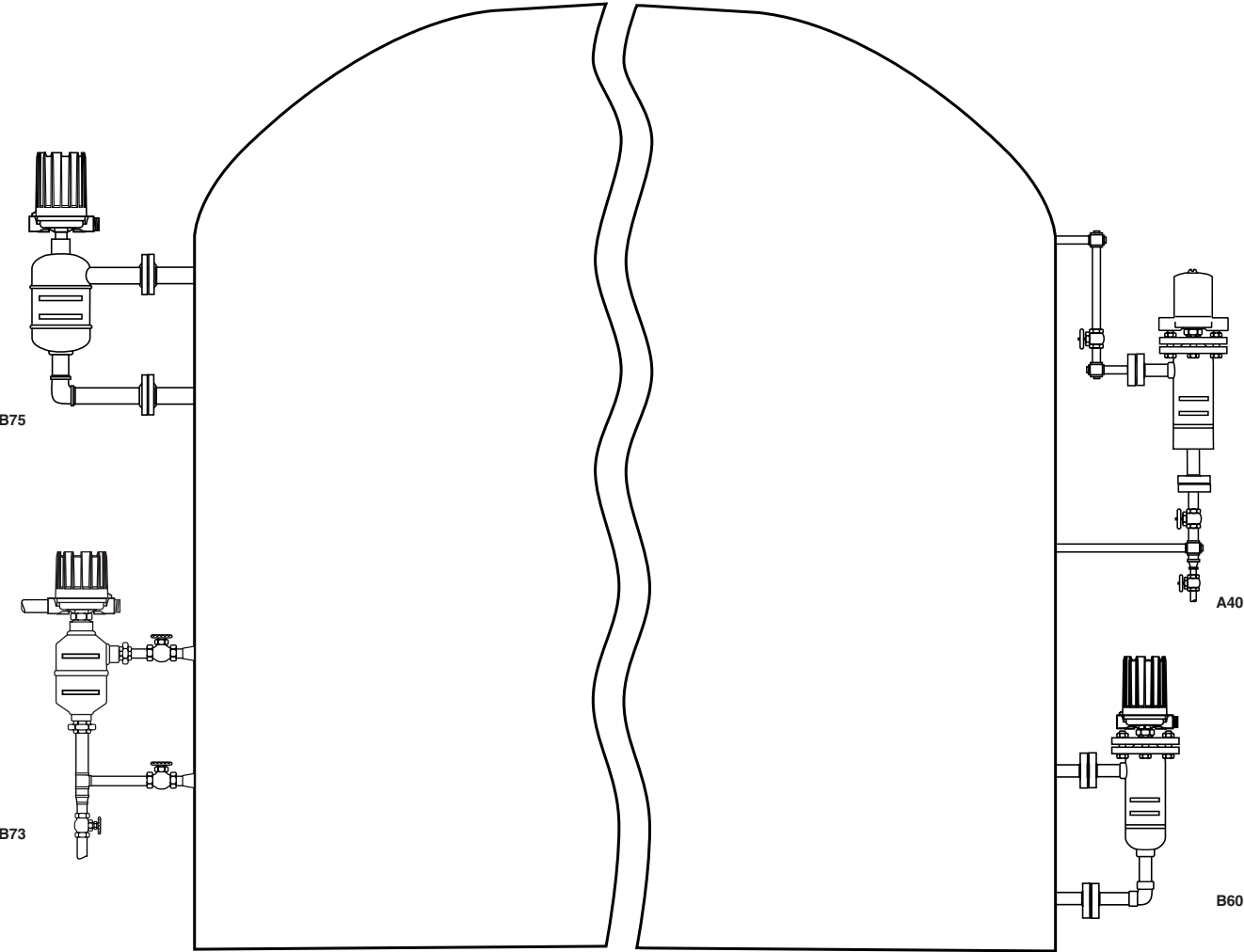
When the liquid level falls, the float draws the magnet attractor below the magnetic field. The magnet swings out and tilts the switch to the reverse position causing low level switch actuation ④.



MOUNTING

Sealed Cages

Flanged Cages



AVAILABLE SWITCH MECHANISMS

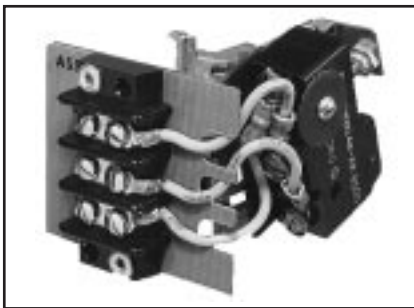
Type of switch module ^①	Max. Process Temp. ^②	Switch ratings – A res. ^③			Code
		24 V DC	240 V AC	120 V AC	
Micro switch	max 120 °C (250 °F)	6	15	15	B
Micro switch	max 230 °C (450 °F)	10	15	15	C
Micro switch - DC current	max 120 °C (250 °F)	10	–	10	D
Micro switch with gold alloy contacts	max 120 °C (250 °F)	1	–	1	U
Hermetically sealed micro switch	max 290 °C (550 °F)	5	5	5	HS ^④
Hermetically sealed micro switch with silver plated contacts	max 230 °C (450 °F)	3	1	1	W
Hermetically sealed micro switch with gold plated contacts	max 230 °C (450 °F)	0,5	0,5	0,5	X
Hermetically sealed micro switch	max 400 °C (750 °F)	4	–	2,5	F
Proximity switch - type SJ 3.5 SN	max 100 °C (210 °F)	NA	NA	NA	V
Mercury switch	max 290 °C (550 °F)	10	6,5	13	A
Mercury switch	max 400 °C (750 °F)	10	6,5	13	3
Pneumatic bleed type (open air)	max 200 °C (400 °F)	NA	NA	NA	J
Pneumatic non bleed type (closed circuit)	max 200 °C (400 °F)	NA	NA	NA	K

^① For applications with heavy vibration, consult factory for suited switch modules.

^② Max process temperature is specified at 40 °C (100 °F) ambient temperature and for non condensing applications.

^③ For more details - see bulletin BE 42-120.

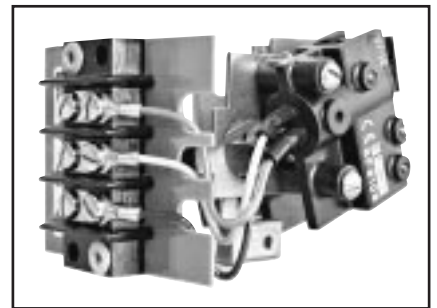
^④ For condensing applications, max process temperature is down-rated to 200 °C (400 °F) @ 40 °C (100 °F) ambient.



