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DISPLACER TYPE LEVEL SWITCH

HM-90(30) Series



ISO 9001 ISO 14001 ASME

www.hitrol.com

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HITROL CO., LTD.

개 요 | Overview

HM-90(30) Series는 탱크 상부에 설치하여 Displacer에 받는 부력과 스프링의 장력으로 동작하는 계기이다. ON/OFF의 접점신호를 가지고 고온/고압 공정의 수위 조절용으로 주로 사용 된다.

특 징 | Characteristics

- 구조가 견고하고 수명이 길다.
- 설치 방법이 편리하다.
- 내압 방폭 타입으로 제작이 가능하다(Ex-Proof Version).
- 여러 종류의 액체 레벨을 검출 할 수 있다.
- 고온, 고압에서 사용 가능 하다.

동작원리 | Operation Principle

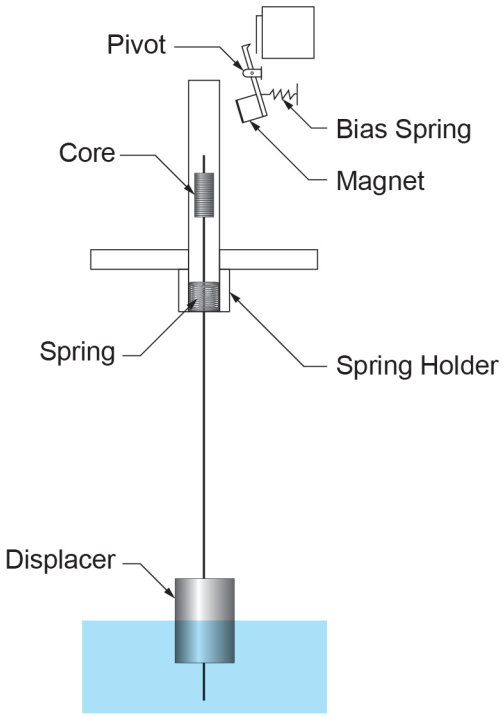
HM-90(30) Series는 액체 속에 잠긴 물체는 배출한 무게만큼 가벼워진다는 원리를 검출부에 적용한 것으로 Displacer의 부력이 Spring 장력으로 전달되어 액위가 상승했을 때 부력이 증가하여 Displacer의 무게가 변위한다. Displacer의 변위는 Core를 이동시키고 Switch에 의해 접점으로 출력한다.

아래의 [그림1], [그림2]와 같이 Displacer가 받는 부력 F는 다음 식으로 표현한다.

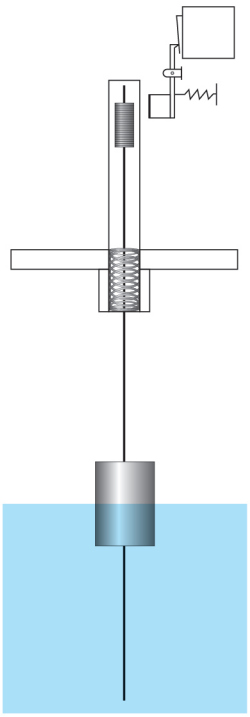
$F = r \times s \times l$

(r=액체의 비중, s=Displacer의 단면적, l= 액체 중에 잠겨진 Displacer의 부력)

[그림1]과 같은 상태에서 부력이 증가하여 [그림2]상태가 되면 Displacer가 부력으로인해 가벼워져 그 힘이 Spring으로 전달 되고, Displacer의 무게 때문에 압축 되었던 Spring [그림1]이, 부력의 증가로 인해 Spring[그림2]이 인장 되는데, 이때 Core [그림2]가 상승하면서 Magnet를 동작 시키면 Switch[그림2]가 동작 된다.



