MAGNETIC FLOAT TYPE LIQUID LEVEL SWITCHES 520

DOERS

FEATURES

- **ANTICORROSIVE MATERIALS**
- **HIGH SAFETY**
  SWITCH COMPLETELY ISOLATED FROM LIQUID
- **CONTACT FORM CAN BE SPECIFIED UPON ORDERING**
- **VARIABLE NO / NC SWITCH ACTION CAN BE ADJUSTED WORK SITE**
- **HIGH RELIABILITY**
  SWITCH CAN BE USED FOR MORE THAN 20 MILLION TIMES
- **EASY MAINTENANCE**
  OCCASIONAL CLEANING WHEN USED IN HIGHLY CONTAMINATED LIQUID

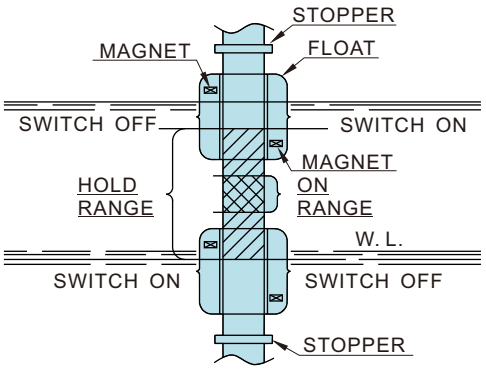
GENERAL SPECIFICATIONS

CONTACT RESISTANCE	100mΩ (max.)
BREAKDOWN VOLTAGE	300V DC (min.)
CONTACT RATING	70W (max.)
SWITCH VOLTAGE	250V AC (max.)
SWITCH CURRENT	0.7A (max.)
CARRYING CURRENT	2.0A (max.)
INSULATION RESISTANCE	$1 \times 10^9 \Omega$ (min.)
ON - OFF MOTION	About 5～15mm
REPETITIVE ACCURACY	Less than ±5mm
VIBRATION LIMITS	Less than 20G
HOUSING FINISH	Epoxy Painted

SPECIAL VERSION

- **LARGE FLOAT STYLE**
- **WITH GUIDE PLATE**
- **WITH FLOAT CHAMBER**
- **WITH SAFETY BARRIER**
- **EXTRA TREATMENT (HPC / EP / MP / MPEP etc.)**

OPERATING PRINCIPLE



NOTE : REVERSIBLE ACTION BY THE FLOAT UPSIDE DOWN

FLOAT STYLE

TABLE 1

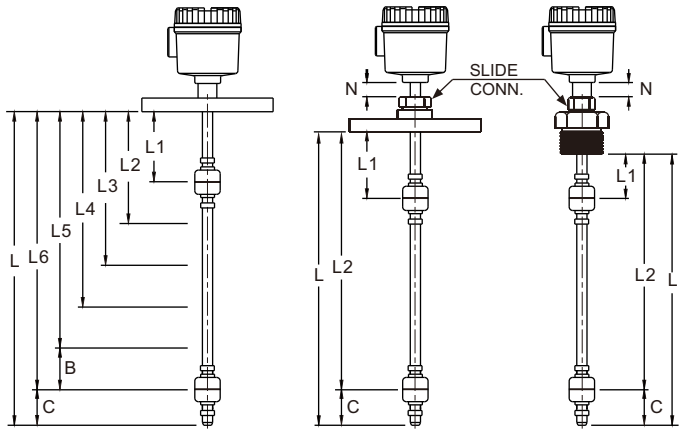
CODE	DIMENSIONS (mm)	MATERIAL	MAX. OPERATING TEMP. / PRESSURE	MIN. DENSITY	MAX. VISCOSITY	STEM DIAMETER	MIN. INSERTION CONN. / NOZZLE
A	Ø25x^{H}25	PP	80°C / 2Kg/cm^{2}G	0.70	300 cps	Ø7mm	25A / 27mm
C	Ø28x^{H}28	316LSS	100°C / 20Kg/cm^{2}G	0.70	400	Ø8mm	40A / 35mm
E	Ø40x^{H}35	316LSS	↓	0.55	500	Ø14mm	↓
G	Ø49x^{H}50	316LSS	↓	0.53	↓	↓	50A / 52mm
H	Ø47x^{H}50	PP	80°C / 2Kg/cm^{2}G	0.50	300	Ø20mm	↓
J	Ø47x^{H}50	PVDF	100°C / 2Kg/cm^{2}G	0.60	↓	↓	↓
K	Ø50x^{H}105	PVDF	100°C / 2Kg/cm^{2}G	↓	↓	↓	↓
L	Ø63x^{H}70	PVDF	100°C / 2Kg/cm^{2}G	↓	400	↓	65A / 68mm
M	Ø75	SUS 316	100°C / 30Kg/cm^{2}G	0.50	500	Ø20mm	80A / 78mm
N	Ø86x^{H}115	PP	80°C / 2Kg/cm^{2}G	↓	↓	↓	100A / 103mm
P	To be specified	SUS304 / 316 PP / PVC PVDF / PTFE	DIFFERENCE IN MATERIAL	↓	1000	DIFFERENCE IN FLOAT DIAMETER	

