

Level switch with ELF motor is used for level control in silos and tanks where materials with solid particles are stored. Full and empty signals can be received by performing level control in many demanding applications with different probe and pedal varieties in a safe manner. It can be connected horizontally and vertically.

Working Principle:

A palette selected according to the material is installed on the tip of the motorized level switch which can be installed on the tank wall. It revolves idly with the revolution speed of the probe motor. Material to be detected reaches to the level of the palette and covers its circumference and creates a counter-force according to the revolution force. Firstly, level information alarm contact is activated. Then, the other contact is triggered and stops the motor. Adjustment of the spring in four different torque values according to specific weight of the material can be realized by the user. When the material level at the end of the palette is decreased the created force is released and the motor starts to revolve, consequently, changing the alarm position.

Applications ;

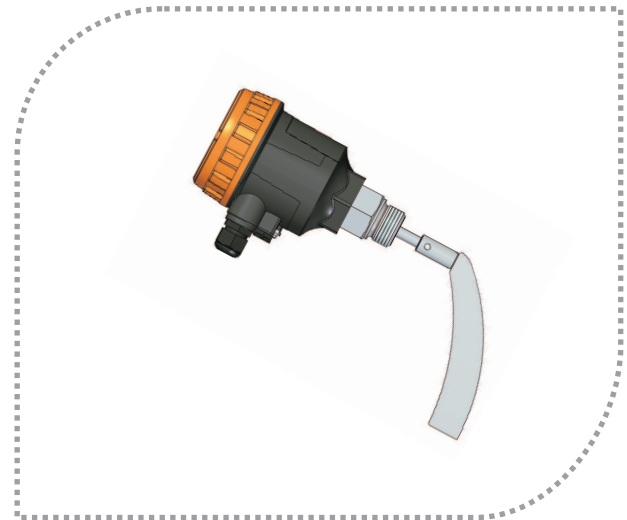
Plastic Industry ; PVC, PVDF, PP granular etc..

Food Industry ; Grain Dust, Ground Corn, Sugar-Granulated, Cacao, Malt-Graoung Dry, Sunflower Corn, Whead, Peanuts-Shelled, Clays- Kaoline, Talcum Powder, Ground-Paprika, Coffee-Roasted vb..

Build Industry ; Rocks-Limestone Crushed, Lime, Cement Powder, Rubber Ground, Lime Hydrate Dust, Calsium Dust, Iron Chips, Silica Sand, Moulding Sand, Styrofaam etc..

Wood Industry ; Wooden Fiberst, Saw Dust etc..

Other Chemistry Industry ; Coal Lump, Ash-Coal Dry etc..



Technical Specifications :

Working Temperature	(-) 20 °C...(+ 90 °C Opt. Max.150 °C With High Temperature Type (Plastic Housing) Max.200 °C With High Temperature Type (Aluminium Housing) Max.600 °C Very High Temperature Type
Ambient Humidity	0-98 % Rh (Non Condensate)
Ambient Temperature	(-) 20 °C ... (+) 60 °C
Working Pressure	(-) 0,6 bar... (+) 0,6 bar
Material	Aluminium (Std) Opt. 304 / 316 Stainless Steel, PTFE Antistatic Plastic (Std) Opt. Aluminium Enjection - AlSi12Fe (Std) Body : Black (RAL:9005) Cover : Orange (RAL:2004)
Connection Housing	304 Stainless Steel (Std) Opt. 316 Stainless Steel
Paddle And Rode	304 Stainless Steel (Std) Opt. 316 Stainless Steel
Extension Pipe	304 Stainless Steel (Std) Opt. 316 Stainless Steel
Grounding Apparatus	304 Stainless Steel
O-Ring for Cover	Elastomer Thermoplastic 120°C (Std) Ops. FPM (Viton) 150°C
Bearing	Double ball bearing (With Dust-protected) (120°C) Ops. 280°C
Dust Protected Felting	NBR (Std) Opt. FPM (Viton) 150 °C, PTFE 200 °C
Connection	1" BSP (Std) , Opt. 1 ¼" BSP , 1 1/2" BSP Male Thread
Power Consumption	Max. 4W
Revolutions Per Minute	5 d/d (Std) (Clockwise - When Looking Paddle Side) Opt. 1,5-1,8 d/d
Power Supply	24 VDC , +/-10 24/110/220 VAC 50/60 Hz +/- %10
Cable and stopper input	PG 13.5 (Std) Opt. M20 x 1,5
Relay switching capacity	2 A / 250 VAC 2 x NO / NC (SPDT) 5E4 Opt. 10 A / 250 VAC - 4 A / 30 VDC
LED	Power LED: Green , Alarm LED: Red
Ventilation Gland	M10 x 1,5 mm ² (Only For Plastic Housing)
Max. Grain Structure	50 mm
Min. Density	0,04 g/cm ³ (According to paddle type)
Torque Rating	4 Stages, adjustable
Load on probe	Max. 500 N (Extention Pipe)
Protection Class	IP 66 (EN60529)
Certification	CE declaration, EMC , LVD