[Fig 1]


[Fig 2]

DISPLACER TYPE LEVEL SWITCH
HM-90(30) Series

제품 사양 | Specification

Model	HM-90	HM-90-Ex	HM-90H	HM-90H-Ex
Mounting	Flange (std.)			
Installation	Top			
Switch Type	Micro Switch			
Contact Rating	AC 250V 15A, DC 125V 0.5A		AC 250V 15A, DC 125V 0.5A (Max. 200°C)	
			AC 250V 5A, DC 125V 0.5A (Max. 350°C)	
			AC 250V 1A, DC 125V 0.4A (Max. 500°C)	-
Output	SPDT / DPDT			
Wetted Part Material	SUS 316L			
Process Connection	80A JIS 10K RF / SUS 304 (std.)			
Enclosure	Weather Proof (IP65)	Ex-Proof (Ex d IIC T4, IP65)	Weather Proof (IP65)	Ex-Proof (Ex d IIC T4, IP65)
Process Pressure	10kg/cm^2 ~ 63kg/cm^2 (900#)			
Process Temperature	Max. 120°C		Max. 500°C	Max. 350°C
Housing Material	C.S + Aluminum (std.)	Aluminum	C.S + Aluminum (std.)	Aluminum
Conduit Connection	PF 3/4″(F) (std.)			
Length	2,000mm (std.)			
Specific Gravity	more than 0.8			

Model	HM-30
Mounting	Flange (std.)
Installation	Top
Switch Type	Micro Switch
Contact Rating	AC 250V 15A, DC 125V 0.5A
Output	1-SPDT / DPDT (H/L Control)
Wetted Part Material	SUS 304
Process Connection	50A JIS 10K FF (6T) / SUS 304 (std.)
Enclosure	Weather Proof (IP65)
Process Pressure	ATM (std.)
Process Temperature	Max. 120°C
Housing Material	C.S + Aluminum
Conduit Connection	PF 3/4″(F) (std.)
Length	2,000mm (std.)
Specific Gravity	more than 0.8

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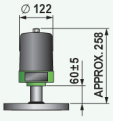
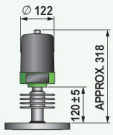
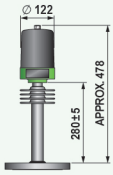
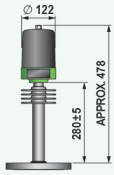
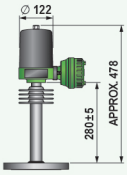
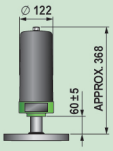
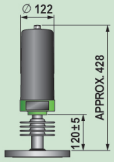
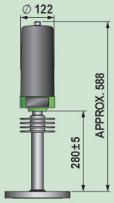
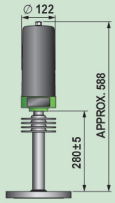
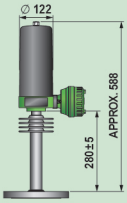
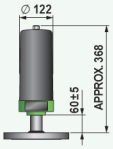
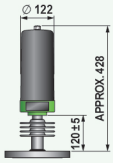
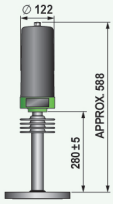
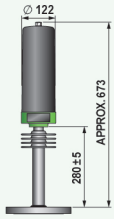
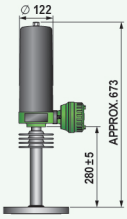
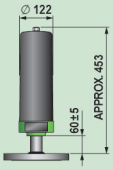
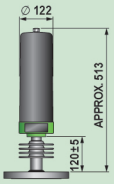
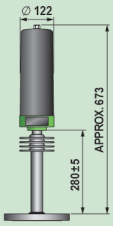
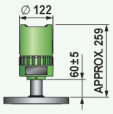
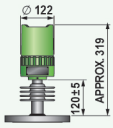
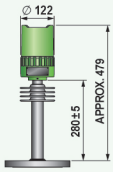
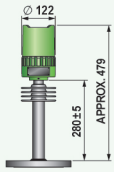
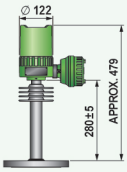
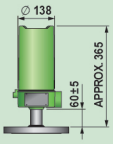
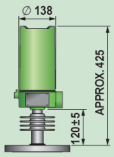
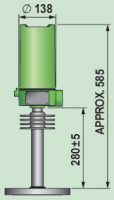
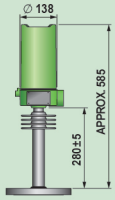
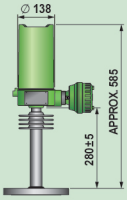
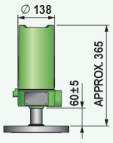
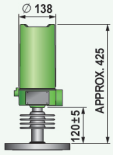
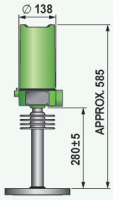
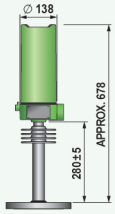
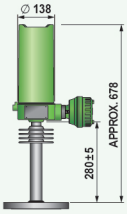
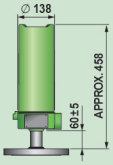
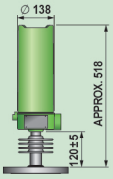
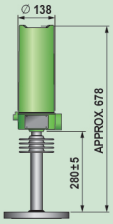
온도별 HEAD 높이 사양