MODEL SELECTION

ITEMS	CODE	SPECIFICATION
① HOUSING (See Table 2)	520A	Big housing, IP67, ADC made
	520B	Big housing, IP67, 316SS made
	520C	Big housing, equivalent to Class I, Div1, Gr A/B/C/D, IP66 & NEMA 4X, ADC made
	520D	Big housing, equivalent to Class I, Div1, Gr A/B/C/D, IP66 & NEMA 4X, 316SS made
	520E	Exquisite housing, NEMA 4X, IP67 Approved, ADC made (Class I, Div1, Gr A/B/C/D)
	520F	Compact housing, NEMA 4X, IP68 Approved, ADC made (Exd IIC T6)
	520G	Compact housing, NEMA 4X, IP68 Approved, 316SS made (Exd IIC T6)
	520H	Compact version IP68/ADC made, With epoxy coating
	520I	Compact version IP67/316SS made
	520J	Compact version IP66/PP made
	520K	None housing/Straight mounting with 1/8" PF connector and nut
	520L	None housing/Side mounting with 1/8" PF connector and nut
	520M	Economical style with accessory of terminal box (IP67/ADC made)
	520N	Economical style with accessory of terminal box (Exd IIC T6, IP68/ADC made)
	520P	To be specified
② PROCESS CONNECTION	TYPE	−0 ANSI 150LB Flange; −1 JIS 10K Flange; −2 NPT; −3 PT; −4 PF; −5 NONE; −6 Sliding flange; −7 Sliding thread; −8 Sanitary connector; −9 To be specified
	SIZE	0 3/8"; 1 1/2"; 2 3/4"; 3 1"; 4 1½"; 5 2"; 6 2½"; 7 3"; 8 4"; 9 520K/520L (St'd Conn.); 10 To be specified
③ NUMBERS OF FLOAT ASSEMBLY	1 ~ 6	1 PC/SET ~ 6 PCS/SET
④ FLOAT STYLE (See Table 1)	−A	Ø25x^{H}25xPP
	−C	Ø28x^{H}28x316LSS
	−E	Ø40x^{H}35x316LSS
	−G	Ø49x^{H}50x316LSS
	−H	Ø47x^{H}50xPP
	−J	Ø47x^{H}50xPVDF
	−K	Ø50x^{H}105xPVDF
	−L	Ø63x^{H}68xPVDF
	−M	Ø75x316SS
	−N	Ø86x^{H}115xPP
	−P	To be specified
⑤ MATERIALS OF STEM & COUPLING	A	304SS; B 316SS; C PP stem with SS inner pipe; D PVC stem with SS inner pipe
	E	PVDF stem with SS inner pipe; F To be specified
⑥ CONTACT FORM	A	SPST-N.O.; B SPST-N.C.; C SPST-N.O./N.C (hybrid)
	D	SPDT; E To be specified
⑦ CONTACT RATING	A	70W (250V AC/DC/0.7A); B To be specified (Voltage/Current specified)
⑧ L-LENGTH FOR STEM	−000	For 520K/520L/520M/520N standard versions; −010 ~ −580: 100 mm ~ 5800 mm
⑨ OPTIONAL	A	Not required; B With safety barrier (EEx ia Version)
	C	Extra treatment (HPC/EP/MP/MPEP etc.); D Mounting bracket
	E	Special finished/Painting; F To be specified