ELF

ROTARY LEVEL SWITCH

- ELF 101
- ELF 102
- ELF 103
- ELF 103p
- ELF 104
- ELF 105
- ELF 106
- ELF 106m
- ELF 107
- ELF 108
- ELF 109

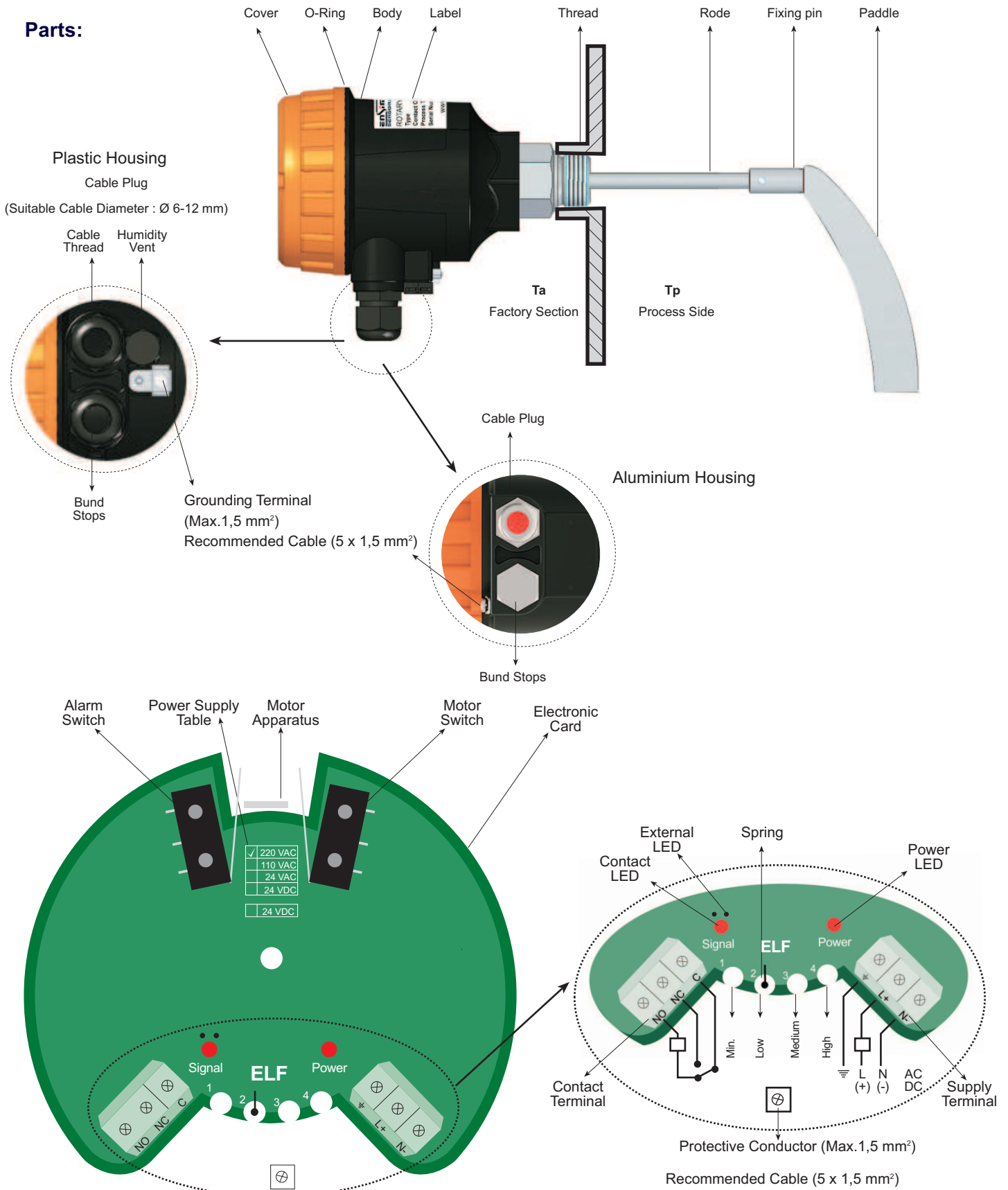
Advantages :

- * Fast Delivery Time
- * Reverse Rotaion Safety
- * Sensitivity Adjustable
- * Excellent Mechanical