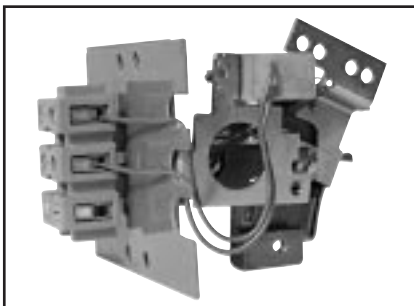
Type B, C, D & U



Type HS



Type F, W & X



Type V



Type A & 3



Type J & K

AVAILABLE HOUSINGS



- For Non Ex use
- IP 66
- Die cast Aluminium
- 2 Entries (one plugged)
- Standard blue anti corrosive coating
- Housing heater/drain available, consult factory



- For Exd/Exi use
- IP 66
- Die cast Aluminium
- 2 Entries (one plugged)
- Standard blue anti corrosive coating
- ATEX II 2G EEx d II C T6
- ATEX II 1G EEx ia II C T6



- For Exd use
- IP 66
- Cast Iron
- One entry (2 entries at request)
- Standard blue anti corrosive coating
- CENELEC EEx d II C T6



- For pneumatic switches
- IP 53 (NEMA 3R)
- IP 55 optional at request
- Alu base / cold rolled steel cover
- Standard blue anti corrosive coating



- For Exd use
- IP 66 (NEMA 7/9)
- Die cast Aluminium
- 2 Entries (one plugged)
- Standard blue anti corrosive coating
- FM, Class I, Div. 1, Groups C & D
- FM, Class II, Div. 1, Groups E, F & G

SELECTION DATA

Specific gravity and pressure limits – as per selected material of construction (see right page)

Sealed Cages		Carbon steel cages			Stainless steel cages	
Model Number	Process Temp °C (°F)	Min. S.G.		Pressure bar (psi)	Min. S.G.	Pressure bar (psi)
		Material code A	Material code B			
O75	40 (100)	Not available	Not available	-	0,83	27,6 (400)
	230 (450)			-		22,4 (325)
	400 (750)			-		19,6 (285)
B73	40 (100)	0,60	0,68	20,7 (300)	Not available	-
	230 (450)			19,0 (275)		-
	-			-		-
P75	40 (100)	Not available	Not available	-	0,71	27,6 (400)
	230 (450)			-		17,9 (260)
	400 (750)			-		15,5 (225)
B75	40 (100)	0,69	0,73	69,0 (1000)	0,73	69,0 (1000)
	230 (450)			58,6 (850)		58,6 (850)
	400 (750)			51,7 (750)		51,7 (750)
A75	40 (100)	0,64	0,68	69,0 (1000)	0,68	69,0 (1000)
	230 (450)			58,6 (850)		58,6 (850)
	400 (750)			51,7 (750)		51,7 (750)
C75	40 (100)	0,56	0,60	34,5 (500)	0,60	34,5 (500)
	230 (450)			25,5 (370)		22,4 (325)
	400 (750)			20,7 (300)		19,6 (285)
G75	40 (100)	0,54	0,56	51,7 (750)	0,56	51,7 (750)
	230 (450)			38,6 (560)		38,6 (560)
	400 (750)			32,7 (475)		32,7 (475)
-	-	-	-	-	-	-
	-			-		-
	-			-		-
J75	40 (100)	0,49	0,52	27,6 (400)	0,52	27,6 (400)
	230 (450)			20,3 (295)		17,9 (260)
	400 (750)			17,2 (250)		15,5 (225)

Flanged Cages		Carbon steel cages			Stainless steel cages	
Model Number	Process Temp °C (°F)	Min. S.G.		Pressure bar (psi)	Min. S.G.	Pressure bar (psi)
		Material code A	Material code B			
O30	40 (100)	Not available	Not available	-	0,84	27,6 (400)
	230 (450)			-		22,4 (325)
	400 (750)			-		19,6 (285)
B41	40 (100)	0,67	0,70	19,6 (285)	0,70	19,0 (275)
	230 (450)			12,7 (185)		12,4 (180)
	400 (750)			6,5 (95)		6,5 (95)
B43	40 (100)	0,72	0,77	27,6 (400)	0,77	27,6 (400)
	230 (450)			19,0 (275)		19,0 (275)
	400 (750)			15,1 (220)		15,1 (220)
B60	40 (100)	0,69	0,73	62,0 (900)	0,73	62,0 (900)
	230 (450)			52,4 (760)		52,4 (760)
	400 (750)			41,3 (600)		41,3 (600)
A40	40 (100)	0,65	0,69	51,0 (740)	0,69	49,6 (720)
	230 (450)			42,4 (615)		34,1 (495)
	400 (750)			34,8 (505)		29,3 (425)
-	-	-	-	-	-	-
	-			-		-
	-			-		-
G33	40 (100)	0,54	0,56	51,0 (740)	0,56	49,6 (720)
	230 (450)			38,6 (560)		34,1 (495)
	400 (750)			32,7 (475)		29,3 (425)
J31	40 (100)	0,50	0,52	19,6 (285)	0,52	19,0 (275)
	230 (450)			12,7 (185)		12,4 (180)
	400 (750)			6,5 (95)		6,5 (95)
J33	40 (100)	0,50	0,52	27,6 (400)	0,52	27,6 (400)
	230 (450)			20,3 (295)		20,3 (295)
	400 (750)			17,2 (250)		17,2 (250)

EXPEDITE SHIP PLAN (ESP)

Several mechanical switches are available for quick shipment, within max. 3 weeks after factory receipt of purchase order, through the Expedite Ship Plan (ESP).

Models covered by ESP service are conveniently grey coded in the selection data charts.

To take advantage of ESP, simply match the grey coded model number codes (standard dimensions apply).

ESP service may not apply to orders of ten units or more. Contact your local representative for lead times on larger volume orders, as well as other products and options.

SELECTION DATA

A complete measuring system consists of:

- Order code for **caged** models (each unit can be factory calibrated when specific level differentials are specified separately).
- Order code for **modified** models or adders: put an "X" in front of the closest matching order code and specify the modifications/adders separately
eg. XA40-AB20-AAA X = with material certification EN 10204 / DIN 50049-3.1.B

- Order code for liquid float level switches in an external cage

BASIC MODEL NUMBER

– Sealed cages

O 7 5	down to S.G. 0,83	up to 27,6 bar (400 psi)	min S.G. varies per material of construction max pressure varies per material of construction and temperature - select as per table on left page -
B 7 3	down to S.G. 0,60	up to 20,7 bar (300 psi)	
P 7 5	down to S.G. 0,71	up to 27,6 bar (400 psi)	
B 7 5	down to S.G. 0,69	up to 69 bar (1000 psi)	
A 7 5	down to S.G. 0,64	up to 69 bar (1000 psi)	
C 7 5	down to S.G. 0,56	up to 34,5 bar (500 psi)	
G 7 5	down to S.G. 0,54	up to 51,7 bar (750 psi)	
J 7 5	down to S.G. 0,49	up to 27,6 bar (400 psi)	

– Flanged cages

O 3 0	down to S.G. 0,84	up to 27,6 bar (400 psi)	min S.G. varies per material of construction max pressure varies per material of construction and temperature - select as per table on left page -
B 4 1	down to S.G. 0,67	up to 19,6 bar (285 psi)	
B 4 3	down to S.G. 0,72	up to 27,6 bar (400 psi)	
B 6 0	down to S.G. 0,69	up to 62 bar (900 psi)	
A 4 0	down to S.G. 0,65	up to 51 bar (740 psi)	
G 3 3	down to S.G. 0,54	up to 51 bar (740 psi)	
J 3 1	down to S.G. 0,50	up to 19,6 bar (285 psi)	
J 3 3	down to S.G. 0,50	up to 27,6 bar (400 psi)	

MATERIALS OF CONSTRUCTION

Code	Cage & process connection material	Float and trim	Magnetic sleeve
A	Carbon steel	316 SST (1.4401)	400 series SST
B			316 SST (1.4401)
D	316/316L (1.4401/1.4404)		

PROCESS CONNECTION – O75, B73 and O30 units are only available with 1"/DN 25 size connections