DETECTING POSITION & ACTION

unit : mm



FLOAT SIZE	MATERIAL	MIN. DIMENSIONS		
		L1	B	C
Ø25x^{H}25	PP	20	30	—
Ø28x^{H}28	316LSS	20	50	35
Ø40x^{H}35	316LSS	27	65	40
Ø49x^{H}50	316LSS	30	70	45
Ø47x^{H}50	PP/PVDF	30	75	50
Ø50x^{H}105	PVDF	60	135	75
Ø63x^{H}70	PVDF	40	100	65
Ø75	316SS	40	95	55
Ø86x^{H}115	PP	65	145	80

■ ORDERING INFORMATION

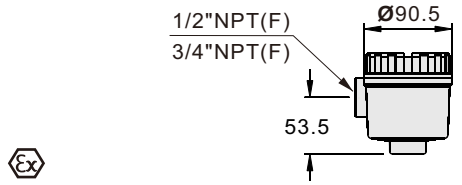
① MODEL ② DETECTING POSITION & ACTION ③ CABLE ENTRY

④ TAG NO. ⑤ SERVICE CONDITION

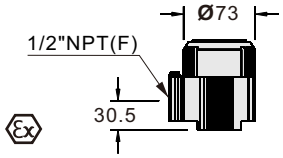
HOUSING SELECTION

TABLE 2

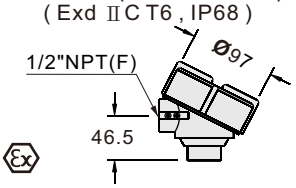
■ 520A / B / C / D (B / D for 316SS made)



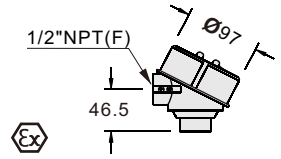
■ 520E (ADC made)
(NEMA 4X , IP67)



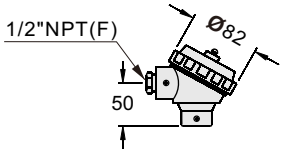
■ 520F (ADC made)
(Exd ⅡC T6 , IP68)



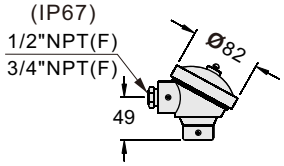
■ 520G (316SS made)
(Exd ⅡC T6 , IP68)



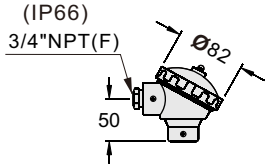
■ 520H (ADC made)
(IP68)



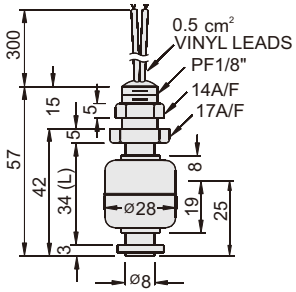
■ 520I (316SS made)
(IP67)



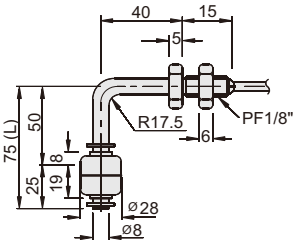
■ 520J (PP made)
(IP66)



