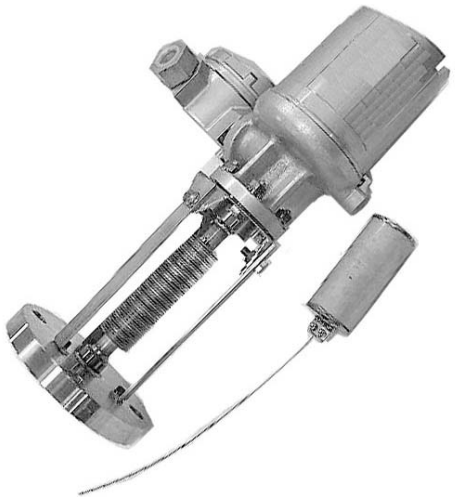
Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Level Switch MPC2000 MPC2

Displacement type level switch



Application

The MPC2 series level controllers are displacement type instruments for installation on tanks. They provide control outputs from 1 to 4 contacts while activating microswitches with a magnet. The switching mechanism is designed to operate these contacts independent of one another.
It also performs pump control by utilizing the independent operations of the contacts

Features and benefits

- Not required power supply
- Wide control range
- Spring type microswitch holders assuring proper operations unaffected by vibration of vessels
- Multi-point control (4 points maximum) possible with a single level controller
- Resistance to high temperature and high pressure
- Simple construction featuring stable operation
- Control level easily modified by changing position of displacer.
- Explosion-proof level controllers are also available

TI 029N/08/en/05.10
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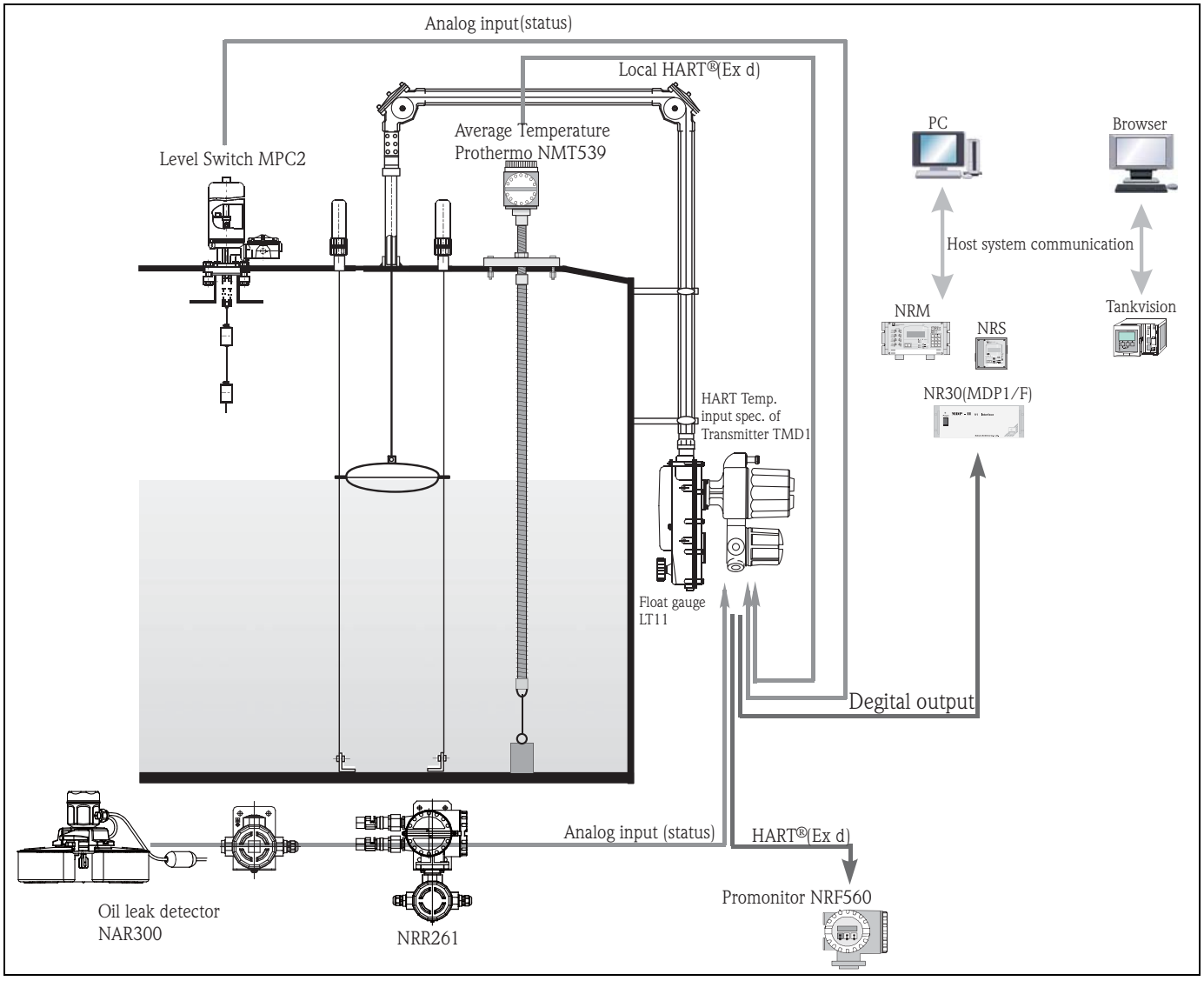
System Integration

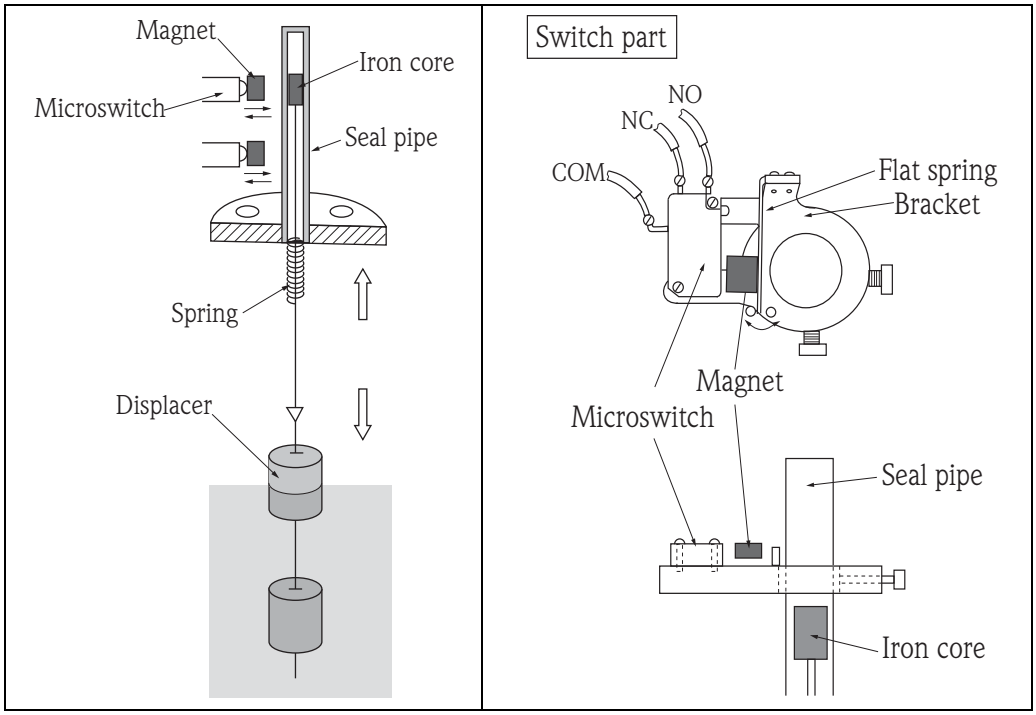


Function and system design

Measuring System

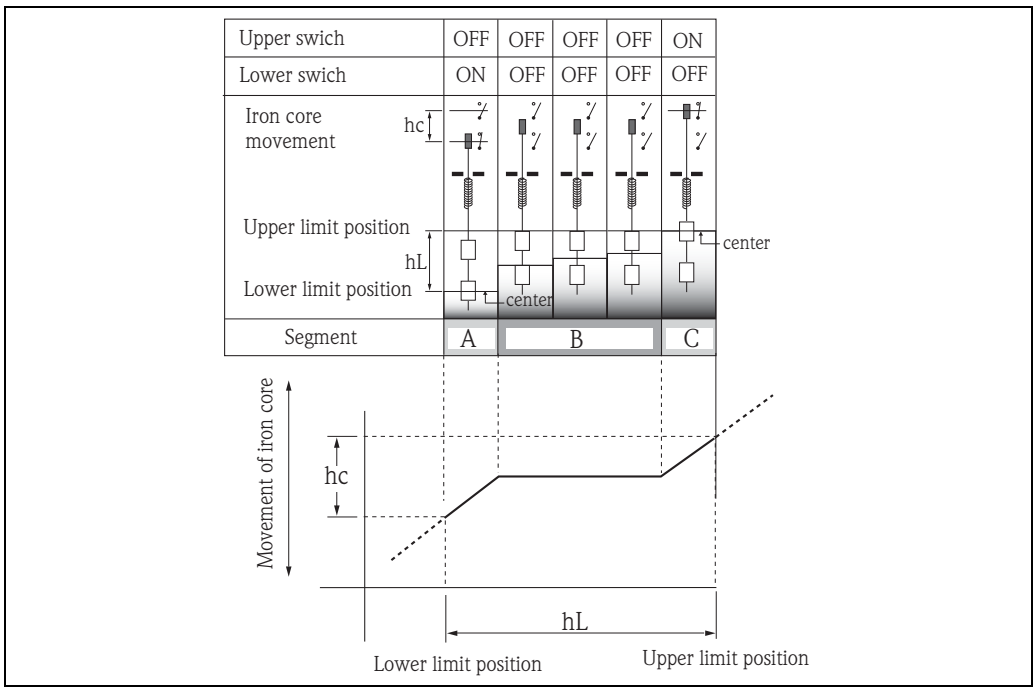
Level fluctuation is detected with a displacer and converted into displacement of an iron core located in the upside seal pipe. The switch consists of a microswitch, flat spring, magnet on bracket and located on the seal pipe. When the iron core reaches preset level in the seal pipe, magnet is attacted and microswich operates. The magnet is a small, powerful, cobalt magnet. 2-point alarm specification has 1 iron core, 2 magnets, 2 micro-switches and works in the same way.

