

Liquid Levels — Monitoring and Controlling Transmitters of the series XM-36000E (XT-36000E) Transmitters of the series XM-140000E (XT-140000E) in low magnetic stray field configuration

Data Sheet No. 3

Gems Transmitters of the series XM-36000E/ XM-140000E are on account of their rugged design especially suited for tanks in commercial and military shipbuilding (shock and vibration resistant) as well as for industrial tanks containing rapidly moving high viscosity liquids, e. g. as caused by high powered stirring machines.

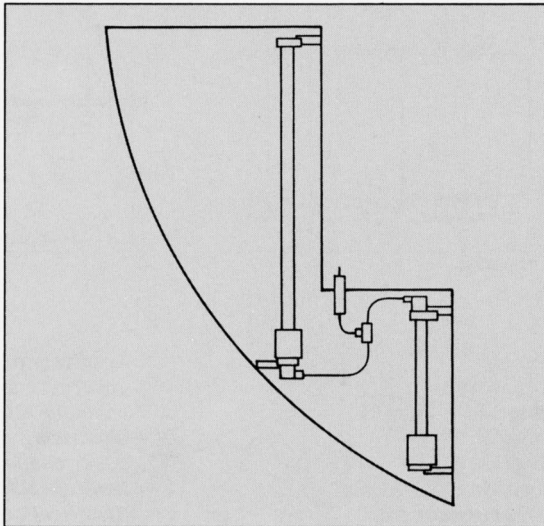
If there is insufficient space available in irregularly shaped tanks (e. g. submarines) it is also possible to connect several individual transmitters to one combined transmitter (see description right).

Main difference to Series XM-36000E: Resolution appr. 2.5 x better (5 mm instead of 12.7 mm) Especially for military application: low magnetic stray field due to the configuration of the magnets inside the floats.

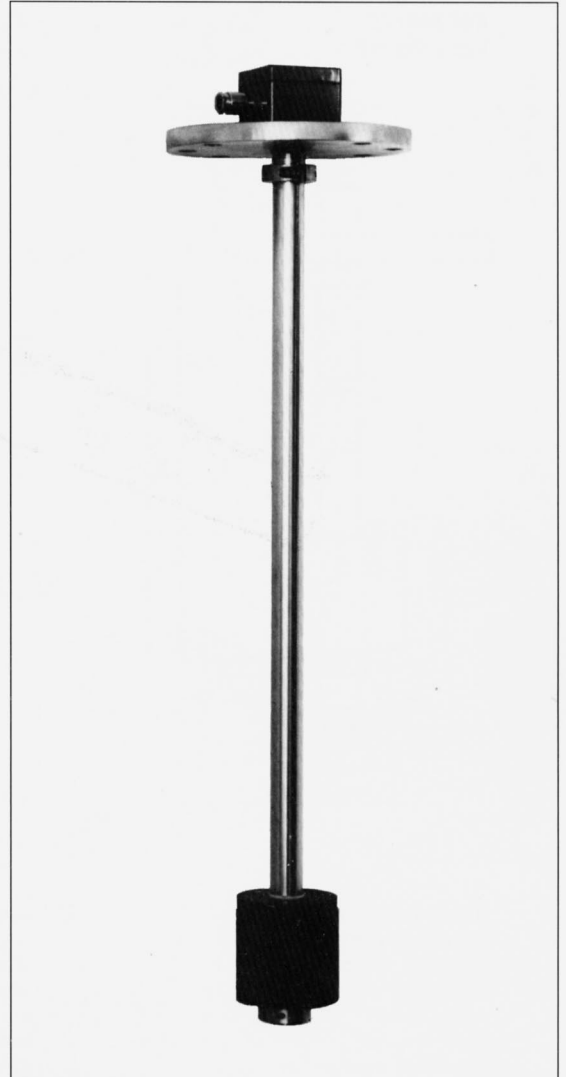
Application ranges:
mostly shipbuilding and off-shore and industrial applications

Resolution: 12.7 ± 6 mm
Resolution: 5 ± 2 mm

Max. mounting length:
Shipbuilding: up to 1.5 m per individual transmitter (dependant on approval)
Industry: up to 5 m per individual transmitter