	Threaded NPT connection			Socket weld connection		
	upper side / bottom			upper side / bottom		
1"	B20			B30		
1½"	C20			C30		
2"	D20			D30		
	ANSI Flanges					
	upper side / bottom			side / side		
	150 lbs RF	300 lbs RF	600 lbs RF	150 lbs RF	300 lbs RF	600 lbs RF
1"	N30	N40	N50	S30	S40	S50
1½"	P30	P40	P50	T30	T40	T50
2"	Q30	Q40	Q50	V30	V40	V50
	DIN Flanges - Form to DIN 2526					
	upper side / bottom			side / side		
	PN 16 (DIN 2633) Form C	PN 25/40 (DIN 2635) Form C	PN 64 (DIN 2636) Form E	PN 16 (DIN 2633) Form C	PN 25/40 (DIN 2635) Form C	PN 64 (DIN 2636) Form E
DN 25	1FA	1HA	1JA	1FB	1HB	1JB
DN 40	2FA	2HA	2JA	2FB	2HB	2JB
DN 50	3FA	3HA	3JA	3FB	3HB	3JB

SWITCH MECHANISM & ENCLOSURE - for all units except B73 and B41 (see page 6)
- for B73 and B41 units (see page 6)
- for pneumatic switch mechanisms (see page 7)



complete order code for *caged* models

Select electric switch mechanism & enclosure for **all models except B73 and B41** (see page 3 for switch ratings)

qty and switch type		All models with material code A									All models with material codes B and D									
		Weather proof (IP 66)		ATEX (IP 66)				CENELEC (IP 66)		FM (IP 66)	Weather proof (IP 66)		ATEX (IP 66)				CENELEC (IP 66)		FM (IP 66)	
				II 2G EEx d II C T6		II 1G EEx ia II C T6		EEx d II C T6		NEMA 7/9			II 2G EEx d II C T6		II 1G EEx ia II C T6		EEx d II C T6		NEMA 7/9	
		cast Aluminium		cast Aluminium		cast Aluminium		cast Iron	cast Alu.	cast Aluminium		cast Aluminium		cast Aluminium		cast Iron	cast Alu.			
		M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	3/4" NPT	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	3/4" NPT	1" NPT	
A	1 x SPDT	A2A	AAA	AKC	ACC	-	-	AK7	AU7	AKA	A2B	AAB	AK9	AC9	-	-	AK5	AU5	AKB	
	2 x SPDT	A4A	ABA	ALC	ADC	-	-	AL7	AV7	ALA	A4B	ABB	AL9	AD9	-	-	AL5	AV5	ALB	
	3 x SPDT	36E	3CA	3BE	3EE	-	-	367	377	3ME	A6B	ACB	AM9	AE9	-	-	A65	A75	AMB	
	1 x DPDT	A8A	ADA	ANC	AFC	-	-	AD7	AW7	ANA	A8B	ADB	AN9	AF9	-	-	AD5	AW5	ANB	
	2 x DPDT	A1A	AEA	APC	AGC	-	-	A07	AY7	AOA	A1B	AEB	AP9	AG9	-	-	A05	AY5	AOB	
3	1 x SPDT	32A	3AA	3KC	3CC	-	-	3K7	3U7	3KA	32B	3AB	3K9	3C9	-	-	3K5	3U5	3KB	
	2 x SPDT	34E	3BA	39E	3DE	-	-	3L7	3V7	3LE	34B	3BB	3L9	3D9	-	-	3L5	3V5	3LB	
	3 x SPDT	36E	3CA	3BE	3EE	-	-	367	377	3ME	36B	3CB	3M9	3E9	-	-	365	375	3MB	
	1 x DPDT	38A	3DA	3NC	3FC	-	-	3D7	3W7	3NA	38B	3DB	3N9	3F9	-	-	3D5	3W5	3NB	
	2 x DPDT	31A	3EA	3PC	3GC	-	-	3O7	3Y7	3OA	31B	3EB	3P9	3G9	-	-	3O5	3Y5	3OB	
B	1 x SPDT	B2A	BAA	BKC	BCC	-	-	BK7	BU7	BKA	B2B	BAB	BK9	BC9	-	-	BK5	BU5	BKB	
	2 x SPDT	B4A	BBA	BLC	BDC	-	-	BL7	BV7	BLA	B4B	BBB	BL9	BD9	-	-	BL5	BV5	BLB	
	3 x SPDT	B6A	BCA	BMC	BEC	-	-	B67	B77	BMA	B6B	BCB	BM9	BE9	-	-	B65	B75	BMB	
	1 x DPDT	B8A	BDA	BNC	BFC	-	-	BD7	BW7	BNA	B8B	BDB	BN9	BF9	-	-	BD5	BW5	BNB	
	2 x DPDT	B1A	BEA	BPC	BGC	-	-	B07	BY7	BOA	B1B	BEB	BP9	BG9	-	-	B05	BY5	BOB	
C	1 x SPDT	C2A	CAA	CKC	CCC	C2X	CAX	CK7	CU7	CKA	C2B	CAB	CK9	CC9	C2T	CAT	CK5	CU5	CKB	
	2 x SPDT	C4A	CBA	CLC	CDC	C4X	CBX	CL7	CV7	CLA	C4B	CBB	CL9	CD9	C4T	CBT	CL5	CV5	CLB	
	3 x SPDT	C6A	CCA	CMC	CEC	-	-	C67	C77	CMA	C6B	CCB	CM9	CE9	-	-	C65	C75	CMB	
	1 x DPDT	C8A	CDA	CNC	CFC	C8X	CDX	CD7	CW7	CNA	C8B	CDB	CN9	CF9	C8T	CDT	CD5	CW5	CNB	
	2 x DPDT	C1A	CEA	CPC	CGC	C1X	CEX	C07	CY7	COA	C1B	CEB	CP9	CG9	C1T	CET	C05	CY5	COB	
D	1 x SPDT	D2B	DAB	DK9	DC9	-	-	DK5	DU5	DKB	D2B	DAB	DK9	DC9	-	-	DK5	DU5	DKB	
	2 x SPDT	D4B	DBB	DL9	DD9	-	-	DL5	DV5	DLB	D4B	DBB	DL9	DD9	-	-	DL5	DV5	DLB	
	3 x SPDT	-	-	-	-	-	-	-	-	-	D6B	DCB	DM9	DE9	-	-	D65	D75	DMB	
	1 x DPDT	D8B	DDB	DN9	DF9	-	-	DD5	DW5	DNB	D8B	DDB	DN9	DF9	-	-	DD5	DW5	DNB	
	2 x DPDT	D1B	DEB	DP9	DG9	-	-	DO5	DY5	DOB	D1B	DEB	DP9	DG9	-	-	DO5	DY5	DOB	
F	1 x SPDT	FCA	FAA	FKC	FCC	-	-	FK7	FU7	FKA	FCB	FAB	FK9	FC9	-	-	FK5	FU5	FKB	
	2 x SPDT	FFA	FBA	FLC	FDC	-	-	FL7	FV7	FLA	FFB	FBB	FL9	FD9	-	-	FL5	FV5	FLB	
	1 x DPDT	FGA	FDA	FNC	FFC	-	-	FD7	FW7	FNA	FGB	FDB	FN9	FF9	-	-	FD5	FW5	FNB	
	2 x DPDT	FHA	FEA	FPC	FGC	-	-	F07	FY7	FOA	FHB	FEB	FP9	FG9	-	-	F05	FY5	FOB	
	1 x SPDT	H7A	HM2	HFC	HA9	-	-	HB3	HB4	HM3	H7A	HM2	HFC	HA9	-	-	HB3	HB4	HM3	
HS	1 x DPDT	H7C	HM6	HGC	HB9	-	-	HB7	HB8	HM7	H7C	HM6	HGC	HB9	-	-	HB7	HB8	HM7	
	1 x SPDT	U2A	UAA	UKC	UCC	U2X	UAX	UK7	UU7	UKA	U2B	UAB	UK9	UC9	U2T	UAT	UK5	UU5	UKB	
	2 x SPDT	U4A	UBA	ULC	UDC	U4X	UBX	UL7	UV7	ULA	U4B	UBB	UL9	UD9	U4T	UBT	UL5	UV5	ULB	
	3 x SPDT	U6A	UCA	UMC	UEC	-	-	U67	U77	UMA	U6B	UCB	UM9	UE9	-	-	U65	U75	UMB	
	1 x DPDT	U8A	UDA	UNC	UFC	U8X	UDX	UD7	UW7	UNA	U8B	UDB	UN9	UF9	U8T	UDT	UD5	UW5	UNB	
U	2 x DPDT	U1A	UEA	UPC	UGC	U1X	UEX	U07	UY7	UOA	U1B	UEB	UP9	UG9	U1T	UET	U05	UY5	UOB	
	V	-	-	-	-	-	VJS	VLS	-	-	-	-	-	-	-	VCS	VES	-	-	
	W	1 x SPDT	W2A	WAA	WKC	WCC	W2X	WAX	WK7	WU7	WKA	W2B	WAB	WK9	WC9	W2T	WAT	WK5	WU5	WKB
		2 x SPDT	W4A	WBA	WLC	WDC	W4X	WBX	WL7	WV7	WLA	W4B	WBB	WL9	WD9	W4T	WBT	WL5	WV5	WLB
		3 x SPDT	W6A	WCA	WMC	WEC	-	-	W67	W77	WMA	W6B	WCB	WM9	WE9	-	-	W65	W75	WMB
1 x DPDT		W8A	WDB	WN9	WF9	W8T	WDT	WD5	WW5	WNB	W8B	WDB	WN9	WF9	W8T	WDT	WD5	WW5	WNB	
2 x DPDT		W1B	WEB	WP9	WG9	W1T	WET	WO5	WY5	WOB	W1B	WEB	WP9	WG9	W1T	WET	WO5	WY5	WOB	
X	1 x SPDT	X2A	XAA	XKC	XCC	X2X	XAX	XK7	XU7	XKA	X2B	XAB	XK9	XC9	X2T	XAT	XK5	XU5	XKB	
	2 x SPDT	X4A	XBA	XLC	XDC	X4X	XBX	XL7	XV7	XLA	X4B	XBB	XL9	XD9	X4T	XBT	XL5	XV5	XLB	
	3 x SPDT	X6A	XCA	XMC	XEC	-	-	X67	X77	XMA	X6B	XCB	XM9	XE9	-	-	X65	X75	XMB	
	1 x DPDT	X8B	XDB	XN9	XF9	X8T	XDT	XD5	XW5	XNB	X8B	XDB	XN9	XF9	X8T	XDT	XD5	XW5	XNB	
	2 x DPDT	X1B	XEB	XP9	XG9	X1T	XET	XO5	XY5	XOB	X1B	XEB	XP9	XG9	X1T	XET	XO5	XY5	XOB	