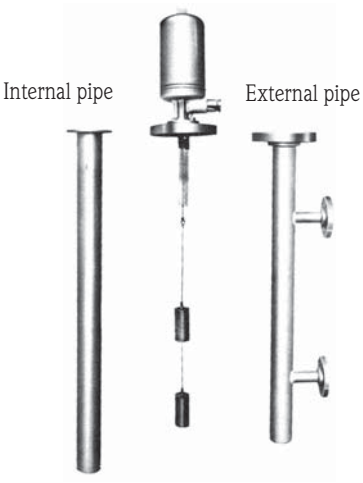
In the high temperature specifications, (up to 250°C) heat-radiation fins are designed so that the temperature in the tank is not transmitted to the microswitch housing (refer to "Dimension": Radiation Fin).

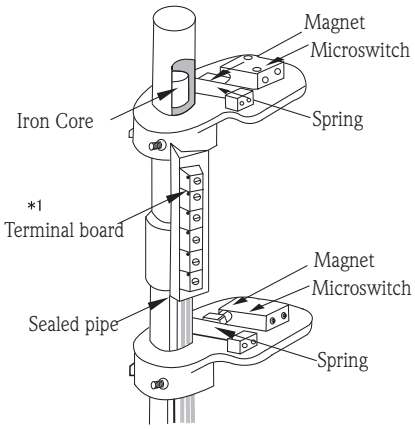


Operation Principle

The microswitch is normally pushed by the flat spring. When the iron core comes close and the magnetic attraction is more powerful than flat spring force, the microswitch turns. Therefore, the upper/lower limit switch is ON when the microswitch is relaxed.



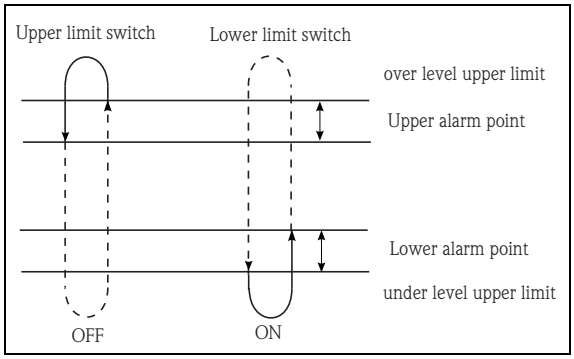




*1) The terminel board is provided for waterproof type (W). A terminal board for explosion proof type (E) is arranged in a terminal box.

Performance characteristics

Accuracy	Without radiation fin : (MPC2- +0++++++++++) 1 and 2 points: better than ±3mm (MPC2- +0++++++++++) 3 and 4 points: better than ±5mm , *at 25°C With radiation Fin : Single fin (MPC2- +2++++++++++) 1 and 2 points:±7mm , 3 and 4 points:±10mm Double fin (MPC2- +1++++++++++) 1 and 2 points:±7mm , 3 and 4 points:±10mm
Maximum allowable working pressure	2.94 Mpa (30kgf/cm^2) * depending on Flange spec.
Allowable temperature	Ambient temperature: -10...60°C, TIIS (not freezing or dewfall condition) Liquid temperature: 0...100°C (Radiation Fin: max. 250°C) Refer to "Instructions for use in high temperature"
Measured liquid temperature	0.65...1.2g/cm^3
Wetted material	Refer to Order info. : 060: Process connection, Top mounted flange, 080: Pipe
Alarm points	1~4 points
Contact capacity	TIIS : max. AC250V, 1050VA max. DC250V, 120VA Allowable contact capacity : max. AC250V, 4.2mA (1~2 points) max.AC250V, 2.8mA (3~4 points) Please contact Endress+Hauser about DC specifications
Hysteresis	Without fins: 1, 2 : better than 7~25mm (in case of density = 1g/cm^3) 3, 4 : better than 7~45mm (in case of density = 1g/cm^3) With fins: 1, 2 : better than 7~40mm (in case of density = 1g/cm^3) 3, 4 : better than 7~40mm (in case of density = 1g/cm^3)



Mounting connection, Top mounted flange

without internal pipe/Internal pipe:

10K 80A RF, SUS304, JIS flange B2220
10K 80A RF, SUS316, JIS flange B2220
20K 80A RF, SUS304, JIS flange B2220
20K 80A RF, SUS316, JIS flange B2220
3" 150Ibs RF,SUS304, ANSI flange B16.5
3" 150Ibs RF,SUS316, ANSI flange B16.5
3" 300Ibs RF,SUS304, ANSI flange B16.5
3" 300Ibs RF,SUS316, ANSI flange B16.5
80A 150lbs RF,SUS304, JPI flange 7S-15
80A 150lbs RF,SUS316, JPI flange 7S-15
80A 300lbs RF,SUS304, JPI flange 7S-15
80A 300lbs RF,SUS316, JPI flange 7S-15

External pipe (side-side installation, side bottom installation):

10K 65A RF, SUS304, JIS flange B2220
10K 65A RF, SUS316, JIS flange B2220
20K 65A RF, SUS304, JIS flange B2220
20K 65A RF, SUS316, JIS flange B2220
2-1/2" 150Ibs RF,SUS304, ANSI flange B16.5
2-1/2" 150Ibs RF,SUS316, ANSI flange B16.5
2-1/2" 300Ibs RF,SUS304, ANSI flange B16.5
2-1/2" 300Ibs RF,SUS316, ANSI flange B16.5
65A 150lbs RF,SUS304, JPI flange 7S-15
65A 150lbs RF,SUS316, JPI flange 7S-15
65A 300lbs RF,SUS304, JPI flange 7S-15
65A 300lbs RF,SUS316, JPI flange 7S-15

Overflow detection

10K 100A RF, SUS304, JIS flange B2220
10K 100A RF, SUS316, JIS flange B2220
4" 150Ibs RF,SUS304, ANSI flange B16.5
4" 150Ibs RF,SUS316, ANSI flange B16.5
100A 150lbs RF,SUS304, JPI flange 7S-15
100A 150lbs RF,SUS304, JPI flange 7S-15

Approval

Flame proof :TIIS d2G4

Protection Class

IP65

Construction

Explosion proof (d2G4)type (E) : PF (G)3/4, PF(G)1, PF(G)1-1/4,
TF16-11, TF22-13, TF22-15, TF28-18
NPT3/4
Water proof type(W): 20 a.b.c (cable connector)

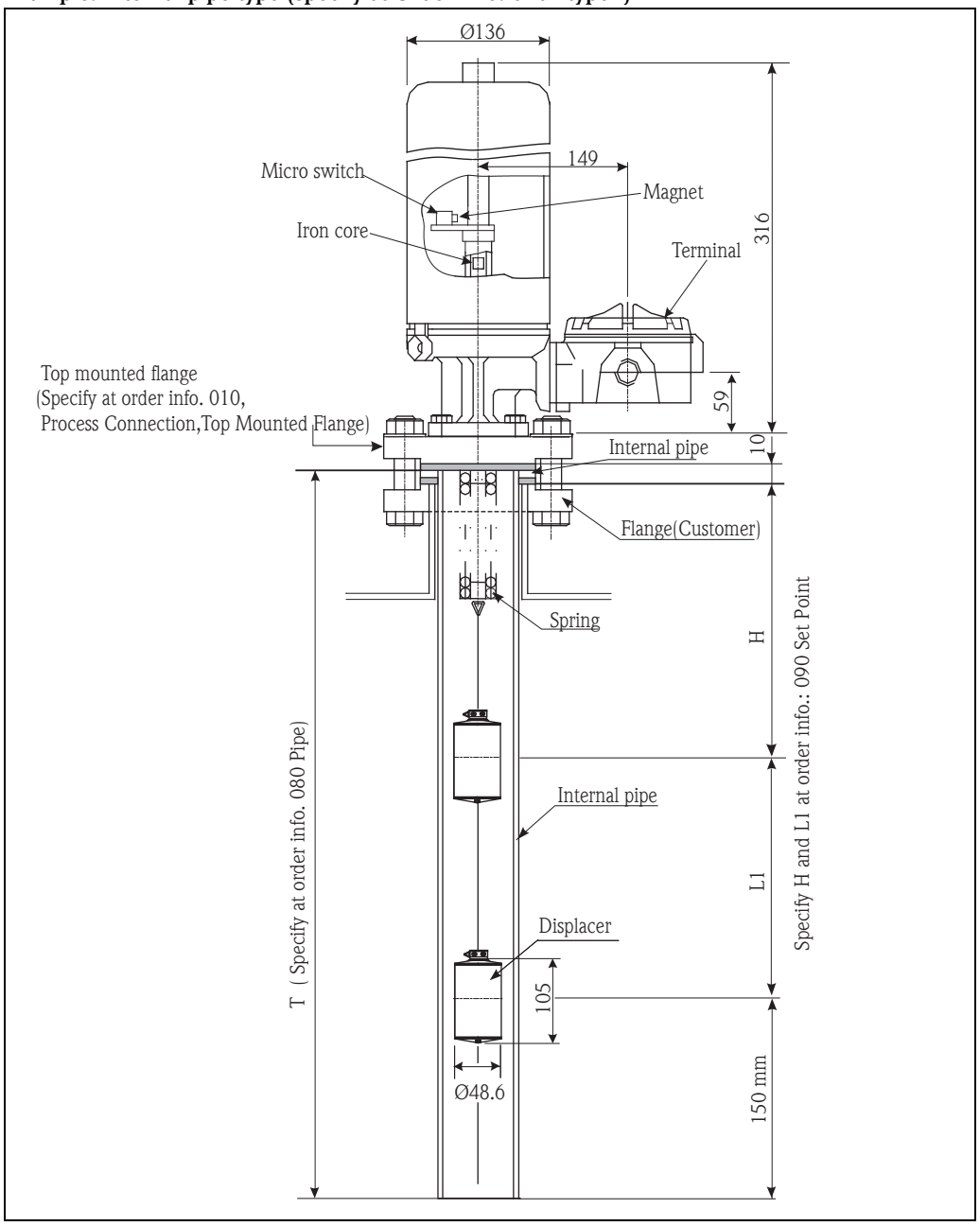
Color

Metallic silver (internal type is not painted)