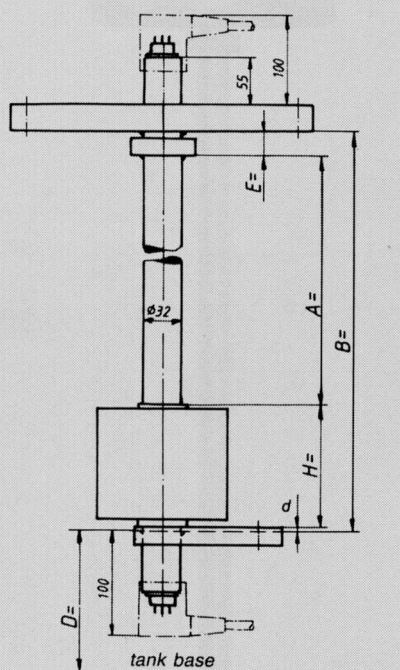


The magnet equipped float actuates the reed switches contained in the transmitter according to the liquid level. The sensor works according to the principle of an autotransformer. Output signals are proportional to float displacement.



Such signals can be processed to drive analog or digital displays, give optical or acoustical alarms, or be fed into computers.

XM-36475E
XM-140075E



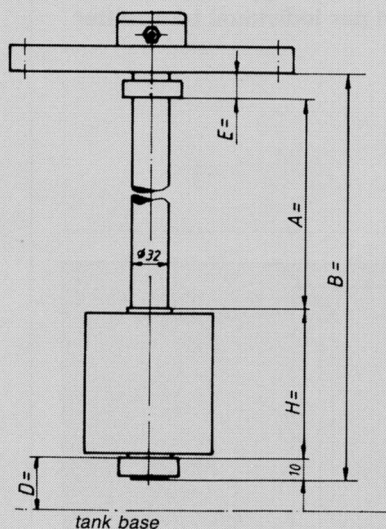
Application:
uppermost sensor of
multi-unit stations

Mounting:
upper flange
lower bracket*

Electrical connection:
upper & lower plug

Dimensions:** D/min = 130 mm
E/min = 25 mm

XM-36490E (XT-36490E)
XM-140090E (XT-140090E)



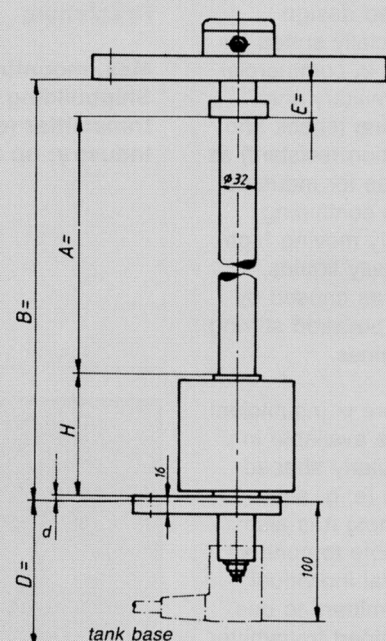
Application:
single transmitter

Mounting:
upper flange
lower bracket or
bottom support*

Electrical connection:
terminal box

Dimensions:** D/min = 30 mm
E/min = 25 mm

XM-36492E (XT-36492E)
XM-140092E (XT-140092E)



Application:
uppermost sensor of
multi-unit stations

Mounting:
upper flange
lower bracket*

Electrical connection:
terminal box/plug

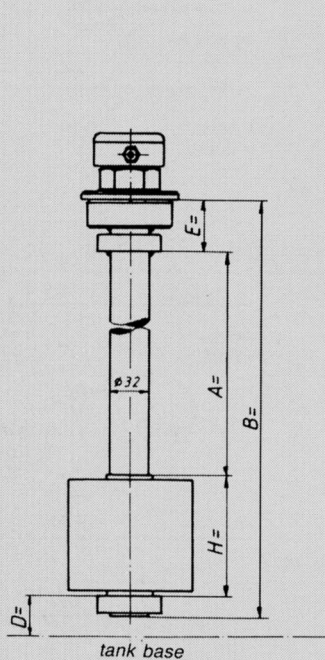
Dimensions:** D/min = 130 mm
E/min = 25 mm

* Also available without support depending on dimension B and the required regulations (shipbuilding, off-shore) or the viscosity and movement of the medium (industry).