Select electric switch mechanism & enclosure for **B73 and B41 models** (see page 3 for switch ratings)

qty and switch type		All models with material code A									All models with material codes B and D								
		Weather proof (IP 66)		ATEX (IP 66)				CENELEC (IP 66)		FM (IP 66)	Weather proof (IP 66)		ATEX (IP 66)				CENELEC (IP 66)		FM (IP 66)
				II 2G EEx d IIC T6		II 1G EEx ia II C T6		EEx d IIC T6	NEMA 7/9	II 2G EEx d IIC T6			II 1G EEx ia II C T6		EEx d IIC T6	NEMA 7/9			
				cast Aluminium		cast Aluminium		cast Iron		cast Alu.			cast Aluminium		cast Aluminium		cast Iron		cast Alu.
				M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5			3/4" NPT	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5	1" NPT	M20 x 1,5
A	1 x SPDT	A2P	AAP	AHC	AAC	-	-	AK7	AU7	AKP	A2Q	AAQ	AH9	AA9	-	-	AK5	AU5	AKQ
	1 x DPDT	A8P	ADP	AJC	ABC	-	-	AD7	AW7	ANP	A8Q	ADQ	AJ9	AB9	-	-	AD5	AW5	ANQ
3	1 x SPDT	32P	3AP	3HC	3AC	-	-	3K7	3U7	3KP	32Q	3AQ	3H9	3A9	-	-	3K5	3U5	3KQ
	1 x DPDT	38P	3DP	3JC	3BC	-	-	3D7	3W7	3NP	38Q	3DQ	3J9	3B9	-	-	3D5	3W5	3NQ
B	1 x SPDT	B2P	BAP	BHC	BAC	-	-	BK7	BU7	BKP	B2Q	BAQ	BH9	BA9	-	-	BK5	BU5	BKQ
	1 x DPDT	B8P	BDP	BJC	BBC	-	-	BD7	BW7	BNP	B8Q	BDQ	BJ9	BB9	-	-	BD5	BW5	BNQ
C	1 x SPDT	C2P	CAP	CHC	CAC	C2L	CAL	CK7	CU7	CKP	C2Q	CAQ	CH9	CA9	C2S	CAS	CK5	CU5	CKQ
	1 x DPDT	C8P	CDP	CJC	CBC	C8L	CDL	CD7	CW7	CNP	C8Q	CDQ	CJ9	CB9	C8S	CDS	CD5	CW5	CNQ
D	1 x SPDT	-	-	-	-	-	-	-	-	-	D2Q	DAQ	DH9	DA9	-	-	DK5	DU5	DKQ
	1 x DPDT	-	-	-	-	-	-	-	-	-	D8Q	DDQ	DJ9	DB9	-	-	DD5	DW5	DNQ
F	1 x SPDT	F2P	FAP	FHC	FAC	-	-	FK7	FU7	FKP	F2Q	FAQ	FH9	FA9	-	-	FK5	FU5	FKQ
	1 x DPDT	F8P	FDP	FJC	FBC	-	-	FD7	FW7	FNP	F8Q	FDQ	FJ9	FB9	-	-	FD5	FW5	FNQ
HS	1 x SPDT	-	-	-	-	-	-	-	-	-	H7A	HM2	HFC	HA9	-	-	HB3	HB4	HM3
	1 x DPDT	-	-	-	-	-	-	-	-	-	H7C	HM6	HGC	HB9	-	-	HB7	HB8	HM7
U	1 x SPDT	U2P	UAP	UHC	UAC	U2L	UAL	UK7	UU7	UKP	U2Q	UAQ	UH9	UA9	U2S	UAS	UK5	UU5	UKQ
	1 x DPDT	U8P	UDP	UJC	UBC	U8L	UDL	UD7	UW7	UNP	U8Q	UDQ	UJ9	UB9	U8S	UDS	UD5	UW5	UNQ
V	-	-	-	-	-	VFS	VHS	-	-	-	-	-	-	-	-	V5S	VBS	-	-
W	1 x SPDT	W2P	WAP	WHC	WAC	W2L	WAL	WK7	WU7	WKP	W2Q	WAQ	WH9	WA9	W2S	WAS	WK5	WU5	WKO
	1 x DPDT	-	-	-	-	-	-	-	-	-	W8Q	WDQ	WJ9	WB9	W8S	WDS	WD5	WW5	WNQ
X	1 x SPDT	X2P	XAP	XHC	XAC	X2L	XAL	XK7	XU7	XKP	X2Q	XAQ	XH9	XA9	X2S	XAS	XK5	XU5	XKQ
	1 x DPDT	-	-	-	-	-	-	-	-	-	X8Q	XDQ	XJ9	XB9	X8S	XDS	XD5	XW5	XNQ