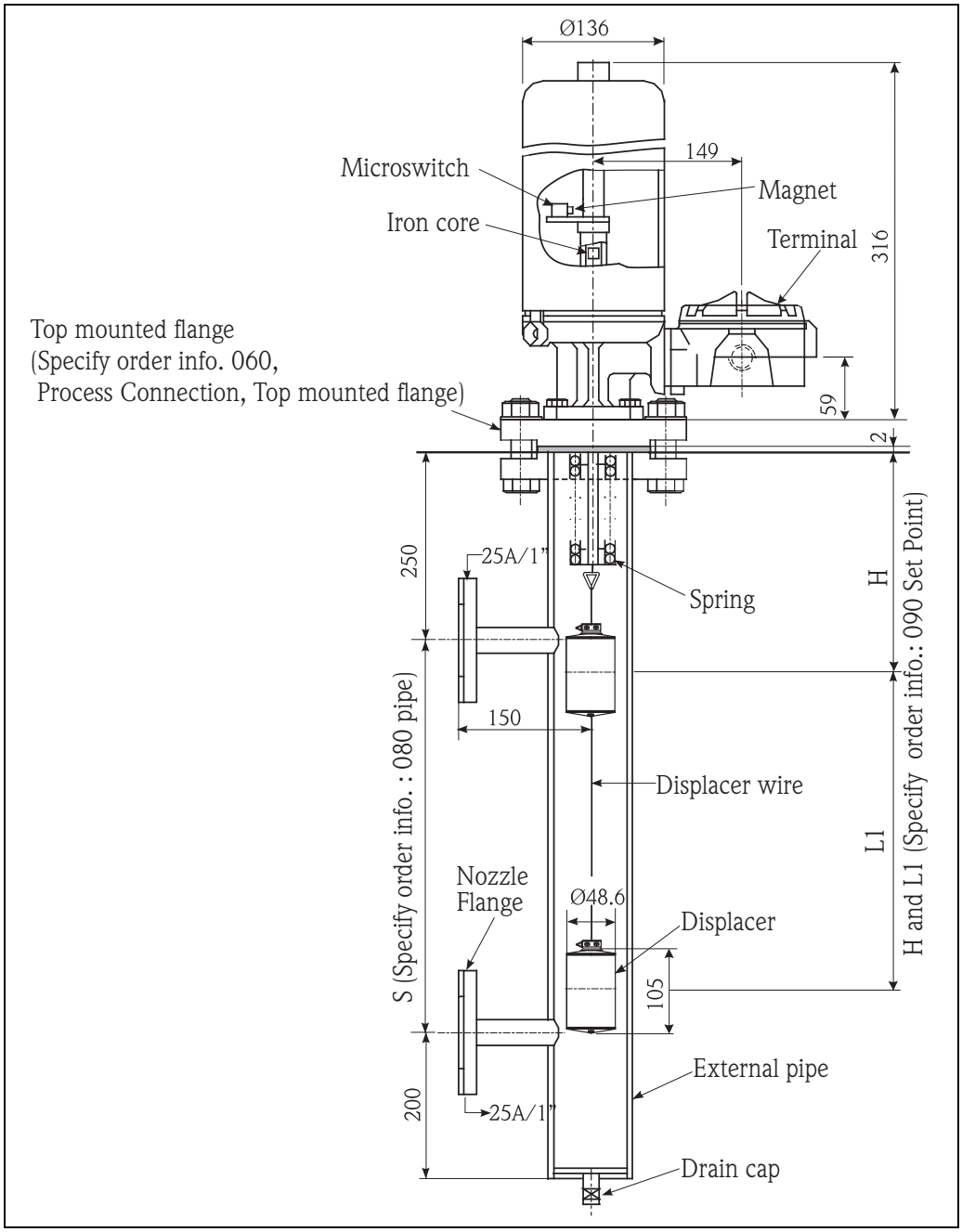
Dimension

Internal pipe type: Internal pipe length max. 4000mm
External pipe type: mounting nozzle interval (specified)
Caution!
Side and bottom flange are 25A/1" equivalent.

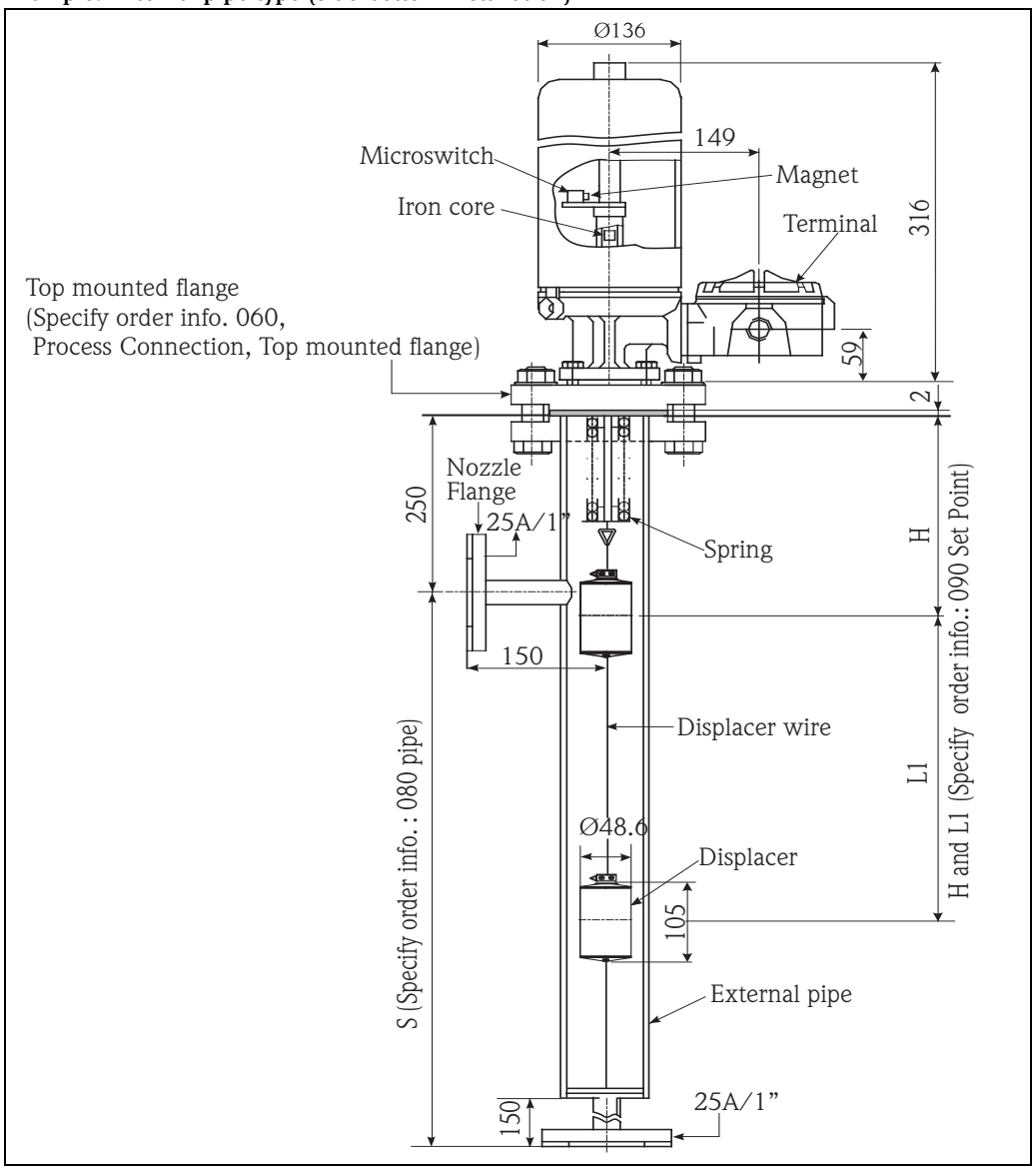
Example: Internal pipe type (specify at Order info. 010 "type")



Example: External pipe type (side-bottom installation)



Example: External pipe type (side-bottom installation)



Instructions for use in high temperature

Radiation Fins are recommended to lower the temperature around the spring as much as possible. Additionally, they allow for temperature-related adjustment of the spring mechanism in high temperature. MPC uses the below spring characteristic by number of switch points.

Switch point	1	2	3	4
Spring coefficient	4g/mm	5g/mm	7g/mm	8g/mm
Temperature characteristic	-0.05% °C			

Spring coefficient at 25 °C :
- 4g: 4 - 4 x (0.05/100) x 25=3.95
- 5g: 5 - 5 x (0.05/100) x 25=4.94
- 7g: 7 - 7 x (0.05/100) x 25=6.91
- 8g: 8 - 8 x (0.05/100) x 25=7.10

Switch position correction .
Because the spring constant decreases due to high temperature, the position of the switch should be adjusted. The temperature characteristic is the same for all springs (-0.05%/°C) and is linear. Correction for temperature is possible when use temperature is limited. When adjusted, accordingly, accuracy in high temperature conditions is : 2 point, ±7mm; 3 or 4 point, ±10mm or better.