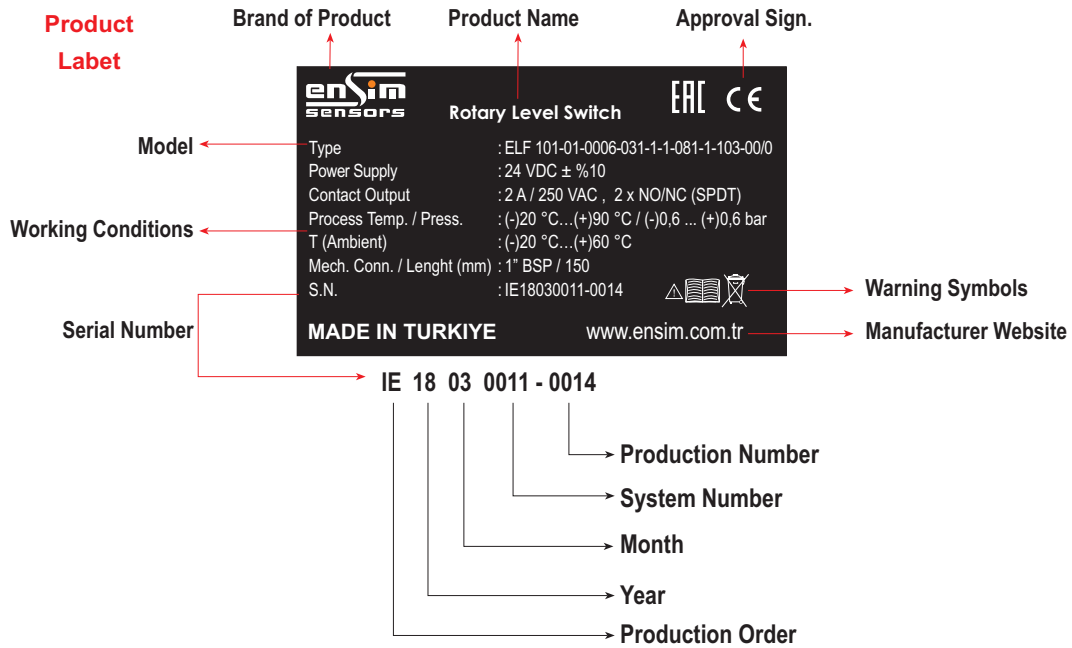


Model: 27-2021-007

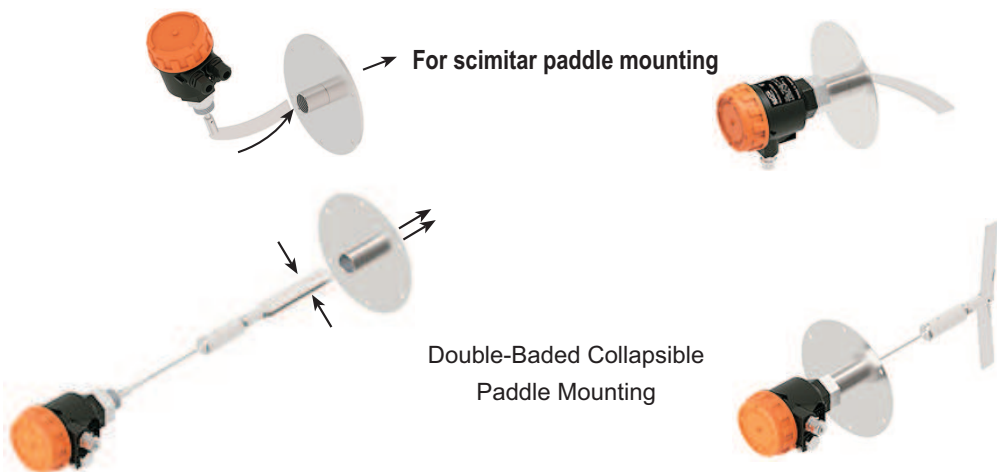
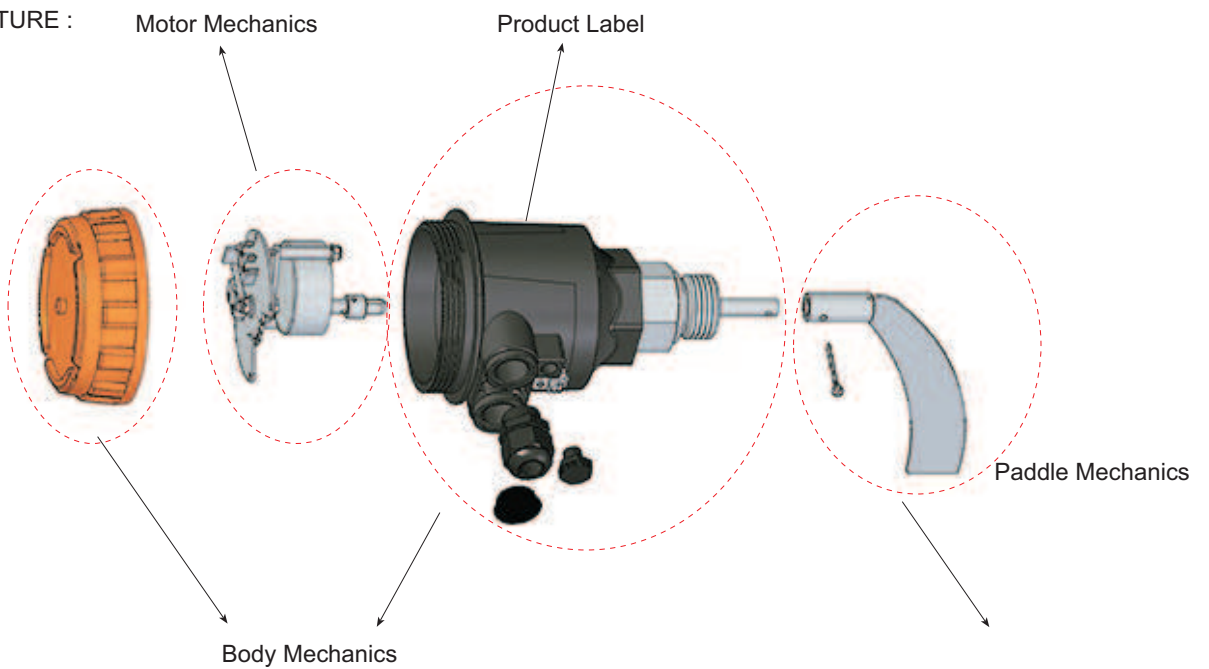
Parts:



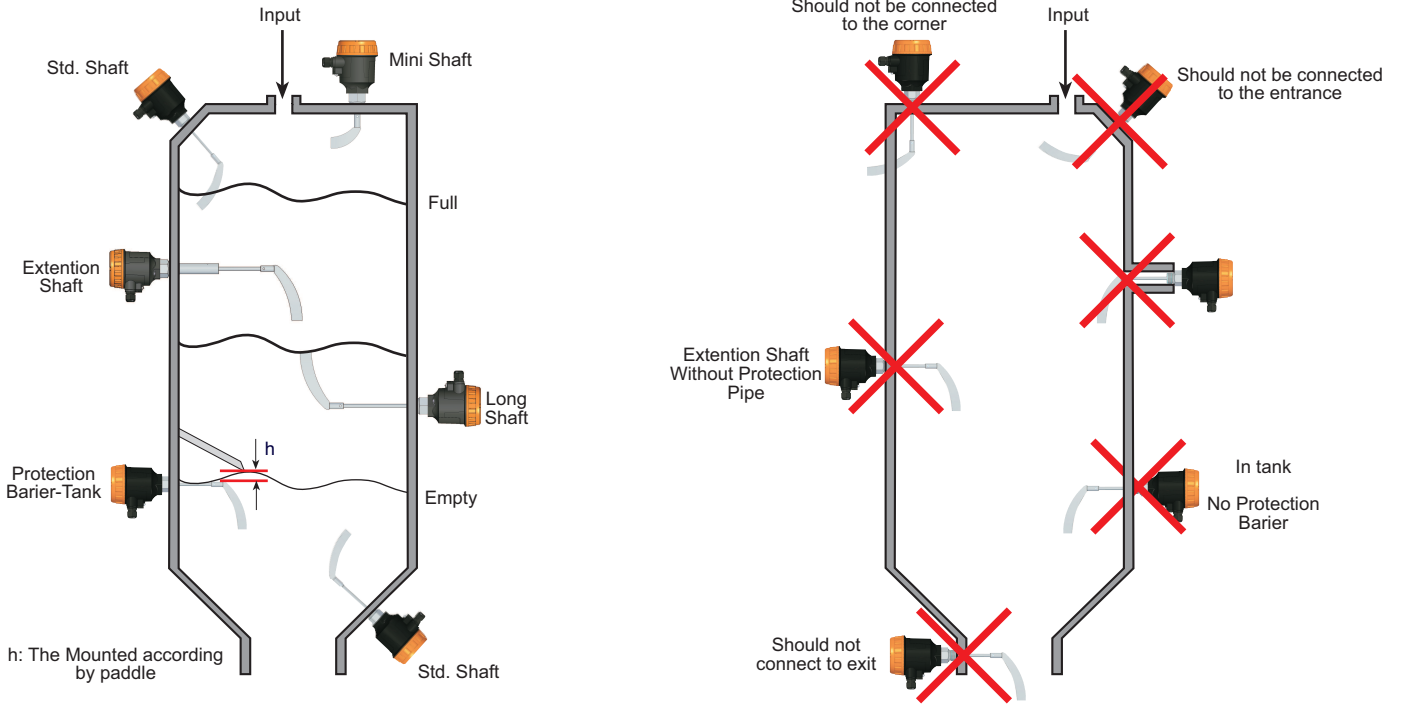
Note : It has been produced according to IPC A 600 class 2 conditions and tested with 100 % E-test. Moreover, HASL (non-lead) surface test has been applied.



