

ISOMAG

The friendly magmeter

DATA SHEET

MV210



CE

ISOIL 
INDUSTRIA

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TECHNICAL DATA

OVERALL FEATURES

Suitable For	<input type="checkbox"/> All the ISOMAG® sensors
Minimum conductivity	<input type="checkbox"/> 5 µS/cm
Altitude	<input type="checkbox"/> -200 m up to 4000 m
Ambient Temperature	<input type="checkbox"/> -20... +60°C / -4... +140 °F - Aluminium housing <input type="checkbox"/> -10... +50°C / 14... +122 °F - Reinforced Nylon
Humidity Range	<input type="checkbox"/> 0÷100%

STANDARD FEATURES

Housing materials	<input type="checkbox"/> Painted Aluminium die casting <input type="checkbox"/> Nylon reinforced with 15% of fiber glass <input type="checkbox"/> AISI304 Stainless Steel
Protection Rate	<input type="checkbox"/> IP 67
Power Supply/Consumption	<input type="checkbox"/> 100-240 V~ (20VA) – 44-66 Hz
Cable Gland	<input type="checkbox"/> N° 5 cable gland PG 11
Full scale value	<input type="checkbox"/> 0,4...10m/s
Dig. Input	<input type="checkbox"/> N°1 , programmable function (i.e. Totalizer reset)
Data Storage	<input type="checkbox"/> Values storing system in case of power failure
Galvanic Insulation	<input type="checkbox"/> All the inputs/outputs are galvanically insulated
Programming Plug In	<input type="checkbox"/> USB port for the connection to PC (USB cable type A/USB MINI B is required for the programming)
Bi-Directional	<input type="checkbox"/> Yes
Diagnostic Funct.	<input type="checkbox"/> Yes
Empty Pipe Detect.	<input type="checkbox"/> Yes
Batching Funct.	<input type="checkbox"/> Yes
CE Certification	<input type="checkbox"/> Yes

OPTIONAL FEATURES (CHECK HOW TO ORDER, AT LAST PAGE, FOR MORE DETAILS)

Version	<input type="checkbox"/> Compact <input type="checkbox"/> Separate
Protection Rate	<input type="checkbox"/> IP 68
Conn. Sensor Cable	<input type="checkbox"/> CABLE C015/C016 for separate version
LCD Display	<input type="checkbox"/> Graphic display 128x64 pixels back light, 3 programming keys
Power Supply/Consumption	<input type="checkbox"/> Power supply : 100 ... 240 VAC 44/66 Hz <input type="checkbox"/> Power supply : 24 ... 36 VAC/VDC 0...45/66 Hz <input type="checkbox"/> Power supply : 12...48 VDC <input type="checkbox"/> Power supply : 100 ... 240 VAC 44/66 Hz + 1 Rechargeable Battery <input type="checkbox"/> Power supply : 24 ... 36 VAC/VDC 0...44/66 Hz + 1 Rechargeable Battery <input type="checkbox"/> Power supply : 12...48 VDC + 1 Rechargeable Battery
Outputs: Pulses/Frequence/Alarms/Batch	<input type="checkbox"/> N°1 digital Output , 1250 Hz, 100mA, 30 Vdc <input type="checkbox"/> N°2 digital Outputs , 1250 Hz, 100mA, 30 Vdc
Analog Output	<input type="checkbox"/> n° 1 Analogue output 0/4...20/22 mA (Hart optional) <input type="checkbox"/> n° 2 Analogue outputs 0/4...20/22 mA (Hart optional over Out.1)
Communication Gateway	<input type="checkbox"/> RS 485 <input type="checkbox"/> Wi-Fi (for programming)
Data Logger	<input type="checkbox"/> MicroSD Memory Card 4...32 GBytes
Protocols	<input type="checkbox"/> Modbus over RS 485 <input type="checkbox"/> HART (Available on analog output n° 1) <input type="checkbox"/> MeterBus <input type="checkbox"/> BACnet
Certificazioni	<input type="checkbox"/> OIML R49