Switch point: correction formula for N(N=1~4)

(W-ρ2 x S x (10 (N-1) + 5)) / K2 = (W-ρ1 x S x (10 (N-1) +0.1hy)) / K1 (1)

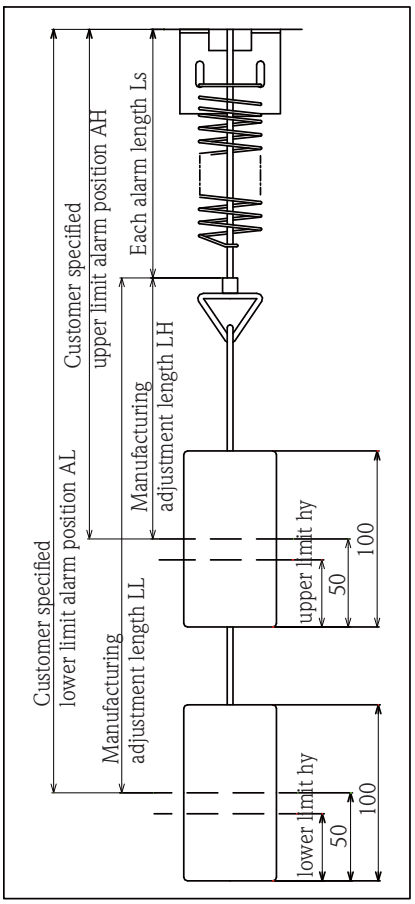
Switch point: 2 characteristic change and correction example of normal temperature

When setting the draft line in operating temperature to the center of displacer, offset hy(mm) at 25°C is the calculated value of the following formula.

Upper level: (W-ρ2 x S x 5) / K2 = (W-ρ1 x S x 0.1hy)) / K1 (2)
Lower level: (W-ρ2 x S x (10+5)) / K2 = (W-ρ1 x S x (10 + 0.1hy)) / K1 (3)

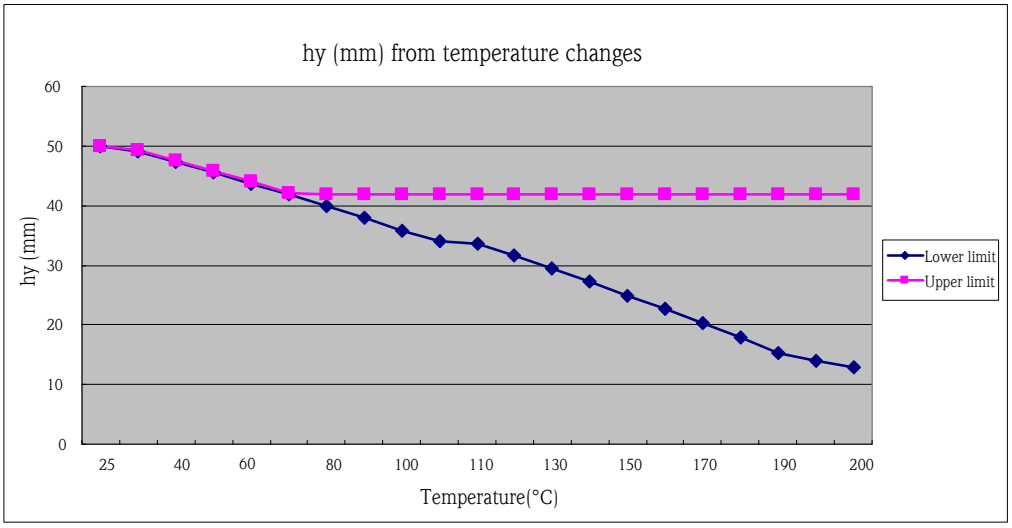
ρ1 : Water density at 25°C, 0.997 (g/cm^3)
K2 : Spring constant in operating temperature (g/mm)
ρ2 : Liquid density (g/cm^3)
W: Weight, 670g
K1: Spring constant 25°C, 4.94 (g/mm)
S: Cross-sectional area of displacer, 18.55cm^2

Table1 gives the hysterisis value hy(mm) according to the use temperature, as derived by the formulas above. However, upper level hy(mm) value is considering the hysteresis (7~40mm).
For the hysteresis max. 40mm is adjusted with margin 5% (42mm).
In lower limit level is according to the actual liquid hysterisis, and is set to 50mm in all cases.
Offsettable value is valid up to approximately 200 °C.



Temperature (°C)	Density (x10-3 g/mm3)	Spring constant (g/mm)	lower limit level (mm)hy	Lower limit hy of actual liquid (mm)	Upper limit level (mm)hy	Upper limit hy of actual liquid (mm)
25	0.997	4.94	50.0	50.0	50.0	50.0
30	0.996	4.93	49.2	50.0	49.3	50.0
40	0.992	4.90	47.4	50.0	47.6	50.0
50	0.988	4.88	45.6	50.0	45.9	50.0
60	0.983	4.85	43.7	50.0	44.0	50.0
70	0.978	4.83	41.8	50.0	42.2	50.0
80	0.972	4.80	39.9	50.0	42.0	51.9
90	0.965	4.78	37.9	50.0	42.0	54.1
100	0.958	4.75	35.8	50.0	42.0	56.4
110	0.951	4.73	33.7	50.0	42.0	58.7
120	0.943	4.71	31.6	50.0	42.0	61.2
130	0.935	4.68	29.4	50.0	42.0	63.8
140	0.926	4.66	27.2	50.0	42.0	66.5
150	0.917	4.63	24.9	50.0	42.0	69.4
160	0.907	4.61	22.6	50.0	42.0	72.4
170	0.897	4.58	20.2	50.0	42.0	75.6
180	0.887	4.56	17.8	50.0	42.0	78.8
190	0.876	4.53	15.3	50.0	42.0	82.3
195	0.870	4.52	14.0	50.0	42.0	84.2
200	0.865	4.51	12.8	50.0	42.0	85.9

Table 1



Graph 1 (factory setting)

Switch point: 1 characteristic change and correction example of normal temperature

W=375
in case of using 4g/mm spring

(W-ρ2 x S x (10 (N-1) + 5)) / K2 = (W-ρ1 x S x (10 (N-1) +0.1hy)) / K1 (N=1)

The following table is hy(mm) value of each temperature derived from the above furmula.
However, upper level hy(mm) value is considering the hysteresis (7~40mm).
For the hysteresis max. 40mm is adjusted with margin 5% (42mm).
In lower limit level is according to the actual liquid hysterisis, and is set to 50mm in all cases.
Offsettable value is valid up to approximately 250 °C.

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	First point hy(mm)
25	0.997	3.95	50.0
30	0.996	3.94	49.2
40	0.992	3.92	48.6
50	0.988	3.90	47.6
60	0.983	3.88	46.5
70	0.978	3.86	45.5
80	0.972	3.84	44.3
90	0.965	3.82	43.1
100	0.958	3.80	41.9
110	0.951	3.78	40.7
120	0.943	3.76	39.4
130	0.935	3.74	38.1
140	0.926	3.72	36.8
150	0.917	3.70	35.4
160	0.910	3.68	34.1
170	0.901	3.66	32.7
180	0.893	3.64	31.3
190	0.885	3.62	29.9
200	0.877	3.60	28.5
210	0.868	3.58	27.1
220	0.860	3.56	25.7
230	0.852	3.54	24.2
240	0.844	3.52	22.7
250	0.835	3.50	21.2

Table 2

Switch point: 3 characteristic change and correction example of normal temperature

W=670 + 295
295g: weight of one displacer

in case of using 7g/mm spring
$(W-\rho 2 \times S \times (10 (N-1) + 5)) / K2 = (W-\rho 1 \times S \times (10 (N-1) +0.1hy)) / K1$

The tables 3 to 5 give hy(mm) value of each temperature derived from the above furmula.
However, upper level hy(mm) value is considering the hysteresis (7~40mm).
For the hysteresis max. 40mm is adjusted with margin 5% (42mm).
In lower limit level is according to the actual liquid hysterisis, and is set to 50mm in all cases.
Offsettable value is valid up to approximately 150°C.