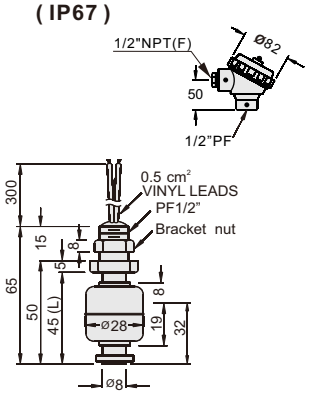
■ 520K



■ 520L

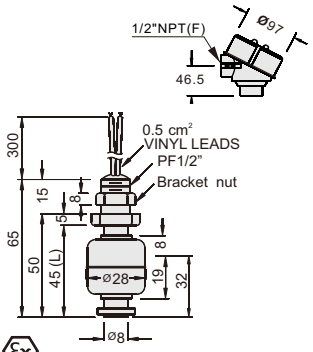


■ 520M (ADC made)
(IP67)



(On-site assembly)

■ 520N (ADC made)
(Exd ⅡC T6 / IP68)

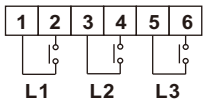


(On-site assembly)

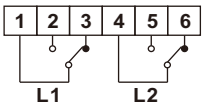
WIRING CONNECTIONS

■ 520A / B / C / D / E

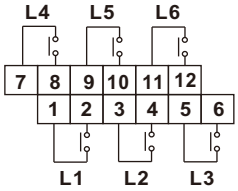
① **SPST**



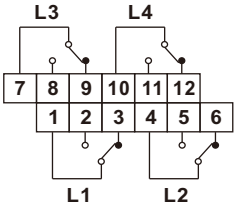
② **SPDT**



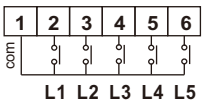
③ **SPST**



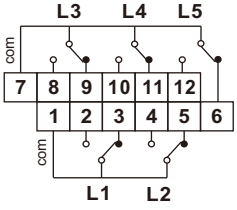
④ **SPDT**



⑤ **SPST**

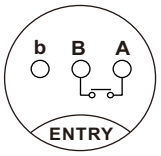


⑥ **SPDT**

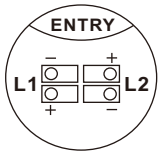


■ 520F / G / H / J

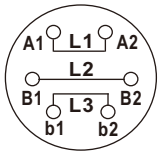
① **SPST**



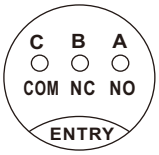
② **SPST**



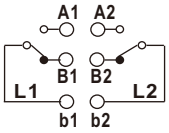
③ **SPST**



④ **SPDT**

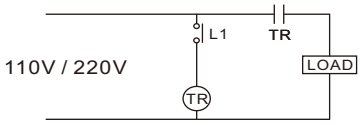


⑤ **SPDT**

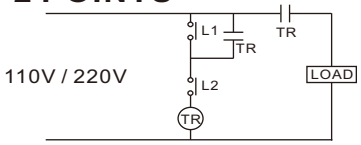


SCHEMATIC OF APPLICATION

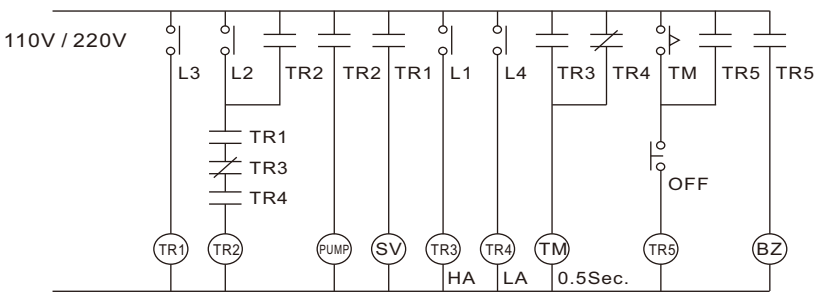
■ 1 POINT



■ 2 POINTS



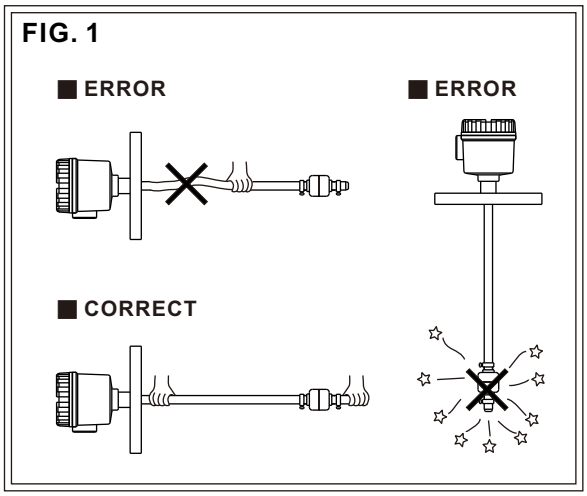