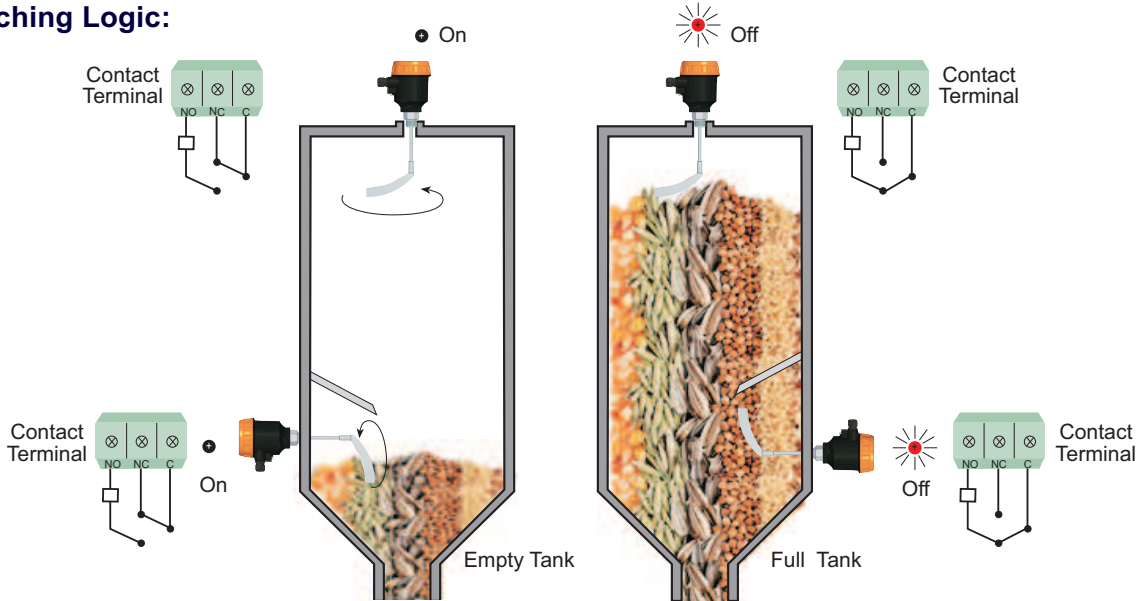
MODULAR STRUCTURE :



Example Mounting Types :



Switching Logic:



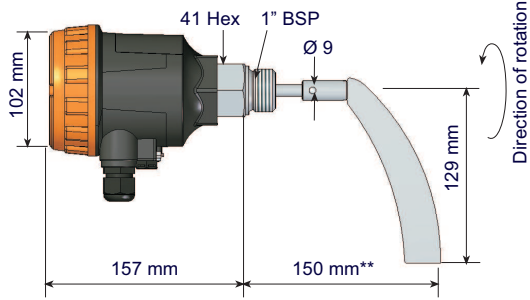
Tork Ayarlama Mekanizması

Tork yayı, fabrika çıkışında en düşük zayıf olarak ayarlanan şaft çıkış torkunu ayarlamak için kullanılmaktadır. Tork yayının ayarı, müşterinin belirttiği ölçülecek malzemenin özgül ağırlığına göre ayarlanabilmektedir. Ölçülen malzemenin özgül ağırlığı yüksekse, lütfen uyumu sağlayana kadar daha güçlü yay konumuna ayarlayınız. Nemli ve yapışma eğilimi olan malzemelerde yüksek tork ayarı, kuru ve düşük özgül ağırlıklı malzemelerde, düşük tork ayarı seçilmelidir.

Working Position	Supply	Motor Position	Output Position	Alarm LED Position
Normaly Working	Yes	Stop	-	On light
	Yes	Stop	Full	On light
During an Alarm	Yes	Stop	Full	On light
	Yes	-	Full	Uninspiring

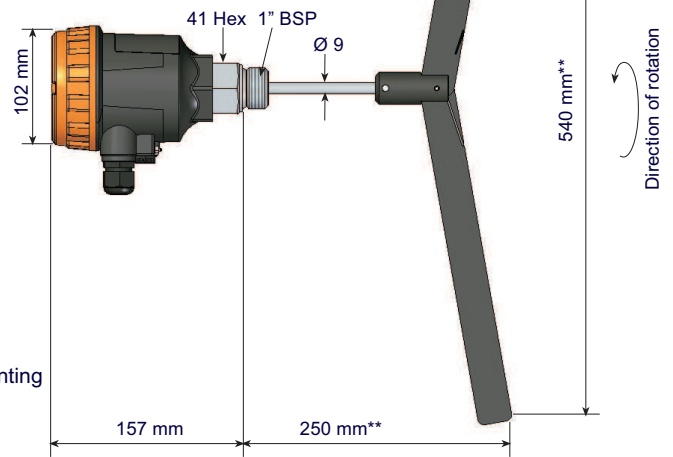
Sample Models :

ELF 101



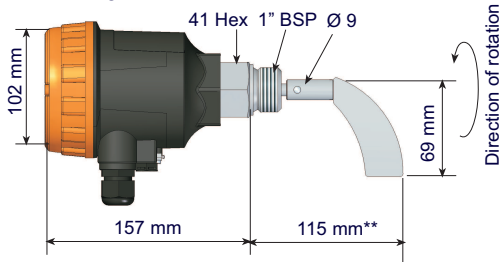
90 °C Opt. 150 °C
Vertical / Horizontal Mounting
Weight : 1.1 kg