Select pneumatic switch mechanism & enclosure

Pneumatic switch type	Max supply pressure bar (psi)	Max liquid temperature °C (°F)	Bleed orifice Ø mm (inches)	NEMA 3R (IP 53)	
				material code A	material codes B & D
Series J (open air)	6,9 (100)	200 (400)	1,60 (0.063)	JDG	JDE
	4,1 (60)	200 (400)	2,39 (0.094)	JEG	JEE
	4,1 (60)	370 (700)	1,40 (0.055)	JFG	JFE
Series K (closed circuit)	6,9 (100)	200 (400)	–	KOE ^①	KOE
	2,8 (40)	200 (400)	–	KOG	–

① For all models except B73 and B41

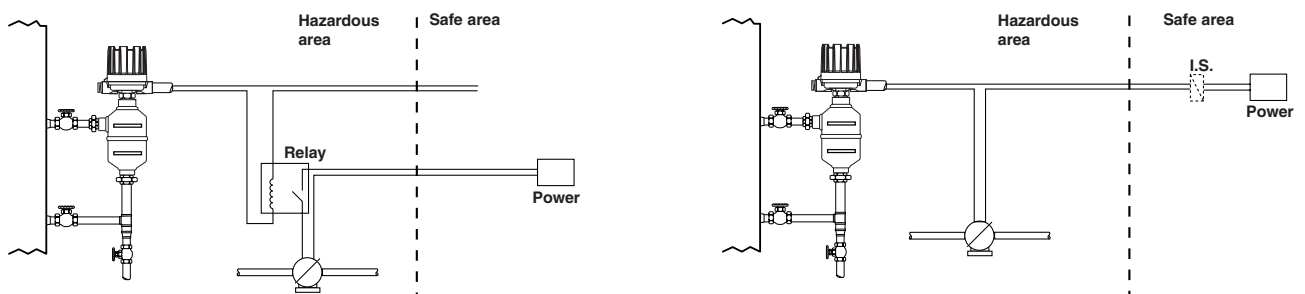
PHYSICAL SPECIFICATIONS

Description		Specification
Measured variable		Liquid level / interface level
Physical range		Standard models: min S.G. 0,49 (as low as min 0,34 at request)
Process temperature Process pressure (for higher ratings consult factory)	Flanged cage models	Up to 62 bar (900 psi) @ 40 °C (100 °F) Up to 400 °C (750 °F) @ 41,3 bar (600 psi)
	Sealed cage models	Up to 69 bar (1000 psi) @ 40 °C (100 °F) - optional 138 bar (2000 psi) Up to 400 °C (750 °F) @ 51,7 bar (750 psi)
Cage and process connection material		Carbon steel or stainless steel (others at request)
Wetted materials	Float and trim	316 SST (1.4401)
	Magnetic sleeve	316 SST (1.4401), or 400 series SST

ELECTRICAL SPECIFICATIONS

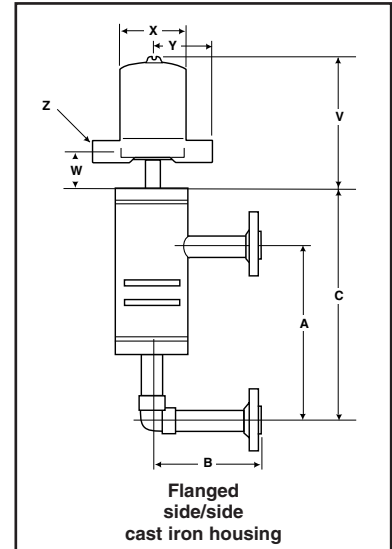
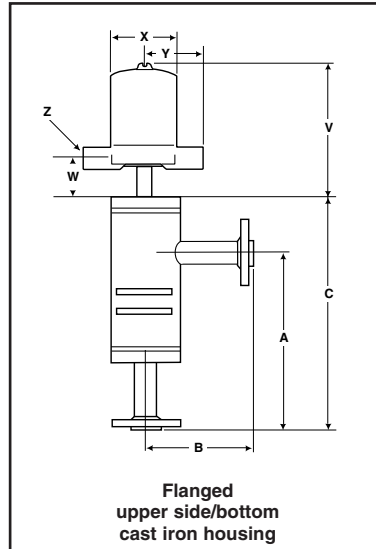
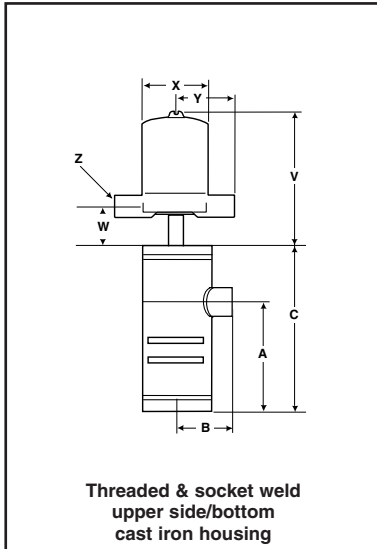
Description	Specification
Switch ratings	Up to 15 A @ 240 V AC (depending on switch mechanism) Up to 10 A @ 120 V DC (depending on switch mechanism)
Signal Output	Single, dual or triple SPDT or DPDT contacts (single contacts for B73/B41 models only) or single pneumatic
Switch Types (see table on page 3)	Dry contact with standard or gold alloy contacts, Mercury, Hermetically sealed, Hermetically sealed with gold or silver plated contacts, Proximity switch, or single pneumatic bleed and non bleed
Approvals (see table on page 1)	ATEX II 2G EEx d II C T6, explosion proof ATEX II 1G EEx ia II C T6, intrinsically safe CENELEC EEx d II C T6, explosion proof FM/CSA/SAA, explosion proof LRS, Lloyds Register of Shipment (marine applications) GOST/GOSGORTSEKHNAZOR, Russian Authorisation standards Other approvals are available, consult factory.
Cable entries	M20 x 1,5 ISO, 1" NPT and 3/4" NPT (or others at request)