** A = float displacement, B = mounting dimension, H = float height (dimensions are defined by Imo Industries according to tank drawings and client-specific requirements).

Overview Transmitters

XM-36425E (XT-36425E)
XM-140025E (XT-140025E)



Application:

single transmitter

Mounting:

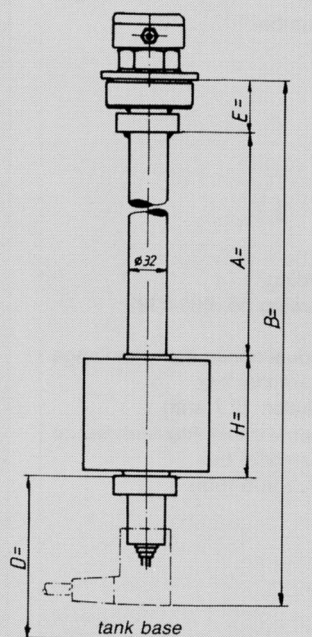
upper tank screw
lower bracket or bottom support*

Electrical connection:

terminal box

Dimensions:** D/min = 30 mm
E/min = 40 mm

XM-36428E (XT-36428E)
XM-140028E (XT-140028E)



Application:

uppermost sensor of
multi-unit stations

Mounting:

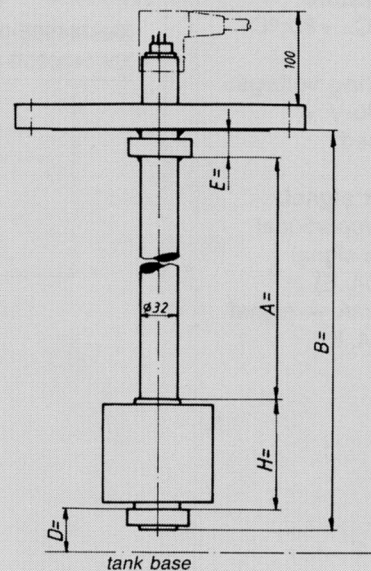
upper tank screw
lower bracket*

Electrical connection:

terminal box/plug

Dimensions:** D/min = 130 mm
E/min = 40 mm

XM-36470E
XM-140070E



Application:

single transmitter

Mounting:

upper flange
lower bracket or
bottom support*

Electrical connection:

plug

Dimensions:** D/min = 30 mm
E/min = 25 mm

* Also available without support depending on dimension B and the required regulations (shipbuilding, off-shore) or the viscosity and movement of the medium (industry).

** A = float displacement, B = mounting dimension, H = float height (dimensions are defined by Imo Industries according to tank drawings and client-specific requirements).

Technical Data Transmitter

Material:
Mounting
elements: 1.4571
Stem: 1.4571
Float
stops: 1.4571

**Operating
temperature:**
-20 °C...+80 °C

Operating voltage:
max. 30 V =
stabilised

Output signal:
level-proportional
voltage signal
(XM-364..E)
4...20 mA — signal
(XT-364..E)

Type

XM-364..E-....

drawing number

type number

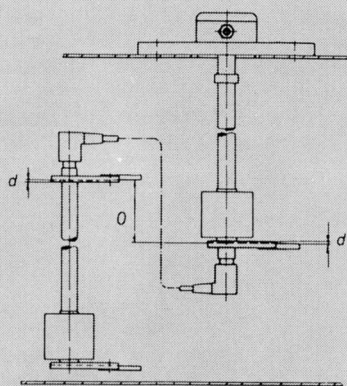
Typical example

XM-36490E-0329

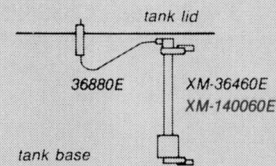
XM-140090E-0329

according
to drawing no. 030-0329

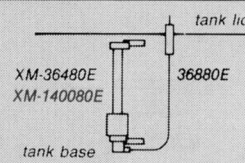
individual transmitter with flange
and terminal box
(resolution 12.7 mm)
individual transmitter with flange
and terminal box
(resolution 5 mm)