**ELF 103p
(For EPS-XPS)**



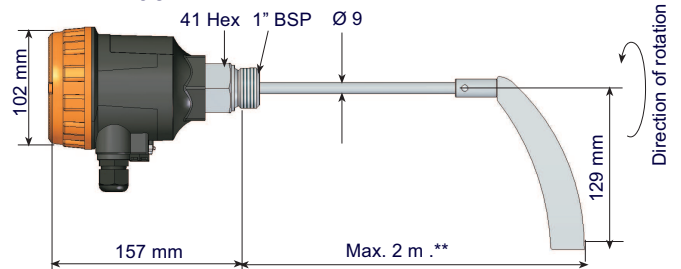
(-) 20 °C...(+) 60 °C
Vertical / Horizontal Mounting
Weight : 1.1 kg

ELF 102



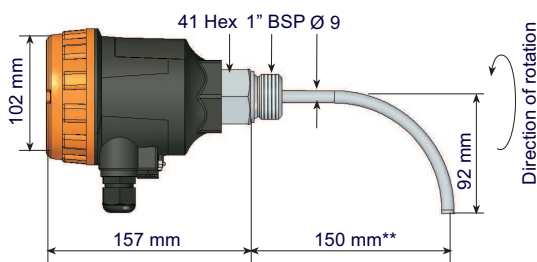
90 °C Opt. 150 °C
Vertical / Horizontal Mounting
Weight : 1 kg

ELF 103



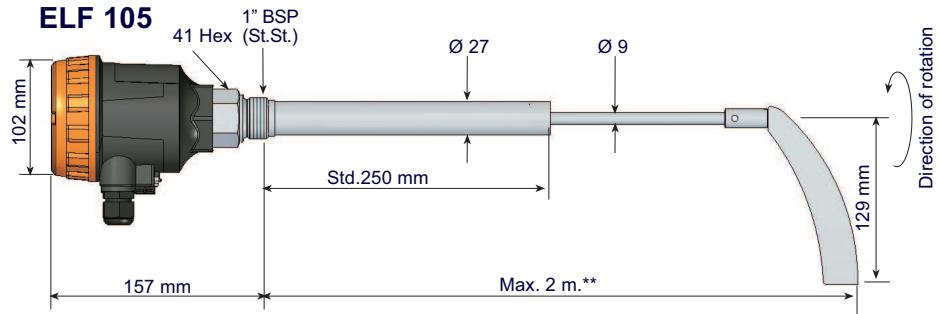
90 °C Opt. 150 °C
Vertical Mounting
Weight : 1.1 kg

ELF 104



90 °C Opt. 150 °C
Vertical / Horizontal Mounting
Weight : 1 kg

ELF 105

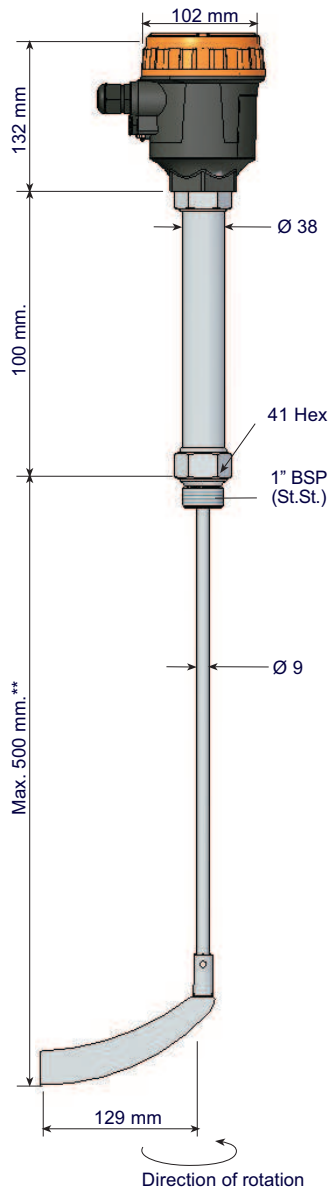


90 °C Opt. 150 °C
Vertical / Horizontal Mounting
Weight : 1.5 kg

** Tolerance ± 5 mm .

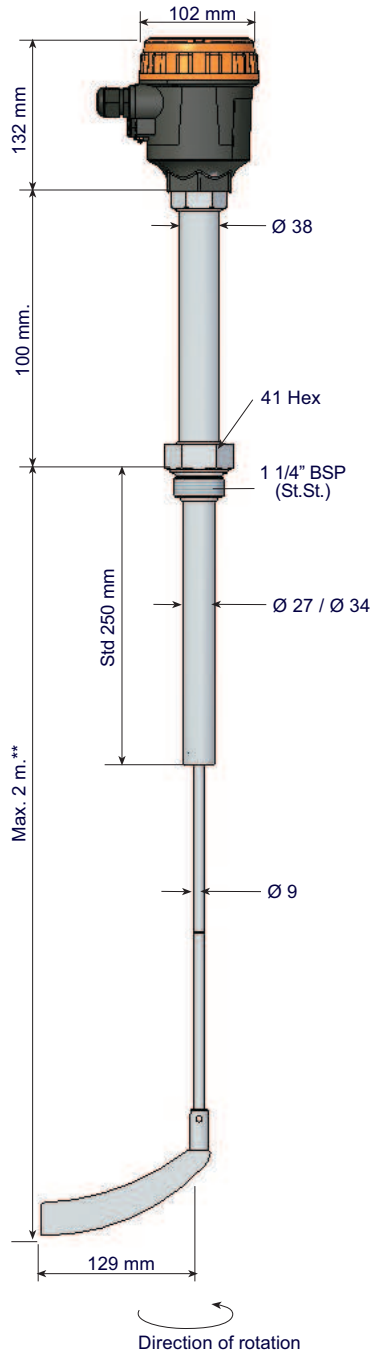
Sample Models :