측정온도	~120°C	~200°C	~350°C	~500°C	~500°C (외부단자함 Opt.)
CS+Aluminum Housing (Switch 1EA)					
CS+Aluminum Housing (Switch 2EA)					
CS+Aluminum Housing (Switch 3EA)					
CS+Aluminum Housing (Switch 4EA)					
Aluminum Housing (Switch 1EA)					
Aluminum Housing (Switch 2EA)					
Aluminum Housing (Switch 3EA)					
Aluminum Housing (Switch 4EA)					

외형도 | Dimension

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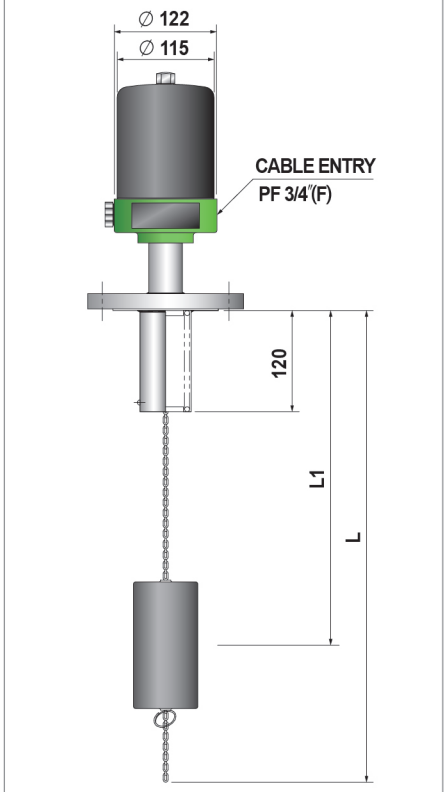

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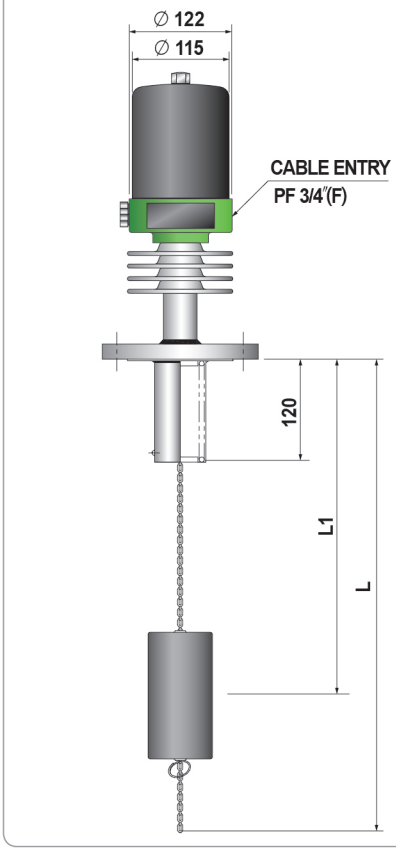