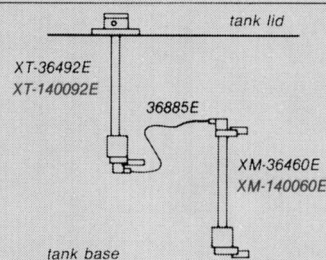
O: overlapping dimension = float height + 13 mm + 2 x d
O: overlapping dimension = float height + 5 mm + 2 x d



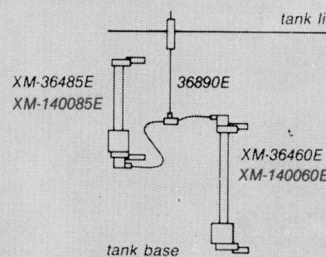
For monitoring remaining liquid levels



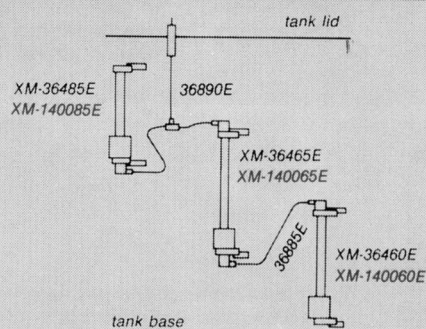
For monitoring remaining maximum liquid levels



Multi-unit stations with 4 ... 20 mA output

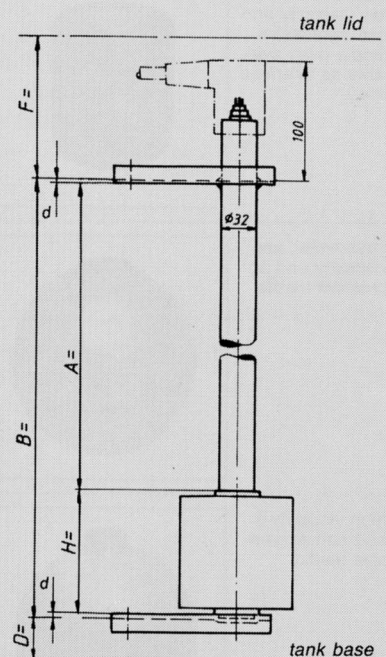


Standard application with two transmitters



Standard application with three transmitters

XM-36460E
XM-140060E



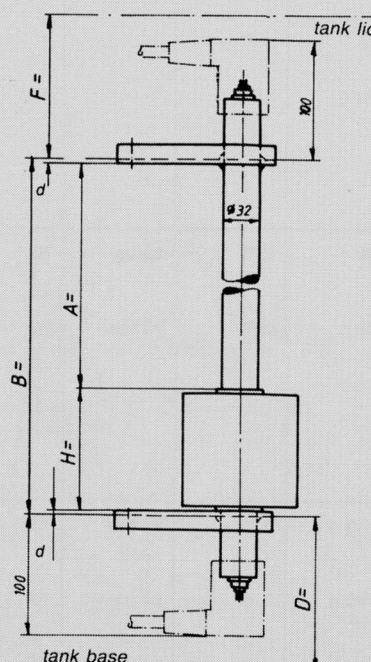
Application:
single transmitter or lowest
sensor of multi-unit stations

Mounting:
upper bracket
lower bracket

Electrical connection:
plug

Dimensions:** D/min = 40 mm
F/min = 130 mm

XM-36465E
XM-140065E



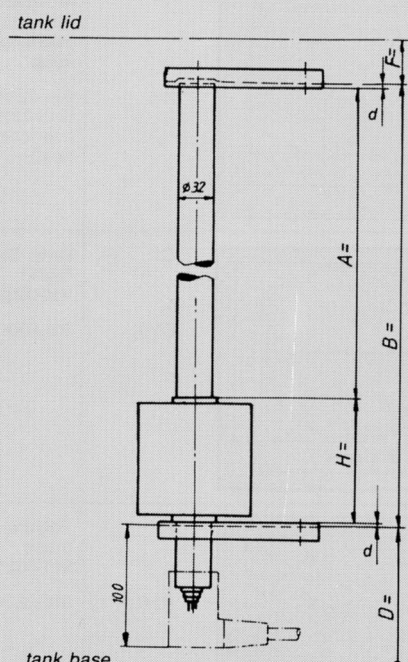
Application:
middle sensor of
multi-unit stations