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	First point
25	0.997	6.91	50.0
30	0.996	6.90	49.0
40	0.992	6.86	46.4
50	0.988	6.83	43.8
60	0.983	6.79	41.2
70	0.978	6.76	38.5
80	0.972	6.72	35.8
90	0.965	6.69	32.9
100	0.958	6.65	30.1
110	0.951	6.62	27.2
120	0.943	6.58	24.2
130	0.935	6.55	21.2
140	0.926	6.51	18.1
150	0.917	6.48	14.9

Table 3

Temperature (°C)	Density (x10-3 g/mm3)	Spring constant (g/mm)	Lower limit hy of actual liquid	Secound point level (mm)hy	Upper limit level (mm)hy
25	0.997	6.91	50.0	50.0	50.0
30	0.996	6.90	50.0	49.1	50.0
40	0.992	6.86	50.0	46.6	50.0
50	0.988	6.83	50.0	44.2	50.0
60	0.983	6.79	50.0	42.0	50.5
70	0.978	6.76	50.0	42.0	53.1
80	0.972	6.72	50.0	42.0	56.1
90	0.965	6.69	50.0	42.0	59.1
100	0.958	6.65	50.0	42.0	62.1
110	0.951	6.62	50.0	42.0	65.2
120	0.943	6.58	50.0	42.0	68.5
130	0.935	6.55	50.0	42.0	71.8
140	0.926	6.51	50.0	42.0	75.4
150	0.917	6.48	50.0	42.0	78.9

Table 4

Temperature (°C)	Density (x10-3 g/mm3)	Spring constant (g/mm)	Lower limit hy of actual liquid	Third point level (mm)hy	Upper limit level (mm)hy
25	0.997	6.91	50.0	50.0	50.0
30	0.996	6.90	50.0	49.1	50.0
40	0.992	6.86	50.0	46.6	50.0
50	0.988	6.83	50.0	44.2	50.0
60	0.983	6.79	50.0	42.0	50.1
70	0.978	6.76	50.0	42.0	52.8
80	0.972	6.72	50.0	42.0	55.7
90	0.965	6.69	50.0	42.0	59.0
100	0.958	6.65	50.0	42.0	62.3
110	0.951	6.62	50.0	42.0	65.6
120	0.943	6.58	50.0	42.0	69.2
130	0.935	6.55	50.0	42.0	72.8
140	0.926	6.51	50.0	42.0	76.8
150	0.917	6.48	50.0	42.0	80.8

Table 5

Switch point: 4 characteristic change and correction example of normal temperature

W=670 + 590
590g: weight of two displacers

in case of using 8g/mm spring
(W-ρ2 x S x (10 (N-1) + 5)) / K2 = (W-ρ1 x S x (10 (N-1) +0.1hy)) / K1 (1)

The following table 6 to 7 is hy(mm) value of each temperature derived from the above furmula.However, upper level hy(mm) value is considering the hysteresis (7~40mm).
For the hysteresis max. 40mm is adjusted with margin 5% (42mm).
In lower limit level is according to the actual liquid hysterisis, and is set to 50mm in all cases.
Offsettable value is valid up to approximately 130 °C.

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	First point
25	0.997	7.90	50.0
30	0.996	7.88	48.8
40	0.992	7.84	46.2
50	0.988	7.80	43.7
60	0.983	7.76	41.3
70	0.978	7.72	38.3
80	0.972	7.68	35.6
90	0.965	7.64	32.7
100	0.958	7.60	29.9
110	0.951	7.56	27.0
120	0.943	7.52	24.0
130	0.935	7.48	21.0
140	0.926	7.44	17.9
150	0.917	7.40	14.8

Table 6

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	Lower limit hy of actual liquid	Secound point level (mm)hy	Upper limit level (mm)hy
25	0.997	7.90	50.0	50.0	50.0
30	0.996	7.88	50.0	49.1	50.0
40	0.992	7.84	50.0	46.6	50.0
50	0.988	7.80	50.0	44.2	50.0
60	0.983	7.76	50.0	42.0	50.6
70	0.978	7.72	50.0	42.0	53.3
80	0.972	7.68	50.0	42.0	56.1
90	0.965	7.64	50.0	42.0	59.2
100	0.958	7.60	50.0	42.0	62.2
110	0.951	7.56	50.0	42.0	65.3
120	0.943	7.52	50.0	42.0	68.6
130	0.935	7.48	50.0	42.0	72.0
140	0.926	7.44	50.0	42.0	75.5
150	0.917	7.40	50.0	42.0	79.1

Table 7

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	Lower limit hy of actual liquid	Third point level (mm)hy	Upper limit level (mm)hy
25	0.997	7.90	50.0	50.0	50.0
30	0.996	7.88	50.0	49.1	50.0
40	0.992	7.84	50.0	46.6	50.0
50	0.988	7.80	50.0	44.2	50.0
60	0.983	7.76	50.0	42.0	50.2
70	0.978	7.72	50.0	42.0	52.9
80	0.972	7.68	50.0	42.0	55.8
90	0.965	7.64	50.0	42.0	59.1
100	0.958	7.60	50.0	42.0	62.4
110	0.951	7.56	50.0	42.0	65.7
120	0.943	7.52	50.0	42.0	69.3
130	0.935	7.48	50.0	42.0	72.9
140	0.926	7.44	50.0	42.0	76.9
150	0.917	7.40	50.0	42.0	80.9

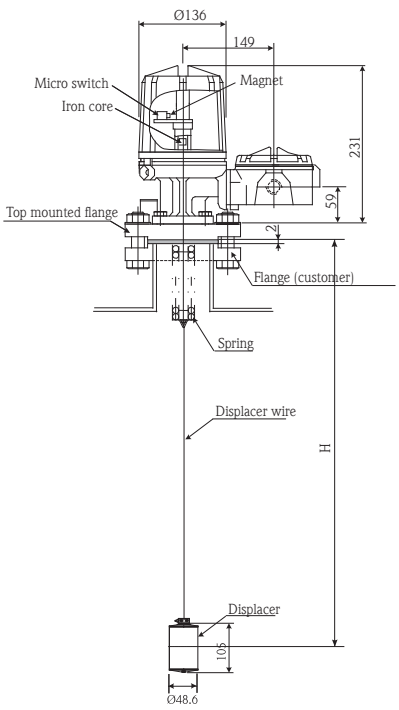
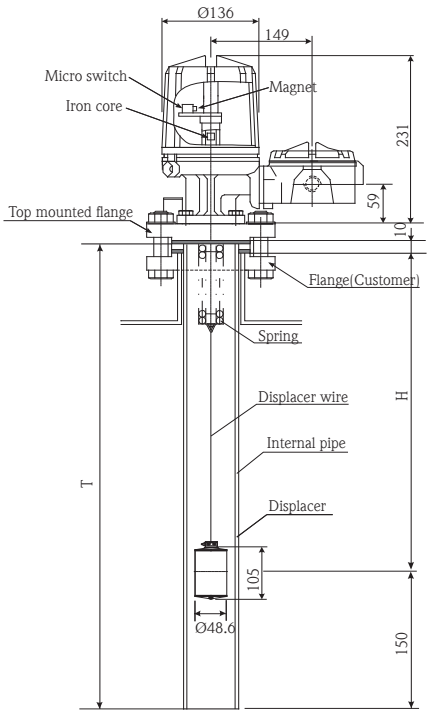
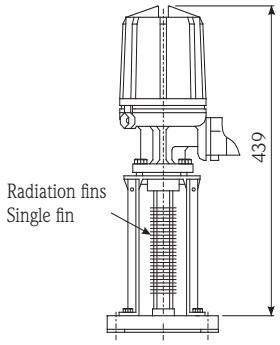
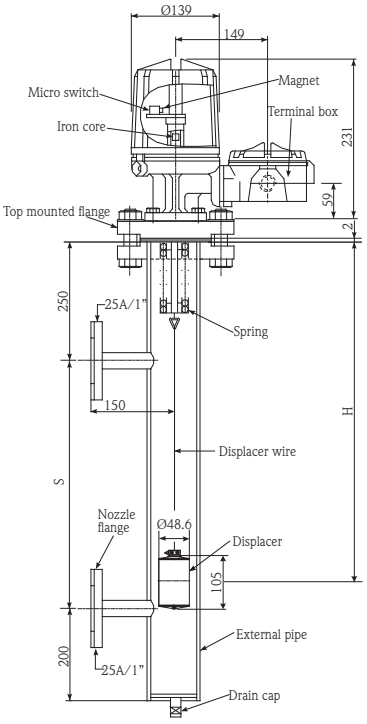
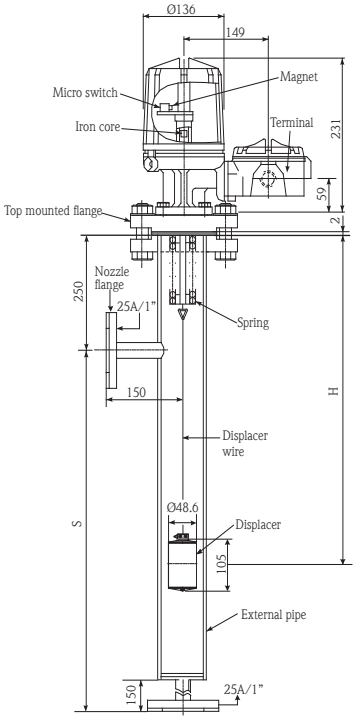
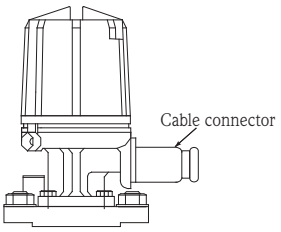
Table 8

Temperature (°C)	Density (x10^{-3} g/mm^3)	Spring constant (g/mm)	Lower limit hy of actual liquid	Fourth point level (mm)hy	Upper limit level (mm)hy
25	0.997	7.90	50.0	50.0	50.0
30	0.996	7.88	50.0	49.1	50.0
40	0.992	7.84	50.0	46.6	50.0
50	0.988	7.80	50.0	44.2	50.0
60	0.983	7.76	50.0	42.0	50.2
70	0.978	7.72	50.0	42.0	52.5
80	0.972	7.68	50.0	42.0	55.6
90	0.965	7.64	50.0	42.0	59.0
100	0.958	7.60	50.0	42.0	62.5
110	0.951	7.56	50.0	42.0	66.0
120	0.943	7.52	50.0	42.0	69.9
130	0.935	7.48	50.0	42.0	73.9
140	0.926	7.44	50.0	42.0	78.3
150	0.917	7.40	50.0	42.0	82.7