ELECTRICAL CONNECTION

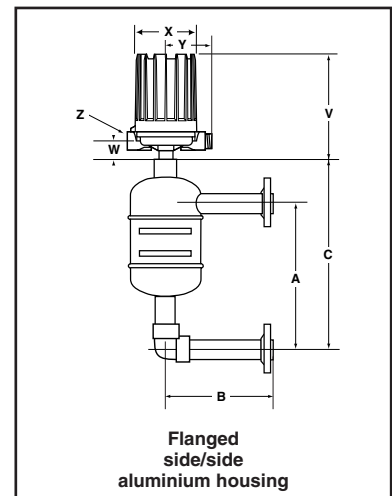
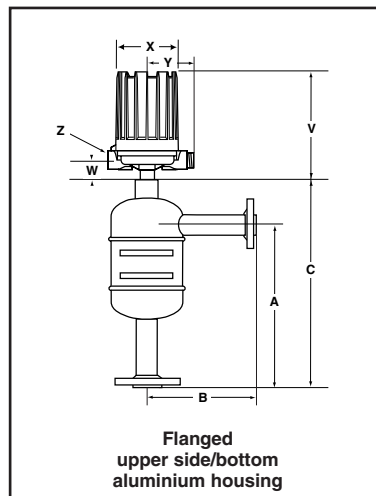
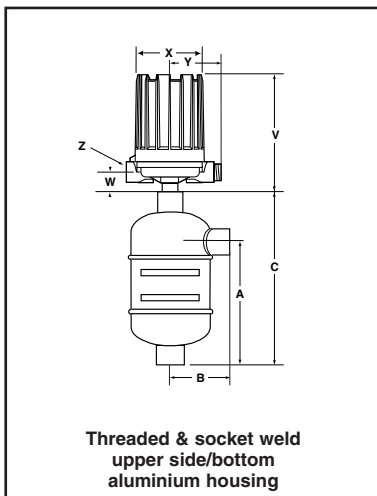


SEALED CAGE MODEL - dimensional specifications in mm (inches)

– Only A75 Model –



– All models except A75 –

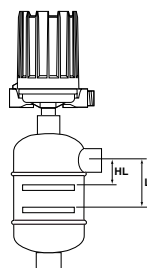


Housing type	Models	V		W		ø X		Y		Z
		mm	inches	mm	inches	mm	inches	mm	inches	
Weatherproof- FM (NEMA 7/9) - ATEX (Cast Alu)	B73/B41 with HS-switch All other models	257	10.12	42	1.66	151	5.93	109	4.29	M20 x 1,5 (*) or 1" NPT (2 entries - 1 plugged) (*) not for FM (NEMA 7/9)
	B73/B41 excl. HS-switch	202	7.94							
CENELEC (Cast Iron)	All	249	9.80	45	1.77	143	5.63	110	4.33	M20 x 1,5 or 3/4" NPT (single entry - 2 entries at request)
Pneumatics Switch Module J	All	165	6.50	39	1.54	118	4.65	110	4.33	1/4" NPT
Pneumatics Switch Module K								130	5.12	

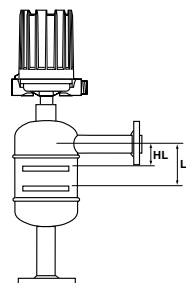
Allow 200 mm (7.87") overhead clearance / All housings are 360 ° rotatable

ACTUATING LEVELS

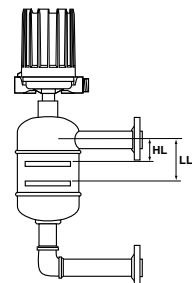
Actuating levels shown are for single switch units at minimum specific gravity only. Levels will change for multistage units. Consult factory for these units.



NPT & Socket weld



Upper side/bottom



Side/side

SEALED CAGE MODEL - dimensional specifications in mm (inches)

Process connection size	Mounting configuration	Model	Dimensions						Model	Dimensions					
			A		B		C			A		B		C	
			mm	inches	mm	inches	mm	inches		mm	inches	mm	inches	mm	inches
1" - DN 25	threaded / socket welded	A75	222	8.74	82	3.23	347	13.66	B73	159	6.26	83	3.27	239	9.41
	flanged upper side / bottom		356	14	185	7.28	481	18.94		250	9.84	160	6.30	330	12.99
	flanged side/side		356	14	185	7.28	481	18.94		250	9.84	160	6.30	330	12.99
1 1/2" - DN 40	threaded / socket welded		222	8.74	94	3.70	347	13.66							
	flanged upper side / bottom		356	14	200	7.87	481	18.94							
	flanged side/side		356	14	200	7.87	481	18.94							
2" - DN 50	threaded / socket welded		222	8.74	97	3.82	347	13.66							
	flanged upper side / bottom		356	14	200	7.87	481	18.94							
	flanged side/side		356	14	200	7.87	481	18.94							

1" - DN 25	threaded / socket welded	B75 C75	222	8.74	96	3.78	396	15.59	G75 J75	242	9.53	109	4.29	429	16.89
	flanged upper side / bottom		356	14	200	7.87	530	20.87		356	14	215	8.46	543	21.38
	flanged side/side		356	14	200	7.87	530	20.87		356	14	215	8.46	543	21.38
1 1/2" - DN 40	threaded / socket welded		222	8.74	107	4.21	406	15.98		242	9.53	121	4.76	439	17.28
	flanged upper side / bottom		356	14	215	8.46	540	21.26		356	14	230	9.06	553	21.77
	flanged side/side		356	14	215	8.46	540	21.26		356	14	230	9.06	553	21.77
2" - DN 50	threaded / socket welded		217	8.54	110	4.33	407	16.02		238	9.37	124	4.88	441	17.36
	flanged upper side / bottom		356	14	220	8.66	546	21.50		356	14	235	9.25	559	22.01
	flanged side/side		356	14	220	8.66	546	21.50		356	14	235	9.25	559	22.01

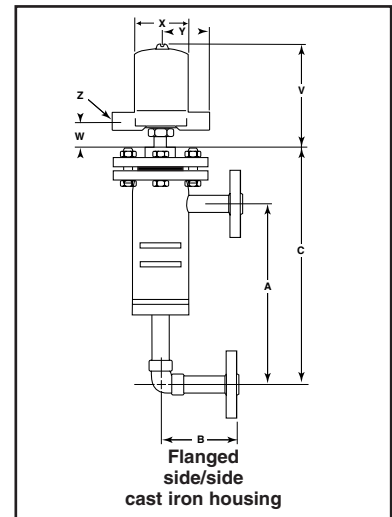
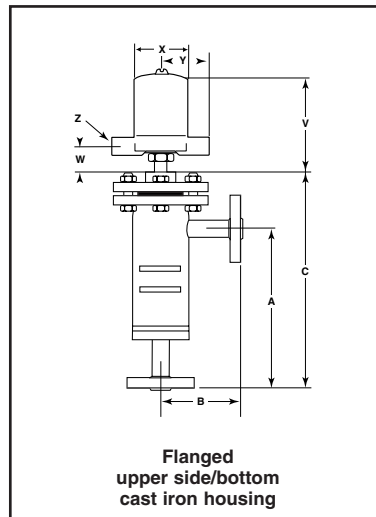
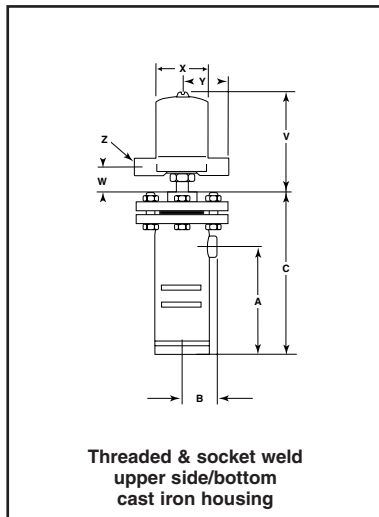
1" - DN 25	threaded / socket welded	P75	222	8.74	82	3.23	382	15.04	O75	222	8.74	70	2.76	347	13.66
	flanged upper side / bottom		356	14	185	7.28	516	20.31		356	14	165	6.50	481	18.94
	flanged side/side		356	14	185	7.28	516	20.31		356	14	165	6.50	481	18.94
1 1/2" - DN 40	threaded / socket welded		221	8.70	94	3.70	392	15.43							
	flanged upper side / bottom		356	14	200	7.87	527	20.75							
	flanged side/side		356	14	200	7.87	527	20.75							
2" - DN 50	threaded / socket welded		213	8.39	97	3.82	393	15.47							
	flanged upper side / bottom		356	14	200	7.87	536	21.10							
	flanged side/side		356	14	200	7.87	536	21.10							