Mounting:
upper bracket
lower bracket

Electrical connection:
upper & lower plug

Dimensions:** D/min = 130 mm
F/min = 130 mm

XM-36480E/XM-36485E
XM-140080E/XM-140085E



Application:
XM-36480E/XM-140080E
single transmitter
XM-36485E/XM-140085E
uppermost sensor of
multi-unit stations

Mounting:
upper bracket
lower bracket

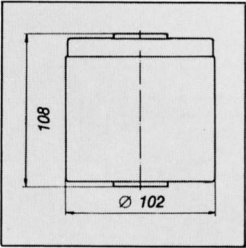

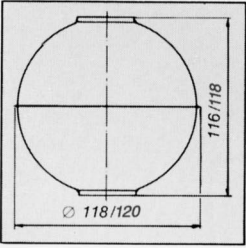

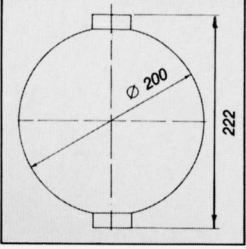

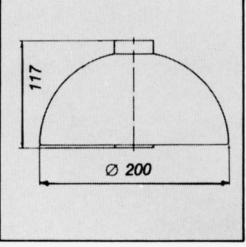

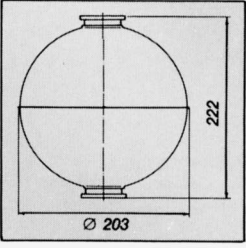

Electrical connection:
plug

Dimensions:** D/min = 130 mm
F/min = 40 mm

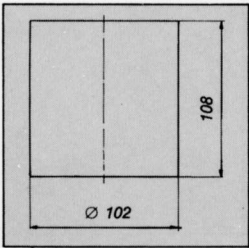

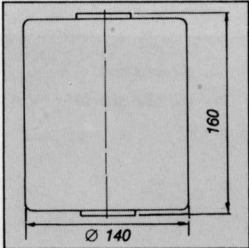

** A = float displacement, B = mounting dimension,
H = float height (dimensions are defined by Imo Industries
according to tank drawings and client-specific requirements).

Overview

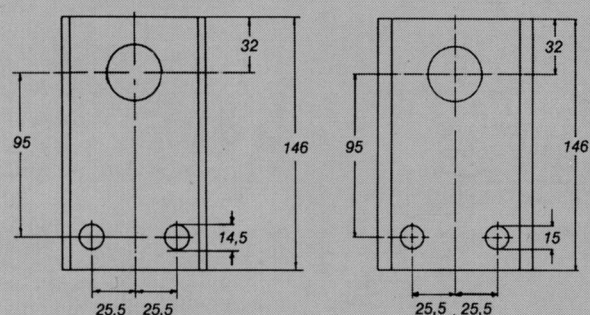
Floats, mounting elements and accessory equipment

Floats	Order Description	Material Order No.	Weight appr.	Min. spec. grav. fluid	Max. Operating Press*	Depth of immersion $\rho=1$ appr.	Application
	N	Buna N 915-0021 (915-0061 interface float)	350 g	0.6	10 bar	54	<ul style="list-style-type: none"> synthetic and mineral oil, water, low viscosity and non aggressive media (also available as interface float) 
	N-5	915-0228 (915-0229 interface float)	360 g	0.6	10 bar	54	
	C1	Cr-Ni Steel 1.4571 915-0022	460 g	0.75	23 bar	70	<ul style="list-style-type: none"> fresh water, low viscosity and aggressive media 
	C1-5	915-0230	320 g	0.57	25 bar	55	
	P1	Polyurethane 915-0025	1740 g	0.55	24 bar	107	<ul style="list-style-type: none"> high viscosity and non aggressive media 
	P1-5	915-0234	1740 g	0.55	24 bar	107	
	P2	Polyurethane 915-0091	900 g	0.56	4 bar	33	<ul style="list-style-type: none"> control of remaining liquid 
	P2-5	915-0235	800 g	0.5	4 bar	31	
	C2	Cr-Ni Steel 1.4571 915-0032	1670 g	0.57	35 bar	102	<ul style="list-style-type: none"> high viscosity and aggressive media 
	C2-5	915-0231	1700 g	0.53	23 bar	100	