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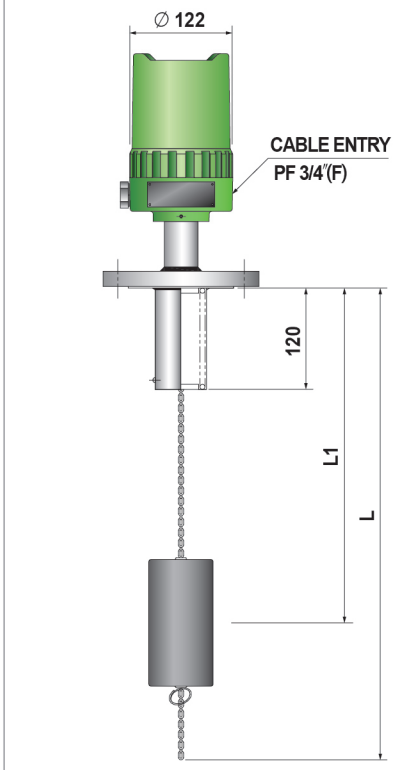

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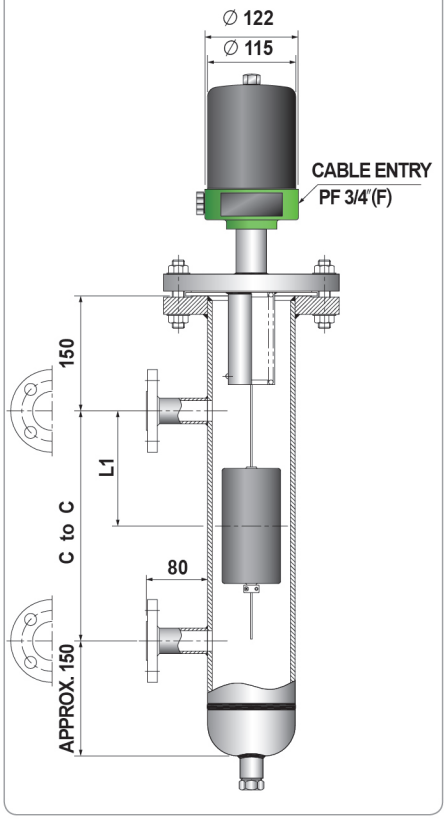

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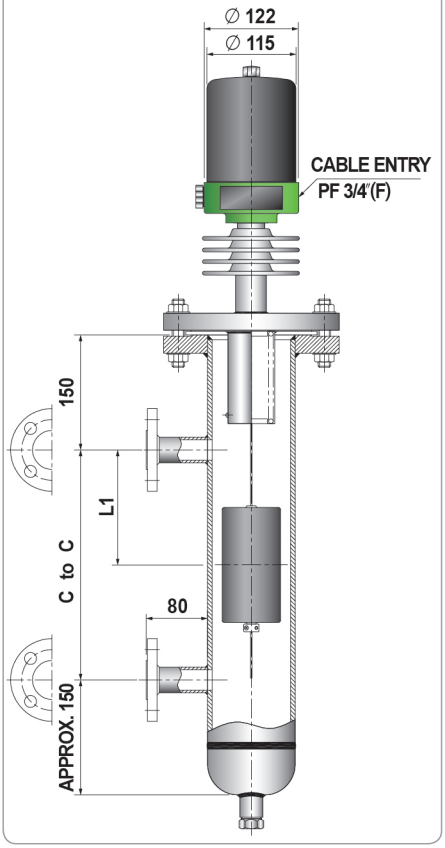