Actuation levels in mm (inches) for minimum specific gravity and as per selected material of construction (see selection data)

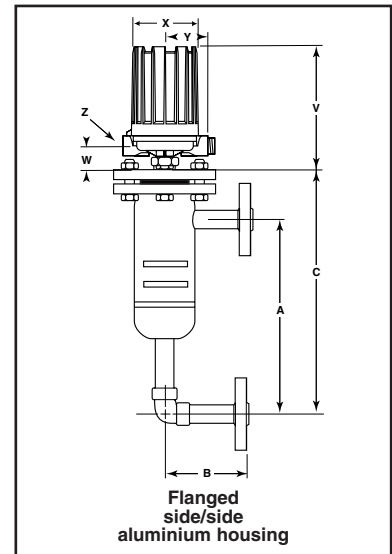
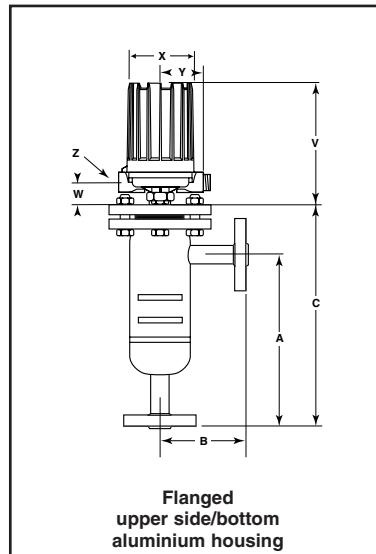
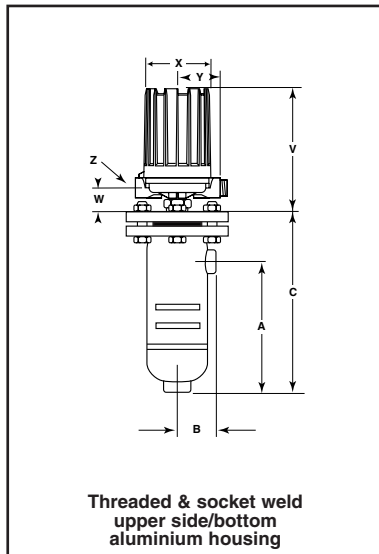
Model	1" / DN 25				1 1/2" / DN 40				2" / DN 50			
	Material code A		Material code B & D		Material code A		Material code B & D		Material code A		Material code B & D	
	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)
A75	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)
B73	30 (1.18)	53 (2.09)	-	-	-	-	-	-	-	-	-	-
B75	67 (2.64)	85 (3.35)	66 (2.60)	87 (3.43)	50 (1.97)	68 (2.68)	49 (1.93)	70 (2.76)	38 (1.50)	56 (2.20)	37 (1.46)	58 (2.28)
C75	69 (2.72)	88 (3.46)	68 (2.68)	91 (3.58)	52 (2.05)	71 (2.80)	51 (2.01)	74 (2.91)	40 (1.57)	59 (2.32)	39 (1.54)	62 (2.44)
G75	60 (2.36)	78 (3.07)	60 (2.36)	81 (3.19)	43 (1.69)	61 (2.40)	43 (1.69)	64 (2.52)	34 (1.34)	52 (2.05)	34 (1.34)	55 (2.17)
J75	75 (2.95)	94 (3.70)	75 (2.95)	98 (3.86)	58 (2.28)	77 (3.03)	58 (2.28)	81 (3.19)	50 (1.97)	69 (2.72)	50 (1.97)	73 (2.87)
O75	-	-	57 (2.24)	85 (3.35)	-	-	-	-	-	-	-	-
P75	-	-	57 (2.24)	83 (3.27)	-	-	40 (1.57)	66 (2.60)	-	-	28 (1.10)	54 (2.13)

FLANGED CAGE MODEL - dimensional specifications in mm (inches)

– Only A40 Model –



– All models except A40 –

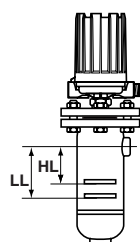


Housing type	Models	V		W		ø X		Y		Z
		mm	inches	mm	inches	mm	inches	mm	inches	
Weatherproof- FM (NEMA 7/9) - ATEX (Cast Alu)	B73/B41 with HS-switch All other models	257	10.12	42	1.66	151	5.93	109	4.29	M20 x 1,5 (*) or 1" NPT (2 entries - 1 plugged) (*) not for FM (NEMA 7/9)
	B73/B41 excl. HS-switch	202	7.94							
CENELEC (Cast Iron)	All	249	9.80	45	1.77	143	5.63	110	4.33	M20 x 1,5 or 3/4" NPT (single entry - 2 entries at request)
Pneumatics Switch Module J	All	165	6.50	39	1.54	118	4.65	110	4.33	1/4" NPT
Pneumatics Switch Module K								130	5.12	

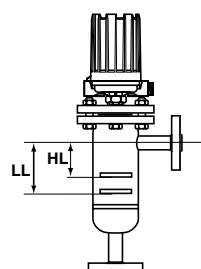
Allow 200 mm (7.87") overhead clearance / All housings are 360 ° rotatable

ACTUATING LEVELS

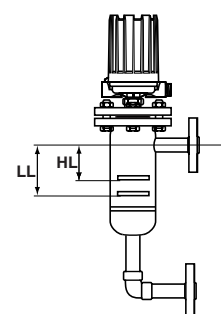
Actuating levels shown are for single switch units at minimum specific gravity only. Levels will change for multistage units. Consult factory for these units.



NPT & Socket weld



Upper side/bottom



Side/side

FLANGED CAGE MODEL - dimensional specifications in mm (inches)

Process connection size	Mounting configuration	Model	Dimensions						Model	Dimensions					
			A		B		C			A		B		C	
			mm	inches	mm	inches	mm	inches		mm	inches	mm	inches	mm	inches
1" - DN 25	threaded / socket welded	A40 (*)	222	8.74	82	3.23	391	15.39	B60 (*)	250	9.84	96	3.78	408	16.06
	flanged upper side / bottom		356	14	185	7.28	525	20.67		356	14	200	7.87	514	20.24
	flanged side/side		356	14	185	7.28	525	20.67		356	14	200	7.87	514	20.24
1 1/2" - DN 40	threaded / socket welded		222	8.74	94	3.70	391	15.39		260	10.24	107	4.21	418	16.46
	flanged upper side / bottom		356	14	200	7.87	525	20.67		356	14	215	8.46	514	20.24
	flanged side/side		356	14	200	7.87	525	20.67		356	14	215	8.46	514	20.24
2" - DN 50	threaded / socket welded		222	8.74	97	3.82	391	15.39		262	10.31	110	4.33	420	16.54
	flanged upper side / bottom		356	14	200	7.87	525	20.67		356	14	220	8.66	514	20.24
	flanged side/side		356	14	200	7.87	525	20.67		356	14	220	8.66	514	20.24