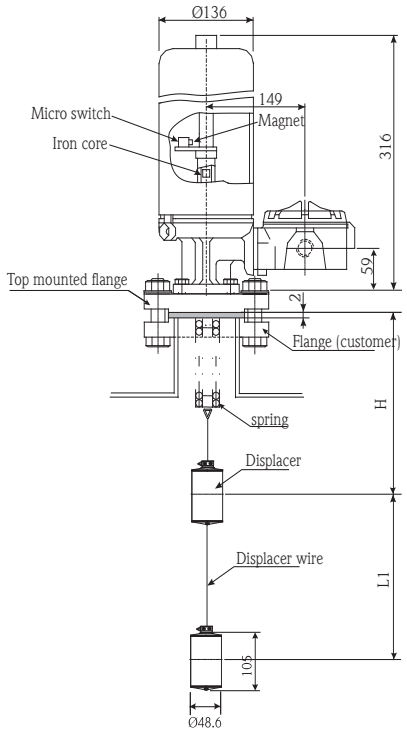
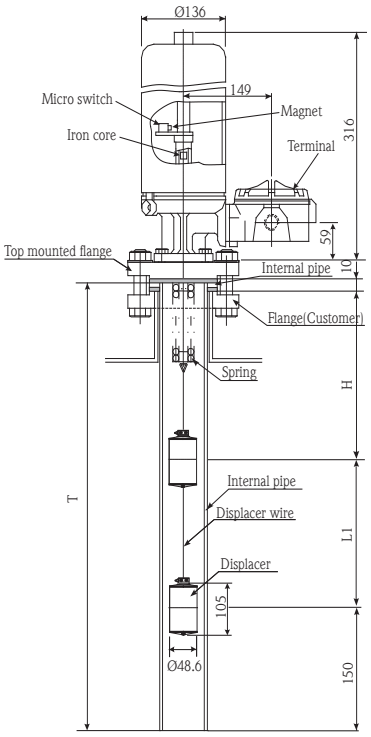
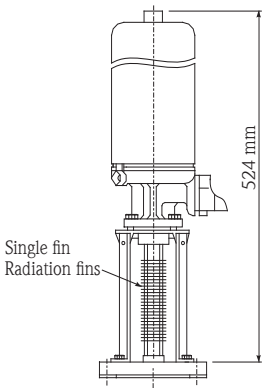
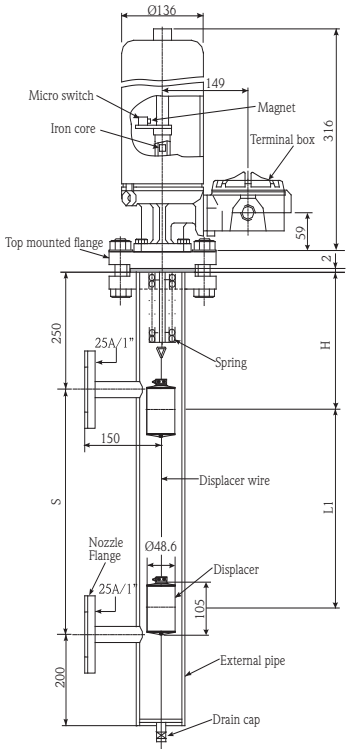
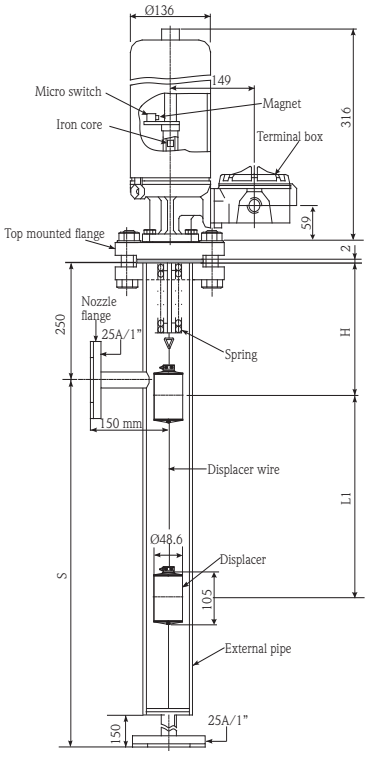
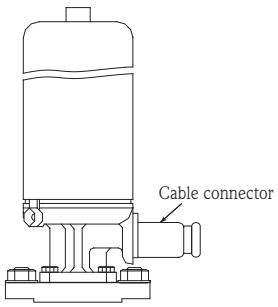
Table 9

Dimension

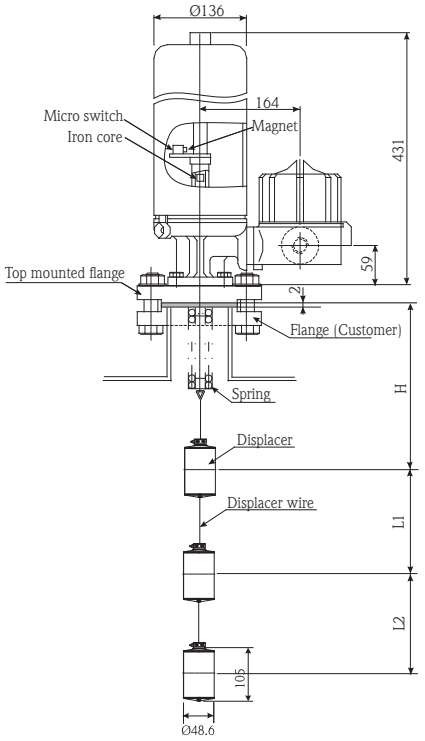
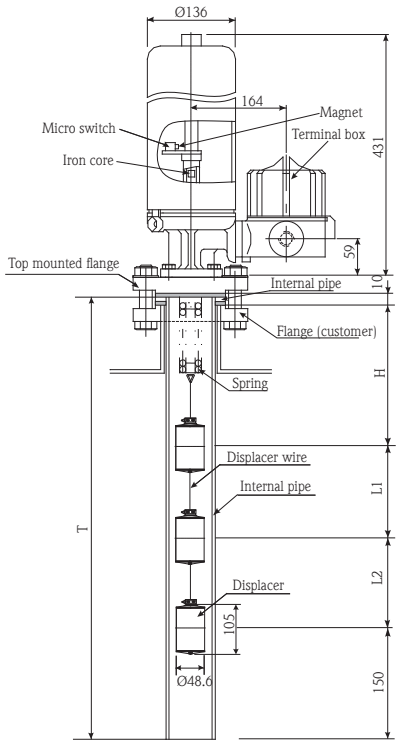
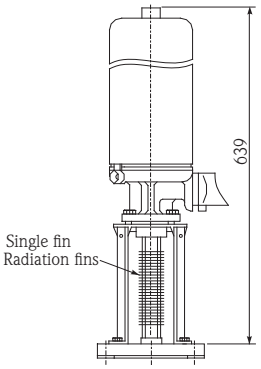
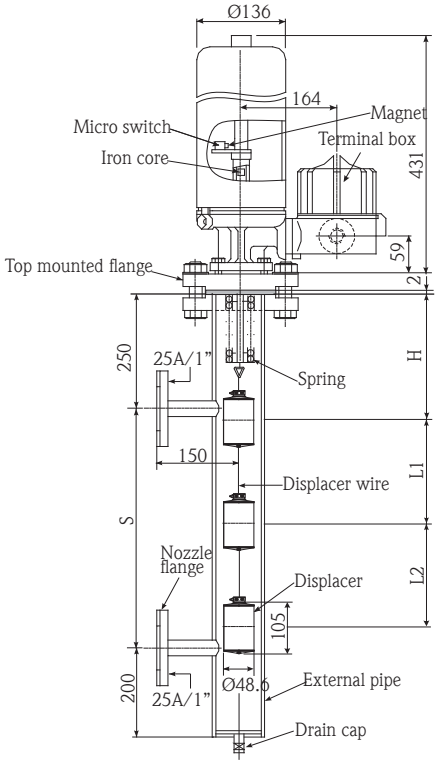
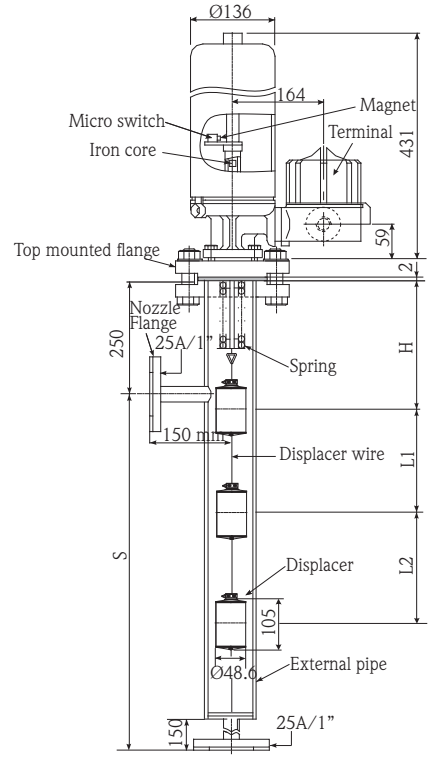
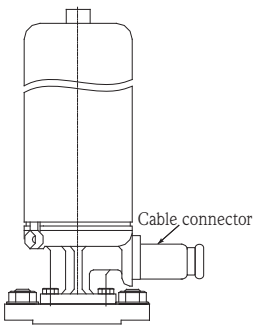
Swich point : 1

Without guide pipe	Internal pipe type tank top mounting	Radiation Fins
MPC20 □□ E	**MPC21 □□ E**	
		
External pipe type side -side mounting	**External pipe type side-bottom mounting**	**Water proof type**
MPC22 □□ E	**MPC23 □□ E**	
		