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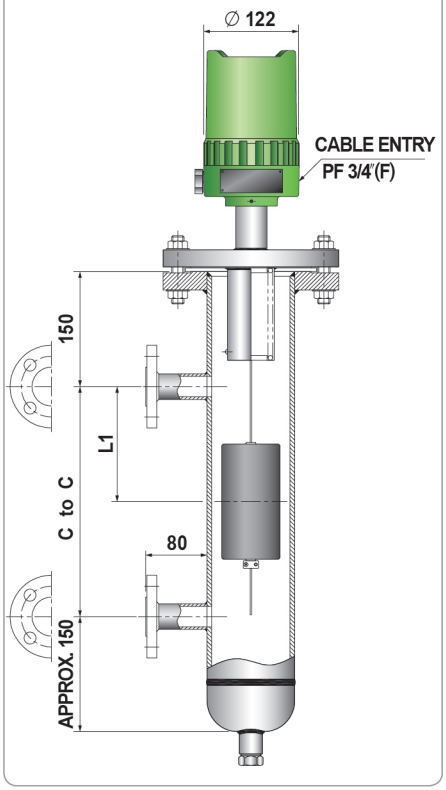
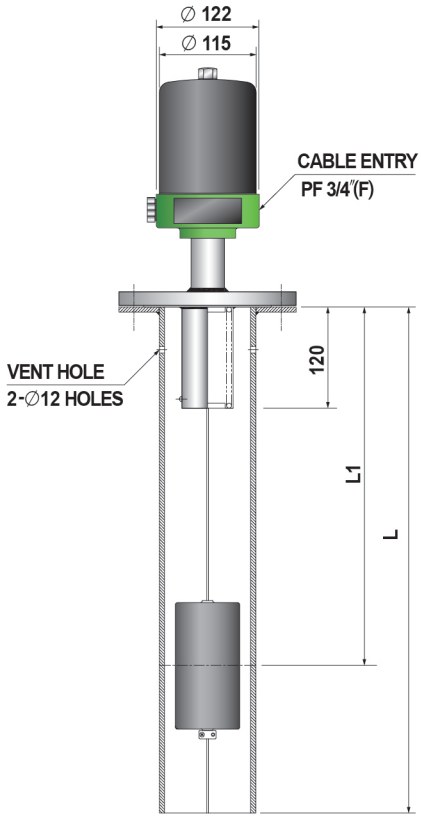


◈ 실제제품과는 약간의 공차가 발생할 수 있습니다.

외형도 | Dimension

일반형(HM-90A)



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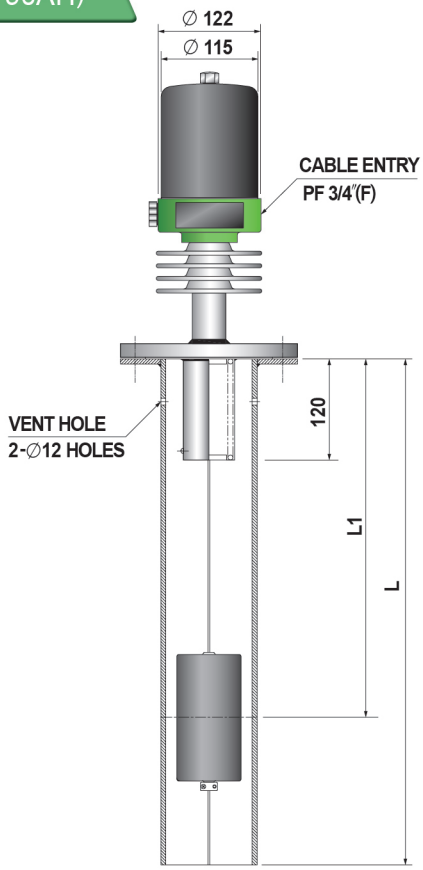