ELF 106m



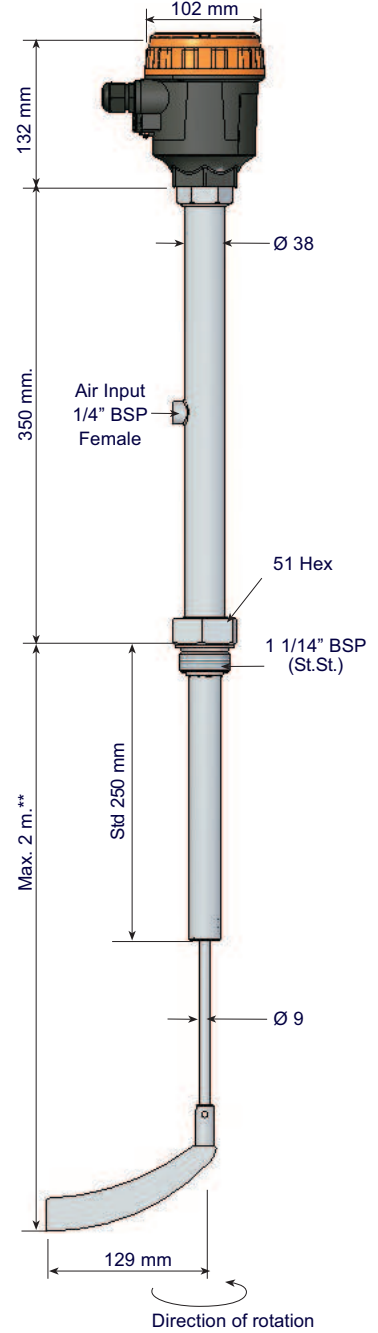
150 °C
 (Opt. 200 °C Connection 1 1/4" BSP)
 Vertical / Horizontal Mounting
 Weight :1.75 kg

ELF 106



150 °C
 (Opt. 200 °C Connection 1 1/4" BSP)
 Vertical / Horizontal Mounting
 Weight :2.3 kg

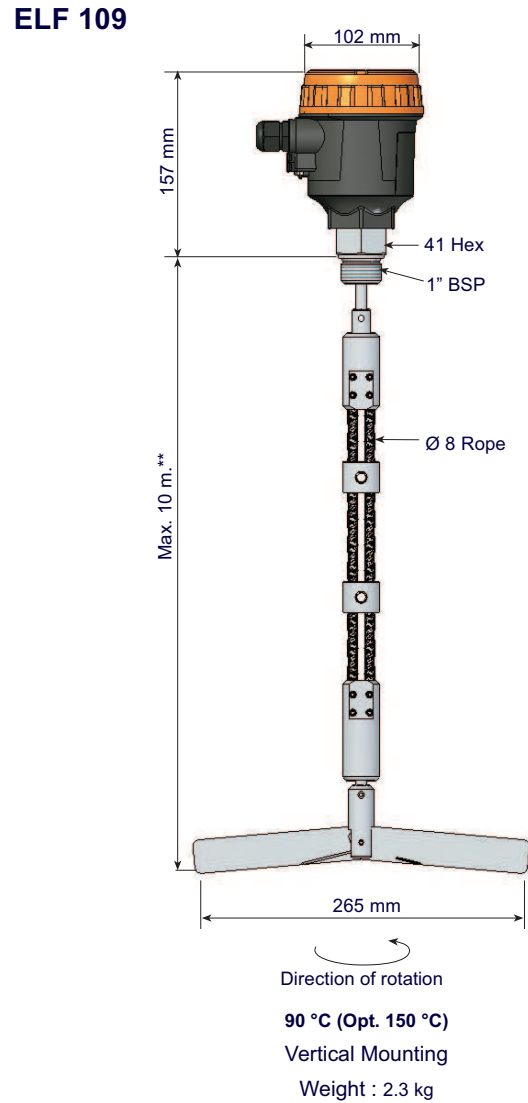
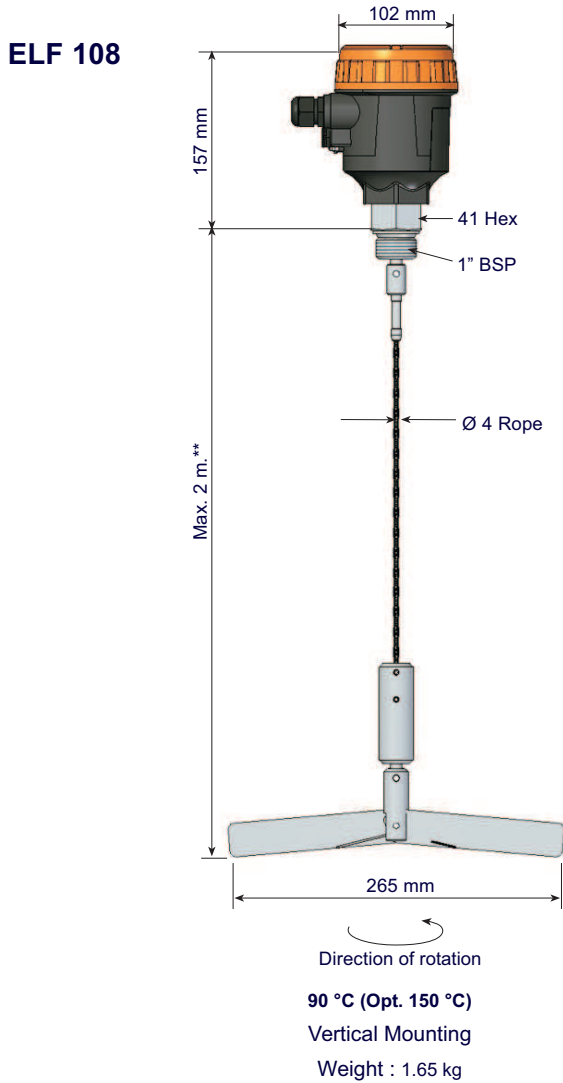
ELF 107



Max. 600 °C
 Vertical / Horizontal Mounting
 Weight : 2.85 Kg
 (In the design phase)

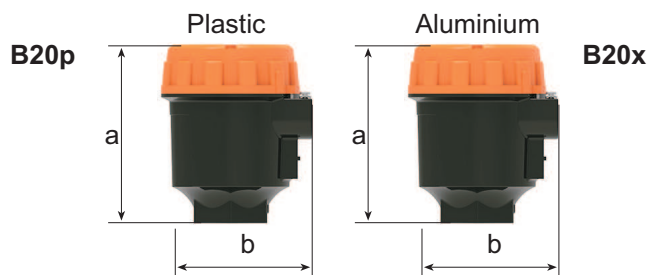
** Tolerance ± 5 mm .