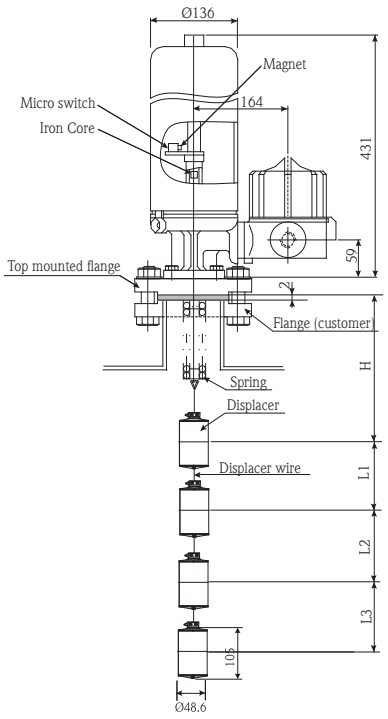
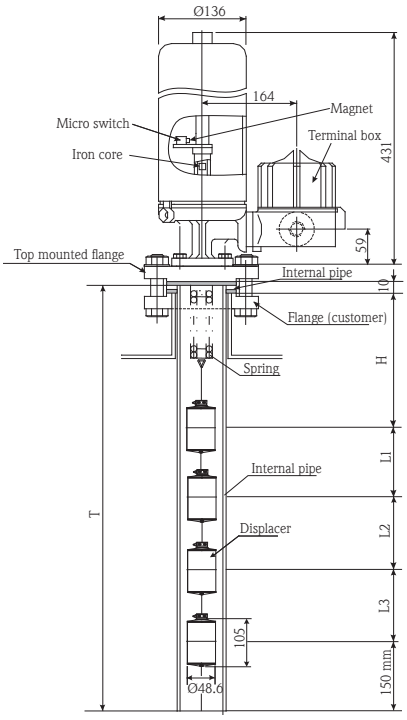
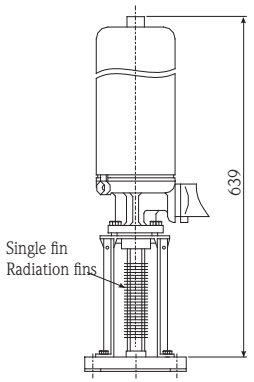
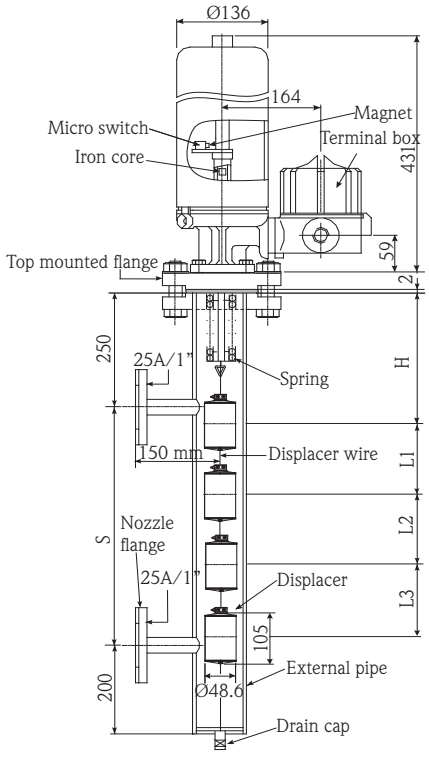
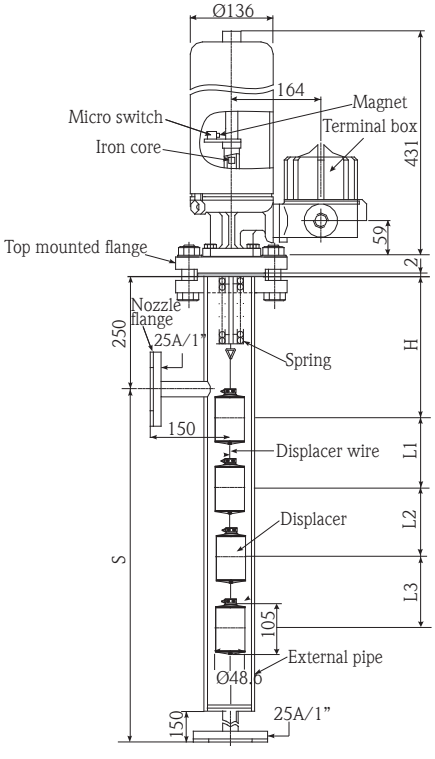
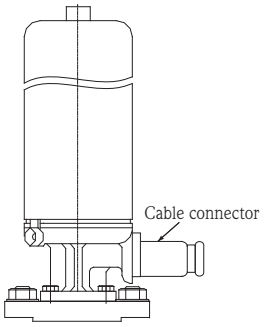
Swich point : 2

Without guide pipe	Internal pipe type tank top mounting	Radiation Fins
MPC20 □□ E	**MPC21 □□ E**	
		
External pipe type side -side mounting	**External pipe type side-bottom mounting**	**Water proof type**
MPC22 □□ E	**MPC23 □□ E**	
		

Swich point : 3

Without guide pipe	Internal pipe type tank top mounting	Radiation Fins
MPC20 □□ E	**MPC21 □□ E**	
		
External pipe type side -side mounting	**External pipe type side-bottom mounting**	**Water proof type**
MPC22 □□ E	**MPC23 □□ E**	
		

Switch point : 4

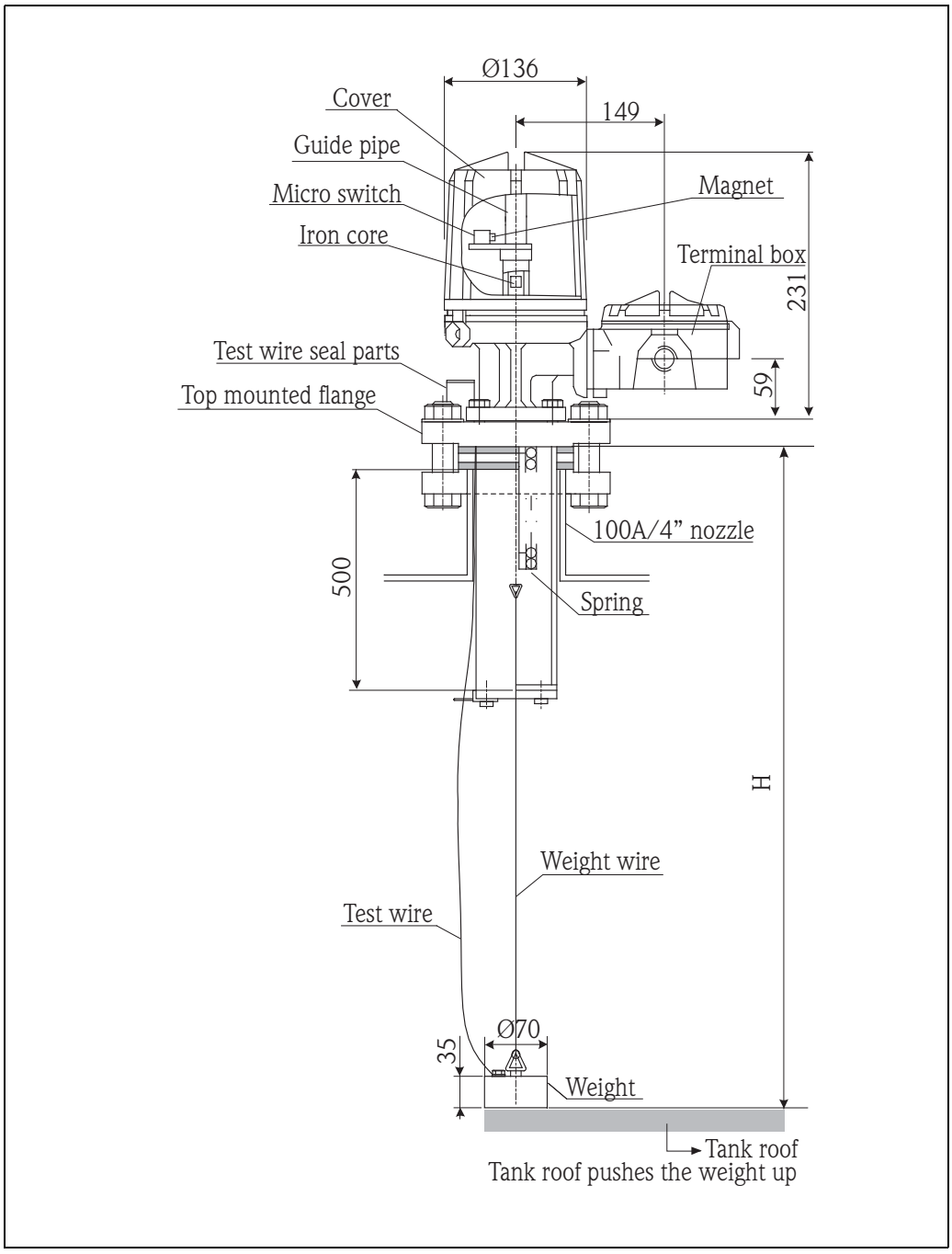
Without guide pipe	Internal pipe type tank top mounting	Radiation Fins
MPC20 □□ E	**MPC21 □□ E**	
		
External pipe type side -side mounting	**External pipe type side-bottom mounting**	**Water proof type**
MPC22 □□ E	**MPC23 □□ E**	
		

Overflow alarm

There are two specifications: displacer for CRT and weight type for FRT.
When displacer or weight reach set position, alarm signal is output to warn of overflow.
The operation and performance are same as 1 switch point type MPC. When liquid reaches the upper limit point, displacer rises and triggers alarm. MPC2 also has a checking function. By pulling the test wire and raising the displacer manually to the high limit point, an alarm can be simulated.