* not suitable for vacuum

	Order Description	Material-Order No.	Weight appr.	Min. spec. grav. fluid	Max. Operating Press.*	Depth of immersion $p=1$ appr.	Application
	H	Hycel 915-0062	570 g	0.82	140 bar	83	<ul style="list-style-type: none"> non aggressive media, pressure-proof tanks 
	H-5	915-0232	570 g	0.82	140 bar	83	
	E	Ecco 915-0204	1320 g	0.68	100 bar	90	<ul style="list-style-type: none"> strong aggressive media, pressure-proof tanks 
	E-5	915-0233	1320 g	0.68	100 bar	90	

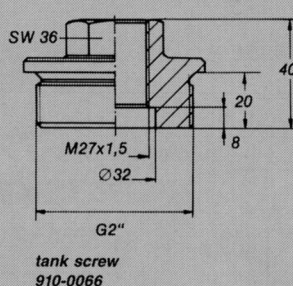
Mounting Elements



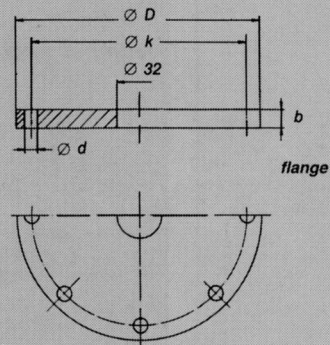
bracket
5 mm
918-0062
918A0062

bracket
8 mm
918-0056

only for shipbuilding
at mounting length > 1 m



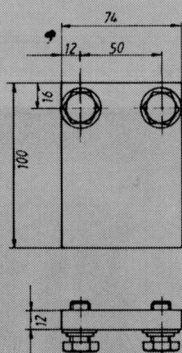
tank screw
910-0066



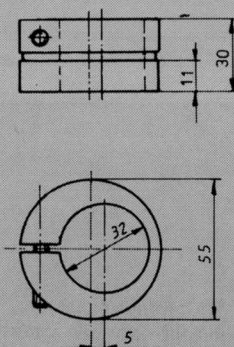
Description*)	D	k	d2	b
DN 125/PN 6	240	200	18 (8x)	18
DN 250/PN 6	375	335	18 (12x)	22
DN 125/PN 40	270	220	26 (8x)	26

*) according to DIN 2527, Form B

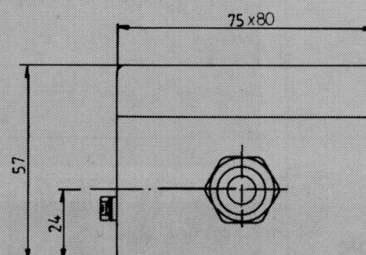
Accessories



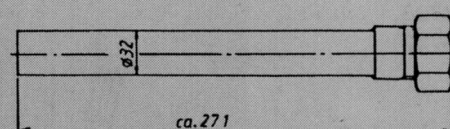
Welding brackets
918-0064
918-0082



Bottom support
918-0172



Terminal box
901-0217



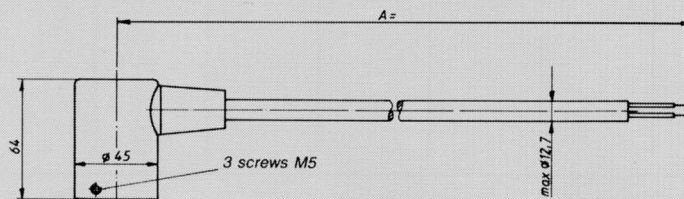
Cable gland
906-0010

Overview Cable

Standard Version

Application: non aggressive media.
These cables are not resistant to ozone and UV radiation. After leaving the tank the cables must immediately enter a junction box or a converter.