1" - DN 25	threaded / socket welded	B41	250	9.84	82	3.23	411	16.18	B43 (*)	250	9.84	82	3.23	419	16.50
	flanged upper side / bottom		356	14	185	7.28	517	20.35		356	14	185	7.28	525	20.67
	flanged side/side		356	14	185	7.28	517	20.35		356	14	185	7.28	525	20.67
1 1/2" - DN 40	threaded / socket welded		260	10.24	94	3.70	421	16.57		260	10.24	94	3.70	429	16.89
	flanged upper side / bottom		381	15	200	7.87	542	21.34		381	15	200	7.87	550	21.65
	flanged side/side		356	14	200	7.87	517	20.35		356	14	200	7.87	525	20.67
2" - DN 50	threaded / socket welded		261	10.28	97	3.82	422	16.61		261	10.28	97	3.82	430	16.93
	flanged upper side / bottom		381	15	200	7.87	542	21.34		381	15	200	7.87	550	21.65
	flanged side/side		381	15	200	7.87	542	21.34		381	15	200	7.87	550	21.65

1" - DN 25	threaded / socket welded	G33 J33	250	9.84	109	4.29	429	16.89	J31 (*)	250	9.84	109	4.29	418	16.46
	flanged upper side / bottom		356	14	215	8.46	535	21.06		356	14	215	8.46	524	20.63
	flanged side/side		356	14	215	8.46	535	21.06		356	14	215	8.46	524	20.63
1 1/2" - DN 40	threaded / socket welded		261	10.28	121	4.76	440	17.32		261	10.28	121	4.76	429	16.89
	flanged upper side / bottom		381	15	230	9.06	560	22.05		381	15	230	9.06	549	21.61
	flanged side/side		356	14	230	9.06	535	21.06		356	14	230	9.06	524	20.63
2" - DN 50	threaded / socket welded		262	10.31	124	4.88	441	17.36		262	10.31	124	4.88	430	16.93
	flanged upper side / bottom		381	15	235	9.25	560	22.05		381	15	235	9.25	549	21.61
	flanged side/side		381	15	235	9.25	560	22.05		381	15	235	9.25	549	21.61

1" - DN 25	threaded / socket welded	O30 (*)	222	8.74	70	2.76	353	13.90
	flanged upper side / bottom		356	14.02	165	6.50	487	19.17
	flanged side/side		356	14.02	165	6.50	487	19.17

(*) Add 33 mm (1.30") to **C-dimension** for cast iron EEx d II C T6 housings.

Actuation levels in mm (inches) for minimum specific gravity and as per selected material of construction (see selection data)

Model	1" / DN 25				1 1/2" / DN 40				2" / DN 50			
	Material code A		Material code B & D		Material code A		Material code B & D		Material code A		Material code B & D	
	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)	High Level (HL)	Low Level (LL)
A40	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)	34 (1.34)	56 (2.20)	32 (1.26)	59 (2.32)
B41	23 (0.91)	45 (1.77)	25 (0.98)	51 (2.01)	23 (0.91)	45 (1.77)	25 (0.98)	51 (2.01)	23 (0.91)	45 (1.77)	25 (0.98)	51 (2.01)
B43	53 (2.09)	77 (3.03)	60 (2.36)	90 (3.54)	46 (1.81)	70 (2.76)	53 (2.09)	83 (3.27)	38 (1.50)	62 (2.44)	45 (1.77)	75 (2.95)
B60	76 (2.99)	94 (3.70)	81 (3.19)	102 (4.02)	57 (2.24)	75 (2.95)	62 (2.44)	83 (3.27)	49 (1.93)	67 (2.64)	54 (2.13)	75 (2.95)
G33	65 (2.56)	83 (3.27)	66 (2.60)	87 (3.43)	58 (2.28)	76 (2.99)	59 (2.32)	80 (3.15)	50 (1.97)	68 (2.68)	51 (2.01)	72 (2.83)
J31/J33	74 (2.91)	93 (3.66)	80 (3.15)	103 (4.06)	55 (2.17)	74 (2.91)	61 (2.40)	84 (3.31)	47 (1.85)	66 (2.60)	53 (2.09)	76 (2.99)
O30	-	-	57 (2.24)	85 (3.35)	-	-	-	-	-	-	-	-



QUALITY ASSURANCE - ISO 9001

THE QUALITY ASSURANCE SYSTEM IN PLACE AT MAGNETROL GUARANTEES THE HIGHEST LEVEL OF QUALITY DURING THE DESIGN, THE CONSTRUCTION AND THE SERVICE OF CONTROLS. OUR QUALITY ASSURANCE SYSTEM IS APPROVED AND CERTIFIED TO **ISO 9001** AND OUR TOTAL COMPANY IS COMMITTED TO PROVIDING FULL CUSTOMER SATISFACTION BOTH IN QUALITY PRODUCTS AND QUALITY SERVICE.

PRODUCT WARRANTY

ALL MAGNETROL MECHANICAL LEVEL CONTROLS ARE WARRANTED FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR FIVE FULL YEARS FROM THE DATE OF ORIGINAL FACTORY SHIPMENT.

IF RETURNED WITHIN THE WARRANTY PERIOD; AND, UPON FACTORY INSPECTION OF THE CONTROL, THE CAUSE OF THE CLAIM IS DETERMINED TO BE COVERED UNDER THE WARRANTY; THEN, MAGNETROL INTERNATIONAL WILL REPAIR OR REPLACE THE CONTROL AT NO COST TO THE PURCHASER (OR OWNER) OTHER THAN TRANSPORTATION.

MAGNETROL SHALL NOT BE LIABLE FOR MISAPPLICATION, LABOR CLAIMS, DIRECT OR CONSEQUENTIAL DAMAGE OR EXPENSE ARISING FROM THE INSTALLATION OR USE OF THE EQUIPMENT. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED, EXCEPT, SPECIAL WRITTEN WARRANTIES COVERING SOME MAGNETROL PRODUCTS.



UNDER RESERVE OF MODIFICATIONS

BENELUX	Heikensstraat 6, 9240 Zele, België Tel. +32 (0)52.45.11.11 • Fax. +32 (0)52.45.09.93 • E-Mail: info@magnetrol.be
DEUTSCHLAND	Schloßstraße 76, D-51429 Bergisch Gladbach-Bensberg Tel. 02204 / 9536-0 • Fax. 02204 / 9536-53 • E-Mail: vertrieb@magnetrol.de
FRANCE	Le Vinci 6 - Parc d'activités de Mitry Compans, 1, rue Becquerel, 77290 Mitry Mory Tél. 01.60.93.99.50 • Fax. 01.60.93.99.51 • E-Mail: magnetrolfrance@magnetrol.fr
ITALIA	Via Arese 12, I-20159 Milano Tel. (02) 607.22.98 (R.A.) • Fax. (02) 668.66.52 • E-Mail: mit.gen@magnetrol.it
UNITED KINGDOM	Unit 1 Regent Business Centre, Jubilee Road Burgess Hill West Sussex RH 15 9TL Tel. (01444) 871313 • Fax (01444) 871317 • E-Mail: sales@magnetrol.co.uk
INDIA	B4/115 Safdurjung Enclave, New Delhi 110 029 Tel. 91 (11) 6186211 • Fax 91 (11) 6186418 • E-Mail: magnetrolindia@vsnl.com

www.magnetrol.com

OUR NEAREST REPRESENTATIVE

BULLETIN N°: BE 46-116.9
EFFECTIVE: MARCH 2002
SUPERSEDES: February 1996