■ 4 POINTS



INSTRUCTION

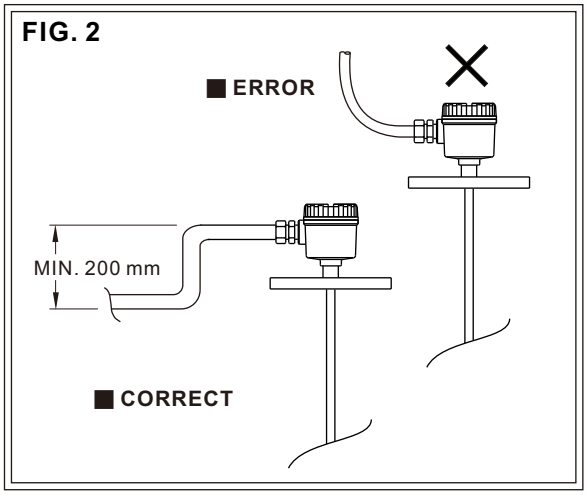
■ BEFORE DESIGNING AND INSTALLING

1. Do not crook nor shake the pole fiercely while carrying, as shown in Fig. 1.
2. Make sure of the following:
   a) specification of every part is correct
   b) movements of switch are normal c) control circuit is correct.
3. Prepare necessary tools and parts for installing
4. Confirm installation position and space (including space for maintenance)
5. Installation position can not be assigned near the water outlet
6. Avoid installing near the motor or electromagnetic device or solenoid valve
7. When rapids or waves occur, add a float chamber or install the switch with a chamber in the vessel or outside the tank, as shown in Fig. 3
8. When suspension solid is found in the liquid, a design with a larger float should be used instead.
9. ***Should the user wish to set up or change the detecting position:***
   Open the cover of the box, take PROP out and change the setting as required (see Fig.4 and Item 5 under the " Operation and Maintenance")