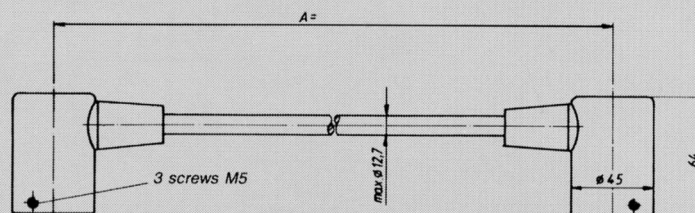
Connecting cable 36880E



Standard
dimensions*

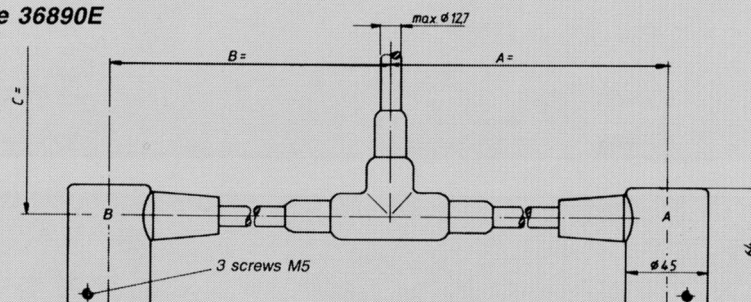
$A = 10\text{ m}$

Jumper cable 36885E



$A = 2\text{ m}$

T-cable 36890E



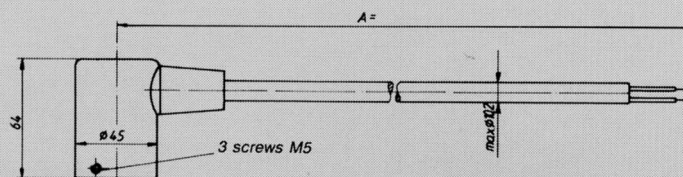
$A = 1\text{ m}$
 $B = 1\text{ m}$
 $C = 10\text{ m}$

* Other lengths on request or where necessary

Halogen-free connecting cable

Application:
outside tanks (for
transmitter
XM-36470E,
XM-36475E)