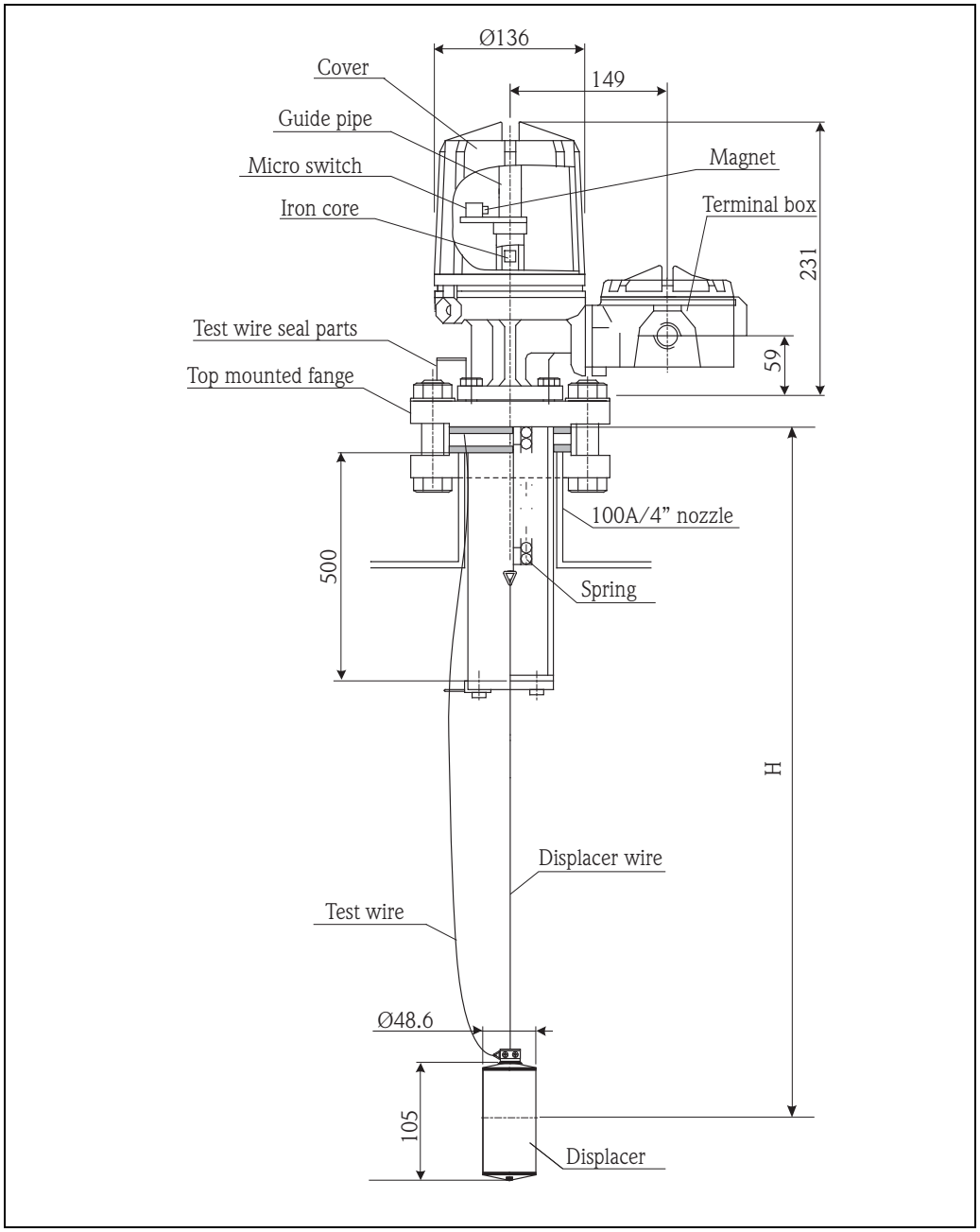
Floating roof tank (FRT)

Weight type: (order code: 030 "Switch Count"...5; 1xFRT overflow detection)



Cone-roof tank (CRT)

Displacer type (order info. 030 "Switch Count"....6; 1xCRT overflow detection)



Approved type

MPC2- a b c d

a ↑ External Design
- 0 Without guide pipe
- 1 Internal pipe type
- 2 Outer pipe type (side-side)
- 3 Outer pipe type (side-bottom)

b ↑ Radiation Fins
- 0 Without fin
- 1 With fin (single fin, double fin)

c ↑ Switching Point
- 1 1 x Level
  1 x FRT orverflow detection
  1 xCRT orverflow detection
- 2 2 x Level
- 3 3 x Level
- 4 4 x Level

d ↑ Cable entry
- E PF(G)3/4
- EB With cable connector (TF16-11/TF22-13/ TF22-15/TF28-18)

Ordering Information

MPC2

010	**Type:**	
	0	Not selected
	1	Internal pipe
	2	External pipe (side-side inst. 25A/1")
	3	External pipe (side-bottom inst. 25A/1")

020	**Heat Radiation:**	
	0	w/o fin, max. 100°C
	1	Double fin max. 250°C
	2	Single fin max. 150°C

030	**Switch count:**	
	1	1 x Level
	2	2 x Level
	3	3 x Level
	4	4 x Level
	5	1 x FRT Overflow detection
	6	1 x CRT Overflow detection

040	**Approval:**	
	B	Flame proof d2G4, TIIS + cable gland
	E	Flame proof d2G4, TIIS
	W	Weather proof IP65
	X	Weather proof IP65 + cable connector
	9	Special version, TSP-no. to be spec.

050	**Funcion:**	
	0	Basic version
	9	Special version, TSP-no. to be spec.

060	**Process Connection, Top Mounted Flange:**	
	3	10K 65A RF, SUS304, JIS flange B2220
	4	10K 65A RF, SUS316, JIS flange B2220
	1	10K 80A RF, SUS304, JIS flange B2220
	2	10K 80A RF, SUS316, JIS flange B2220
	S	10K 100A RF, SUS304, JIS flange B2220
	T	10K 100A RF, SUS316, JIS flange B2220
	7	20K 65A RF, SUS304, JIS flange B2220
	8	20K 65A RF, SUS316, JIS flange B2220
	5	20K 80A RF, SUS304, JIS flange B2220
	6	20K 80A RF, SUS316, JIS flange B2220
	C	2-1/2"150lbs RF, SUS304, ANSI flange B16.5
	D	2-1/2"150lbs RF, SUS316, ANSI flange B16.5
	G	2-1/2"300lbs RF, SUS304, ANSI flange B16.5
	H	2-1/2"300lbs RF, SUS316, ANSI flange B16.5
	A	3" 150lbs RF, SUS304, ANSI flange B16.5
	B	3" 150lbs RF, SUS316, ANSI flange B16.5
	E	3" 300lbs RF, SUS304, ANSI flange B16.5
	F	3" 300lbs RF, SUS316, ANSI flange B16.5
	U	4" 150lbs RF, SUS304, ANSI flange B16.5
	V	4" 150lbs RF, SUS316, ANSI flange B16.5
	L	65A 150lbs RF, SUS304, JPI flange 7S-15
	M	65A 150lbs RF, SUS316, JPI flange 7S-15
	Q	65A 300lbs RF, SUS304, JPI flange 7S-15
	R	65A 300lbs RF, SUS316,JPI flange 7S-15
	J	80A 150lbs RF, SUS304, JPI flange 7S-15
	K	80A 150lbs RF, SUS316, JPI flange 7S-15
	N	80A 300lbs RF, SUS304, JPI flange 7S-15
	P	80A 300lbs RF, SUS316, JPI flange 7S-15
	W	100A 150lbs RF, SUS304, JPI flange 7S-15
	X	100A 150lbs RF, SUS316, JPI flange 7S-15
	9	Special version, TSP-no. to be spec.

MPC2-	Product designation (part 1)

070	**Switch Position:**	
	0	Lower
	1	Lower + upper
	2	Upper
080	**Pipe:**	
	0	Not selected
	1	.....mm T, internal pipe, SGP/SS
	2	.....mm T, internal pipe, SUS304
	3	.....mm T, internal pipe, SUS316
	4	.....mm S, external pipe, STPG/SS, S25C
	5	.....mm S, external pipe, SUS304
	6	.....mm S, external pipe, SUS316
	9	Special version, TSP-no. to be spec.
090	**Set Point:**	
	A	mm H, flange-SW1(300-3850mm)
	B	mm H mmL1 H=flange-SW1 L1=SW1-SW2
	C	mm H mmL1 mmL2, H=flange-SW1 L1=SW1-SW2 L2=SW2-SW3
	D	mm H mmL1 mmL2 mmL3, H=flange-SW1 L1=SW1-SW2 L2=SW2-SW3,L3= SW3-SW4
	Y	Special version, TSP-no. to be spec.
100	**Cable Entry:**	
	0	Thread PF(G)3/4
	1	Thread PF(G)3/4, TF16-11
	2	Thread PF(G)1, TF22-13
	3	Thread PF(G)1, TF22-15
	4	Thread PF(G)1- 1/4, TF28-18
	5	Thread NPT3/4
	9	Special version, TSP-no. to be spec.
110	**Density Range:**	
	0	Not selected, no displacer
	3	0.65 - 1.2g/cm^3, see additional spec.
	9	Special version, TSP-no. to be spec.
120	**Colour:**	
	0	Silver
	9	Special version, TSP-no. to be spec.
MPC2-		Complete product designation

Note!
Order Info. 070 "Switch position"
When alarm point is 3 or 4 points and select "1: lower +upper", if you do not specify, we set the following specification.
- 3 points : 2 upper limit, 1 lower limit
- 4 points : 2 upper limit, 2 lower limit

Order Info. 090 "Set point"
- Without internal pipe/external pipe, overflow alarm
  – Please specify a setting length from top mounted flange bottom.
- with internal pipe
  – with lenght of internal pipe plate + attached gasket + mounting gasket (6+2+2mm) in mind, please specify a setting length from top mounted flange bottom.
- with external pipe
  – with length of mounting gasket (2mm) in mind, please specify a setting length from top mounted flange bottom.
- minimum setting length
  – 1 point length (H) is more than 300mm. Please specify alarm interval with more than 150mm.

Certificates and Approvals

Ex approvals

TIIS:
d2G4

Supplementary Documentation

Operating Instructions

BA 1014N
Operating Instructions
Magnet Level switch MPC2000 MPC2

Japan

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