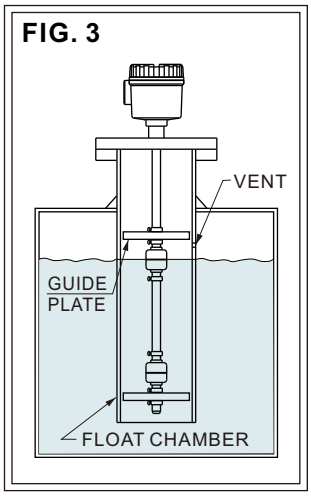
■

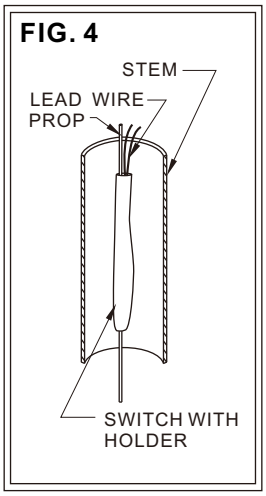
1. The vertical degree of the lead pole can not be greater than ±5°∠ (except 520J)
2. Do not allow screw loosen of terminal or short-circuit
3. Keep the terminal box clean and dry at all time, any foreign substance should be removed
4. Cable entry should be higher than the conduit, avoid pouring down of rainwater as shown in Fig.2
5. Varister can be additionally installed, in the load side or receiver enabling longer life of the switch element
6. Safety barrier can be additionally installed for explosion-proof purpose
7. Seal fitting must be installed in the at the entry of cable explosion-proof purpose
8. Check whether the float activity is well or not
9. Before switching power to "ON", ensure the circuit is correct and terminal screw is tightened



■

1. When switch "ON" for the start running before, ensure the circuit is correctly set up before the power
2. Turn off the relevant circuit power if inspection is required due to unusual activity
3. Keep the stem in clean at all time, wash regularly if dirt attaches
4. Turn off the power before opening the cover. The terminal box in anti-pressure/blast structure is enclosed with a bolt which is to be loosened after the power is off. Follow regular procedures of working in the explosion-proof zone
5. Record the entire procedures before dismantling. After maintenance is done, all parts must be put back in their original \ positions. Do not damage the original quality provided, nor lower the work standard
6. If the float and stem easily to adhered blocked by dirt, a larger float should be used instead which can reduce the frequency of cleaning.





The specifications are subject to change without prior notice.

01C-520-1633-03A

DOERS TECHNOLOGY CORPORATION
4F, NO. 1, LANE 11, TZU CHIANG STREET, TU-CHENG INDUSTRIAL PARK, TAIPEI COUNTY, TAIWAN 23678
Http://www.doers.com.tw
E-mail:doers.tech@msa.hinet.net
TEL : 886-2-22682689
FAX : 886-2-22681248

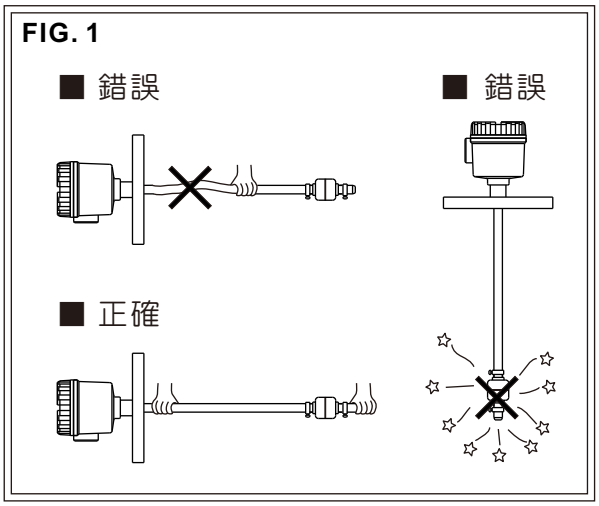
ANAB ACCREDITED
EQA European Quality Assurance
ISO 9001:2008
Registration No : QA080308

使用說明

■ 設計及安裝前

1. 搬運中勿使導桿變形或激烈震動，如FIG.1
2. 確認各部份之規格是否正確
3. 確認開關動作是否正常
4. 確認控制電路是否正確
5. 準備安裝所需之工具及零件
6. 安裝位置及空間之確認（含保養所需空間）
7. 安裝位置不可設計在出入水口
8. 避免安裝在馬達或電磁閥附近
9. 有激流或波浪時，應加防波筒或安裝在桶槽外之保護管中，如FIG.3
10. 液體中如果含有 suspension solid 時，請採用較大型的浮球
11. 欲自行設定或變更檢測位置時，請打開盒蓋，將PROP抽出，即可進行更改位置之設定工作。（如FIG.4及操作與保養第5項）