36880E-hal

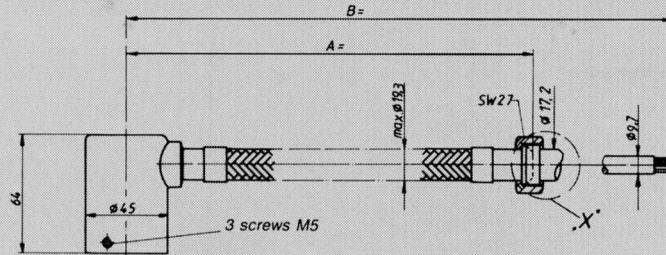


$A = 10\text{ m}$

Stainless steel version

Application:
aggressive media,
drinking water

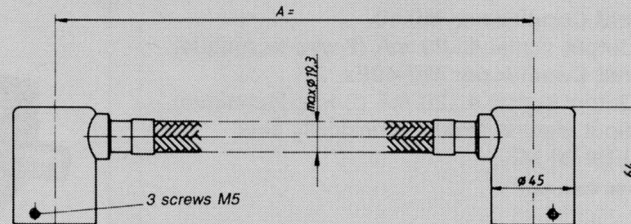
Connecting cable 36880E-SS



Standard
dimensions*

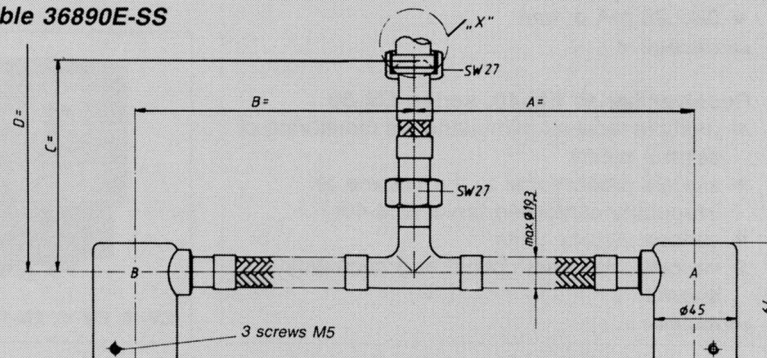
A = 4 m
B = 6 m

Jumper cable 36885E-SS



A = 1 m

T-cable 36890E-SS

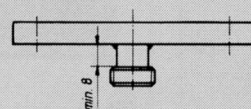


A = 0,75 m
B = 0,75 m
C = 2,00 m
D = 4,00 m

* Other lengths on request or where necessary

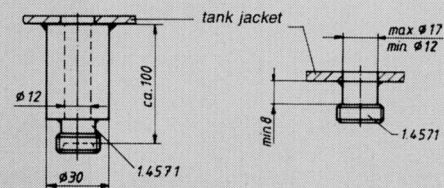
Stuffing tubes

Single units "X"

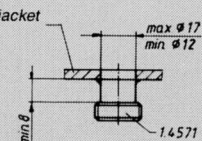


Flange version

Flange:
DIN 2527
DN 50/PN 16



Threadolet
long version



Threadolet
short version

Technical Data Cable

	36880E-hal	36...E	36...E-SS
Cable	light halogen-free navy cable LMGSGO 3 x 1.5 ²	4 x AWG 18, screen network over internal jacket made of NBR	light halogen-free navy cable LMGSGO 3 x 1.5 ² ; jacket: corrugated hose with screen network made of 1.4571
Plug housing		1.4571	
Max. operating pressure	ambient pressure	140 bar	4 bar
Temperature range	-10 °...+85 °C	0 °...+80 °C	-10 °...+85 °C
Isolation resistance		>100 MΩ at 50 V	
Breakdown voltage		≥1000 V	

Signal Evaluation Devices

The transmitter XM-36000E/ XM-140000E can be operated in combination with the following GEMS signal evaluation devices:

Signal Conditioner MU-10

- Output signal 4...20 mA (2-wire-technique)

Signal Conditioner MU-40Ex

- Output signal 4...20 mA (2-wire-technique)
- input electric circuit intrinsically safe [EEx ib] IIC

see data sheet no. 7

Receiver EM-15, EM-16, EM-17

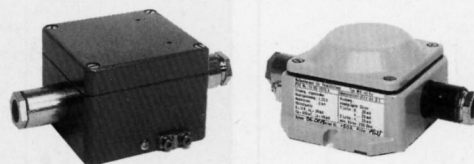
- 0...100% analog display
- 2 or 4 adjustable alarms
- 0/4...20 mA output

see data sheet no. 5

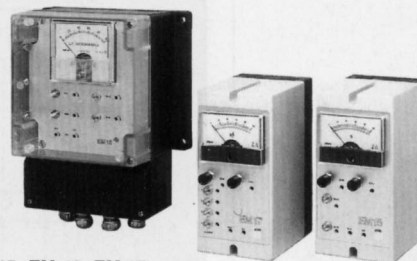
Receiver series EM-40, series EM-50

- multiple receiver (simultaneous monitoring of several tanks)
- signals proportional to the volume at irregularly contoured tanks (EM-40)
- various display units
- various additional optical and acoustical alarms

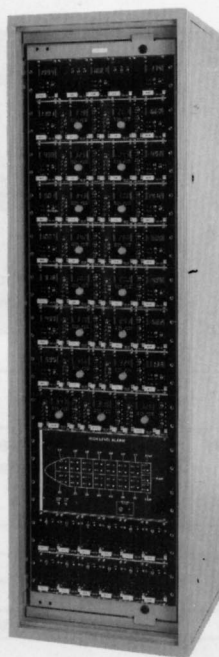
see data sheet no. 6



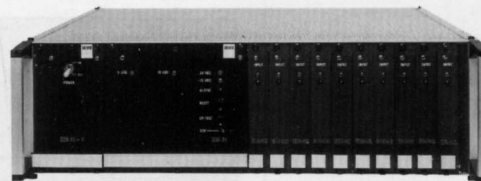
MU-10, MU-40Ex



EM-15, EM-16, EM-17



EM-50



EM-40

Special models and accessories

If there is no standard solution for your special application (special mounting elements, electrical connections etc.), our sales and design personnel is pleased to offer you solutions even for the most difficult demands in monitoring liquid levels.