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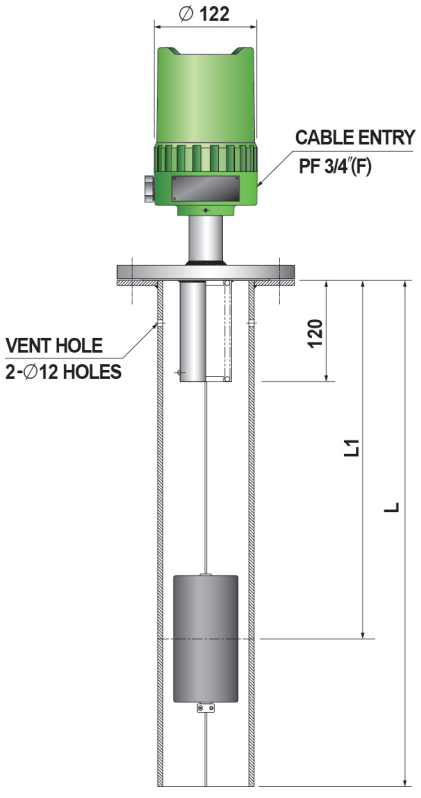
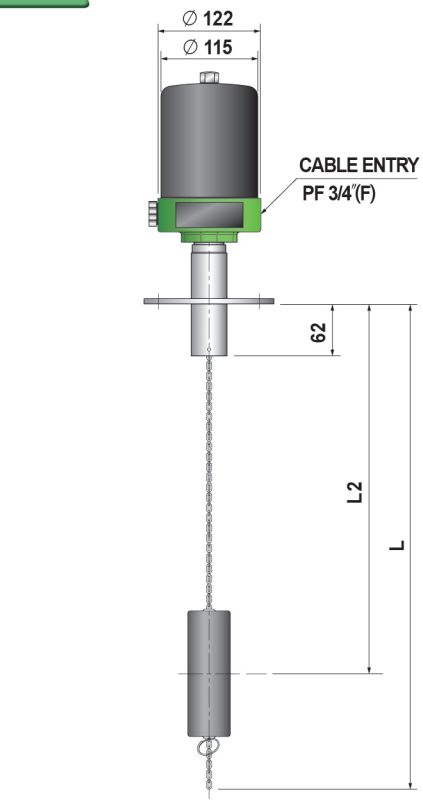


일반형(HM-30)



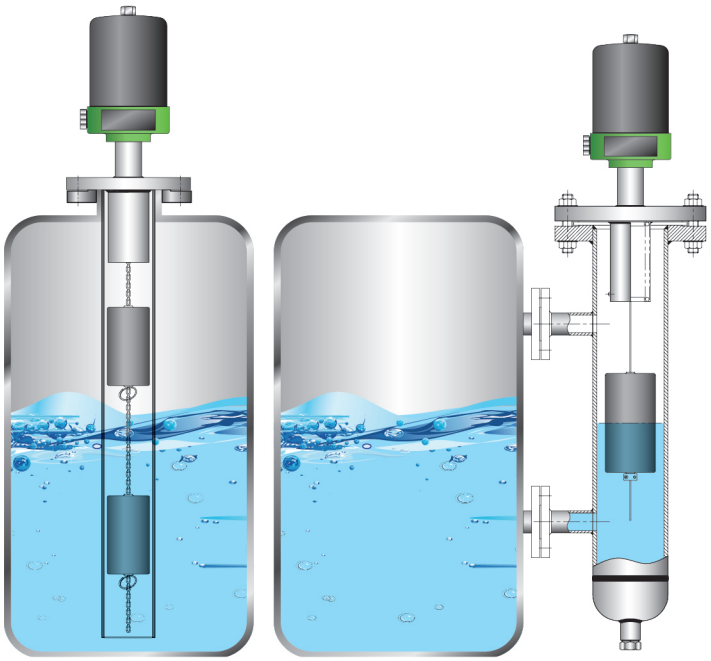
◈ 실제제품과는 약간의 공차가 발생할 수 있습니다.