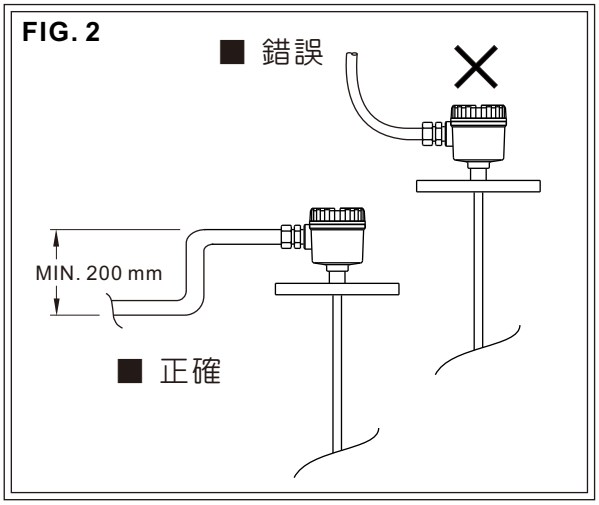
FIG. 1



■ 安裝及檢查

1. 導桿垂直度不可大於 ±5°∠（520J 除外）
2. 接線不可有接觸不良或短路現象
3. 接線盒內保持乾燥勿受潮濕，異物需清除乾淨
4. 導線口應比導線之配管最高點更高，慎防雨水倒灌，如 FIG.2
5. 在負載端可加裝突波吸收器(varister)，利於維護開關之使用壽命
6. 本質安全防爆需在線上加裝安全保持器 (safety barrier)
7. 耐壓防爆結構在導線口需加裝密封接頭
8. 檢查浮球之活動性是否良好
9. 送電前檢查電路是否正確，螺絲是否鎖緊

FIG. 2



■ 操作與保養

1. 第一次開機前，務必確認線路正確無誤後方可通電
2. 如有異常需停機檢查前，請先關掉相關之回路電源
3. 導桿應常保持乾淨，有污物附著時應定期清洗
4. 耐壓防爆結構之接線盒上，附有鎖定螺栓，開啓盒蓋前，請先停掉電源，再鬆脫鎖定螺栓即可，維修時請依防爆區相關規定作業
5. 拆卸時應詳記步驟，維護後裝回原位時需確實復原，不可任意降低原有品質及施工水準
6. 浮球會被附著污物卡住時，請改用較大型浮球，可減少清洗頻率

FIG. 3

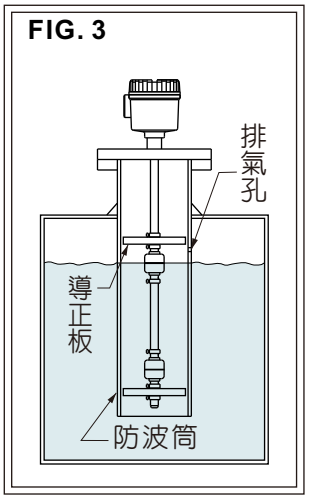
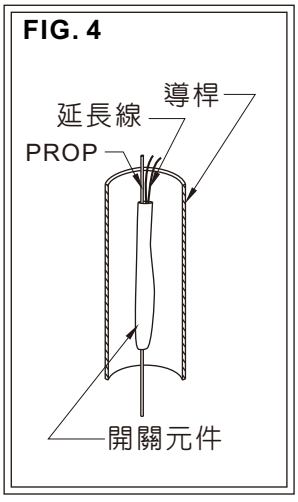


FIG. 4



DOERS TECHNOLOGY CORPORATION

4F, NO. 1, LANE 11, TZU CHIANG STREET, TU-CHENG INDUSTRIAL PARK, TAIPEI COUNTY, TAIWAN 23678

Http:www.doers.com.tw

E-mail:doers.tech@msa.hinet.net

TEL : 886-2-22682689

FAX : 886-2-22681248

ISO 9001:2008
Registration No : QA080308