Sample Models :



Housing:

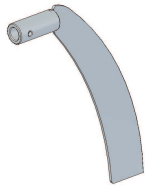
ORDER CODE	TYPE	MATERIAL	PROTECTION CLASS	TEMP. (°C)	SIZE a x b (mm)
103	B20p	Plastik (PBT)	IP 65	(-) 40...(+) 150	132 x 104
603	B20x	Alüminyum	IP 66	(-) 40...(+) 200	132 x 104



** Tolerance ± 5 mm .

Paddle Shapes:

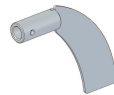
Standard Scimitar Paddle
(258 mm)



Weigh 105 g.

Paddle 01 (304 St.St.)
Paddle 02 (316 St.St.)

Mini Scimitar Paddle
(138 mm)



Weigh 75 g.

Paddle 03 (304 St.St.)
Paddle 04 (316 St.St.)

Double-Baded Collapsible Paddle
(265 mm)



Weigh 235 g.

Paddle 05 (304 St.St.)
Paddle 06 (316 St.St.)

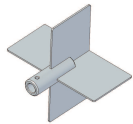
Double-Baded Collapsible Paddle
(540 mm)



Weigh 120 g.

Paddle 11 (Plexiglass)

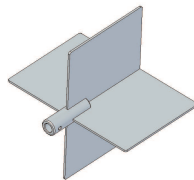
Cross-Wing Paddle
(105 x 90 mm)



Weigh 185 g.

Paddle 09 (304 St.St.)
Paddle 10 (316 St.St.)

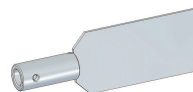
Cross-Wing Paddle
(148 x 98 mm)



Weigh 515 g.

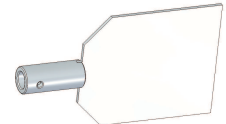
Paddle 07 (304 St.St.)
Paddle 08 (316 St.St.)

Single Wing Paddle
(75 x 35 mm)



Paddle 12 (304 St.St.)
Paddle 13 (316 St.St.)

Single Wing Paddle
(80 x 65 mm)

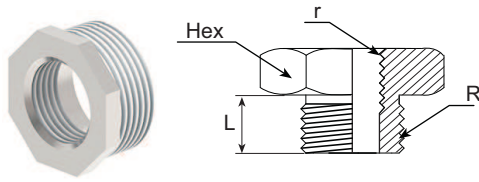


Paddle 14 (304 St.St.)
Paddle 15 (316 St.St.)

Material	Min.Density (Kg/m ³)	Material	Min.Density (Kg/m ³)
Chopped Corn	550	Metals, Iron Chips	2650
Crushed limestone	1350-1510	Coal Pellet	400-800
Sawdust	50-160	Dry Malt Floor	310
Rubber Floor	400-800	Dry Coarse Coal	560-725
Tea Leaves	195	Grain - Oat	400-560
Shelled Peanut	550-710	Sugary Granule	880
Dusting Powder	730-990	Wheat	400-500
Acrylic Resin	330	Breadstuff	600-800
Wheat flour	480-560	Aquaous Lime Powder	400-500
Cement Dust	1370-1510	Powder PVC	300-600
Silica Sand	1510	Granule PVC	300-600
Lumpy Polypropylene	540-575	Sunflower Marsh	300-500
Roasted Coffee	350-480	Red Pepper	800-1000

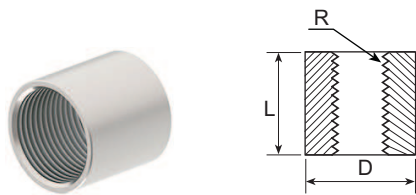
Accessories :

Reduction :



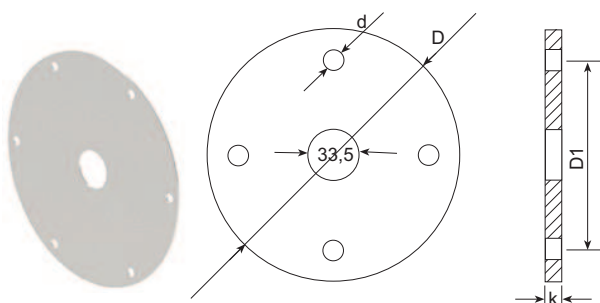
Order Code	R	r	L (mm)	Hex (mm)	Material
/ R1	1" BSP	1 1/4" BSP	21	44	304 St.St.
/ R2	1" BSP	1 1/2" BSP	19	50	304 St.St.
/ R7	1" BSP	2" BSP	25	60	304 St.St.
/ R3	1" BSP	1 1/4" BSP	21	44	316 St.St.
/ R4	1" BSP	1 1/2" BSP	19	50	316 St.St.
/ R5	1" BSP	1 1/4" BSP	22	45	ST 37 Steel
/ R6	1" BSP	1 1/2" BSP	22,5	50	ST 37 Steel

Muff :



Order Code	BSP	D (mm)	L (mm)	Material
/ M1	1"BSP	Ø 37	41	304 St.St.
/ M2	1 1/4"BSP	Ø 47,5	46,5	304 St.St.
/ M3	1 1/2"BSP	Ø 54,4	48,1	304 St.St.
/ M4	1"BSP	Ø 37	41	316 St.St.
/ M5	1 1/4"BSP	Ø 47,5	46,5	316 St.St.
/ M6	2"BSP	Ø 54,4	48,1	316 St.St.
/ M7	1"BSP	Ø 37,6	40,2	ST 37 Steel
/ M8	1 1/4"BSP	Ø 47,8	47	ST 37 Steel
/ M9	1 1/2"BSP	Ø 52,6	46,5	ST 37 Steel

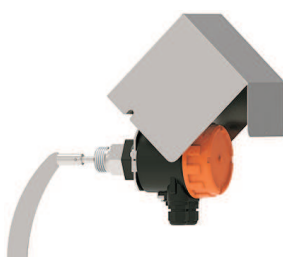
Flange :



Order Code	D (mm)	D1 (mm)	d (mm)	k (mm)	Number of Hole	Material
/ F1	110	90	8	2	4	304 St.St.
/ F2	110	90	8	2	4	316 St.St.
/ F3	200	180	8	2	6	304 St.St.
/ F4	200	180	8	2	6	316 St.St.