설치방법 | Installation

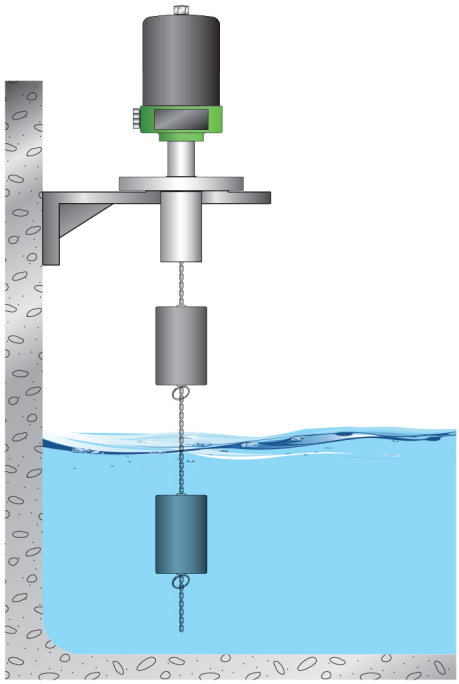
■ 제품 설치 시에는 아래와 같은 사항을 고려하여 설치 하여야 한다.



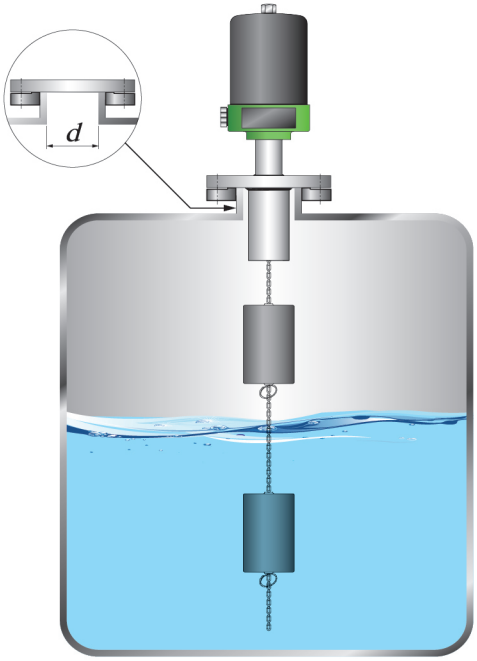
측정물이 유입되는 입구에 제품을 설치 시에는 오작동이 일어날 수 있으므로 가이드를 설치 하거나 측정물의 인입구와 떨어진 곳에 설치하여야 한다.



측정물의 흐름이 있거나 출렁거림이 있을 때에는 보호관 타입을 사용하여야 한다.



콘크리트 벽에 설치 시 위의 그림과 같이장착하는 것이 좋다.



“d”직경은 Displacer보다 큰 직경, 직관을 선택한다.

※ 본 제품은 비중 0.8과 1을 기준으로 셋팅을 하기 때문에 사용 환경에 따라 약간의 오차가 존재한다.
정확한 구간으로 측정을 원하는 경우에는 현장 셋팅을 해야 한다.



DISPLACER TYPE LEVEL SWITCH

HM-90(30) Series

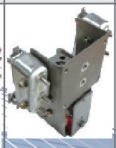
01 다양한 액체에 적용 가능

02 고온, 고압 용기에 적용 가능

03 견고한 구조 및 오랜 사용주기

04 온도에 따른 TERMINAL BLOCK
(OPT. CERAMIC TERMINAL BLOCK)

Std. Type	Opt. Type	Process Temperature	Contact Rating
		~ 200°C	AC 250V, 15A DC 125V, 0.5A
		~ 350°C	AC 250V, 5A DC 125V, 0.5A

Std. Type	Opt. Type	Process Temperature	Contact Rating
	 + 외부 단자함	~ 500°C	AC 250V, 1A DC 125V, 0.4A

hitrol@hitrol.com | www.hitrol.com

* 제품은 업그레이드를 위하여 예고 없이 변경될 수 있습니다.