Note : 1"BSP With 1" Nut-Aluminium

Protection Case:



Material : 304 St. St.
 Welded Production
 Open - Close hinged
 For Protection of switch from external conditions

Order Form : Please consider sample models when coding

1 MODEL ELF

Standart.....1

2 CERTIFICATE

None.....0 (EN10204-3-1) Material Certification.....1

3 SHAFT TYPE - (STEM LENGHT)

Standart Shaft - L= 150 mm.....1	Shaft With Extention Tube - L= 2 m. (For High Temperature).....6
Mini Shaft - L= 75 mm.....2	Mini-Shaft With Extention Tube - L= 150 mm Max.500 mm.....6m
Long Shaft - L= 500 mm3	Extention High Temperature Shaft- L= 2m. (At the design state).....7
Standart Shaft - L= 250 mm.....3p	Rope Shaft - L= 2000 mm.....8
Single Shaft - L= 500 mm4	Reinforced Rope (28 KN) - L= Max.10 m.....9
Extented Shaft - L= 500 mm.....5	Special.....x

4 PADDLE TYPE

Without Paddle (184 mm)00	Cross-Wing Paddle (148x98 mm).....304 St. St.07
Standart Scimater Paddle (258 mm).....304 St. St.01	Cross-Wing Paddle (148x98 mm).....316 St. St.08
Standart Scimater Paddle (258 mm).....316 St. St.02	Cross-Wing Paddle (105x90 mm).....304 St. St.09
Mini Paddle (138 mm).....304 St. St.03	Cross-Wing Paddle (105x90 mm).....316 St. St.10
Mini Paddle (138 mm).....316 St. St.04	Double-Baded Collapsible Paddle-Plexiglass (540 mm)....11
Double-Baded Collapsible Paddle (265 mm)....304 St. St.05	Single Wing Paddle (75x35 mm).....304 St. St.12
Double-Baded Collapsible Paddle (265 mm)....316 St. St.06	Single Wing Paddle (75x35 mm).....316 St. St.13
	Single Wing Paddle (80x65 mm).....304 St. St.14
	Single Wing Paddle (80x65 mm).....316 St. St.15
	Special.....x

5 CONNECTION

* 1" BSP Male Thread (Std).....0006	1 1/2" BSP Male Thread0010
1 1/4" BSP Male Thread0008	Special.....x

***Those can be choosen(applicable)only products with 90 Celcius working temperature.**

6 CONNECTION MATERIAL

304 Stainless Steel.....001	PVC (Max.60 °C).....061
316 Stainless Steel.....002	Delrin (Max.60 °C).....063
Aluminium (Std).....031	PTFE (Max.200 °C).....066
	Special.....x

7 POWER SUPPLY

24 VDC 50/60 Hz ± %101	220 VAC 50/60 Hz ± %10.....4
24 VAC 50/60 Hz ± %102	48 VAC 50/60 Hz ± % 10.....5
110 VAC 50/60 Hz ± %10.....3	Special.....x

8 REVOLUTIONS PER MINUTE

5 d/d (Std)	1	Special.....	x
1,5 d/d	2		

9 MATERIAL OF POWDER FEELTING

PTFE Max. 200 °C.....	066	Graphite Max. 600 °C (In the design state).....	086
NBR (Std) Max.90 °C.....	081	Special.....	x
FPM Maxs. 150 °C.....	085		

10 ROLLER

Metal Ball Bearing (Std) 120 °C.....	1	Metal Ball Bearing 280 °C.....	3
Ceramic Ball Bearing.....	2	Metal Ball Bearing 200 °C.....	4
		Metal Ball Bearing 300 °C.....	5
		Special.....	x

11 HOUSING MATERIALS

Plastic (PBT) B20p.....	103	Special.....	x
Aluminum B20x.....	603		

12 ELECTRICAL CONNECTION

With Terminals.....	00	Special.....	x
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13 OPTIONAL

None.....	/ 0	Muff 1" BSP 304 St.St.....	/ M1
Reduction 1" BSP - 1 1/4" BSP 304 St.St.....	/ R1	Muff 1 1/4" BSP 304 St.St.....	/ M2
Reduction 1" BSP - 1 1/2" BSP 304 St.St.....	/ R2	Muff 1 1/2" BSP 304 St.St.....	/ M3
Reduction 1" BSP - 1 1/4" BSP 316 St.St.....	/ R3	Muff 1" BSP 316 St.St.....	/ M4
Reduction 1" BSP - 1 1/2" BSP 316 St.St.....	/ R4	Muff 1 1/4" BSP 316 St.St.....	/ M5
Reduction 1" BSP - 1 1/4" BSP ST 37 Steel.....	/ R5	Muff 1 1/2" BSP 316 St.St.....	/ M6
Reduction 1" BSP - 1 1/2" BSP ST 37 Steel.....	/ R6	Muff 1" St 37 Steel.....	/ M7
Reduction 1" BSP - 2" BSP 304 St.St.....	/ R7	Muff 1 1/4" ST 37 Steel.....	/ M8
Flange with muff 110 mm 304 St.St.....	/ F1	Muff 1 1/2" ST 37 Steel.....	/ M9
Flange with muff 110 mm 316 St.St.....	/ F2	M12 x 5 pin socket (Max. 60 V).....	/ S1
Flange with muff 200 mm 304 St.St.....	/ F3	External LED socket.....	/ L1
Flange with muff 200 mm 316 St.St.....	/ F4	Change for body - Cover	/ Z1
Protection plate 304 St.St.....	/ K1	Special.....	x
Shelter - (For the outside of the tank) 304 St.St.	/ K2		

Important Note : In high temperature applications , felting and protection material must be selected appropriately.

SAMPLE

ELF 101-01-0006-031-1-1-081-1-103-00/0

Rotary Level Switch , ELF 101 , Standard Paddle , L=150mm , 1" BSP, 24VDC