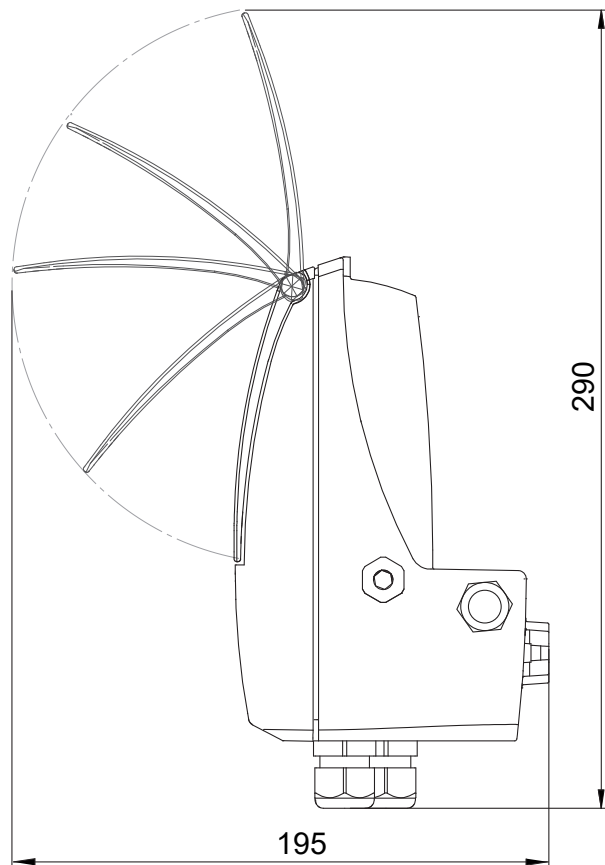
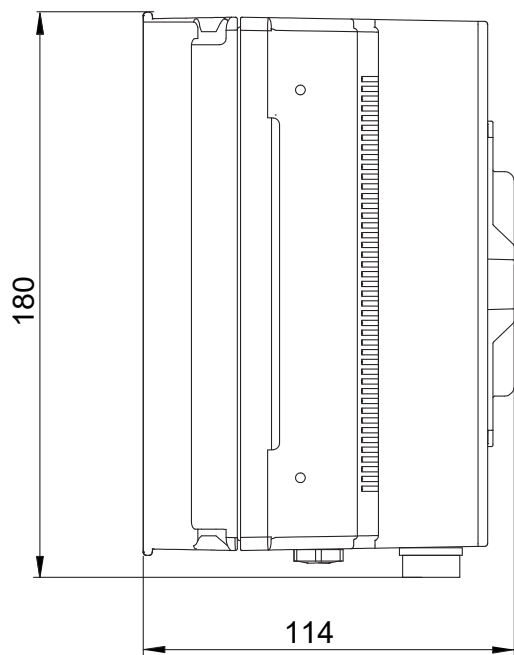
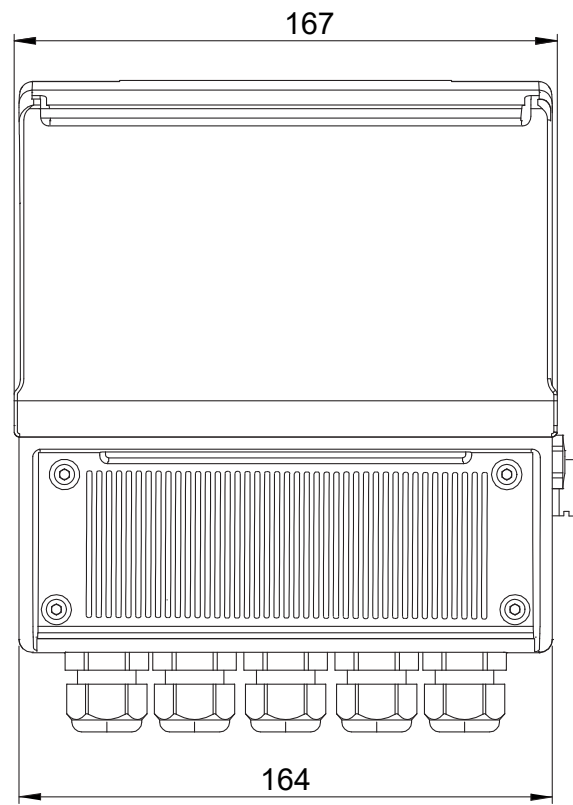
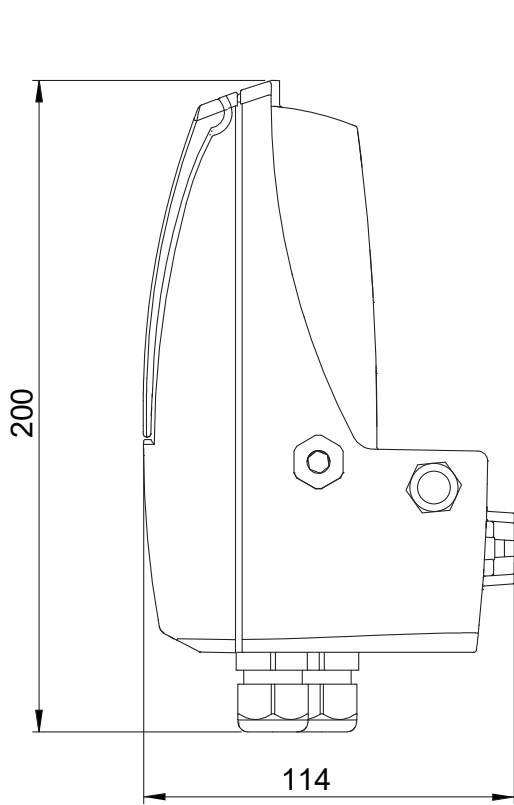


ACCURACY

Accuracy (whole system converter+-sensor)	<input type="checkbox"/> See table below
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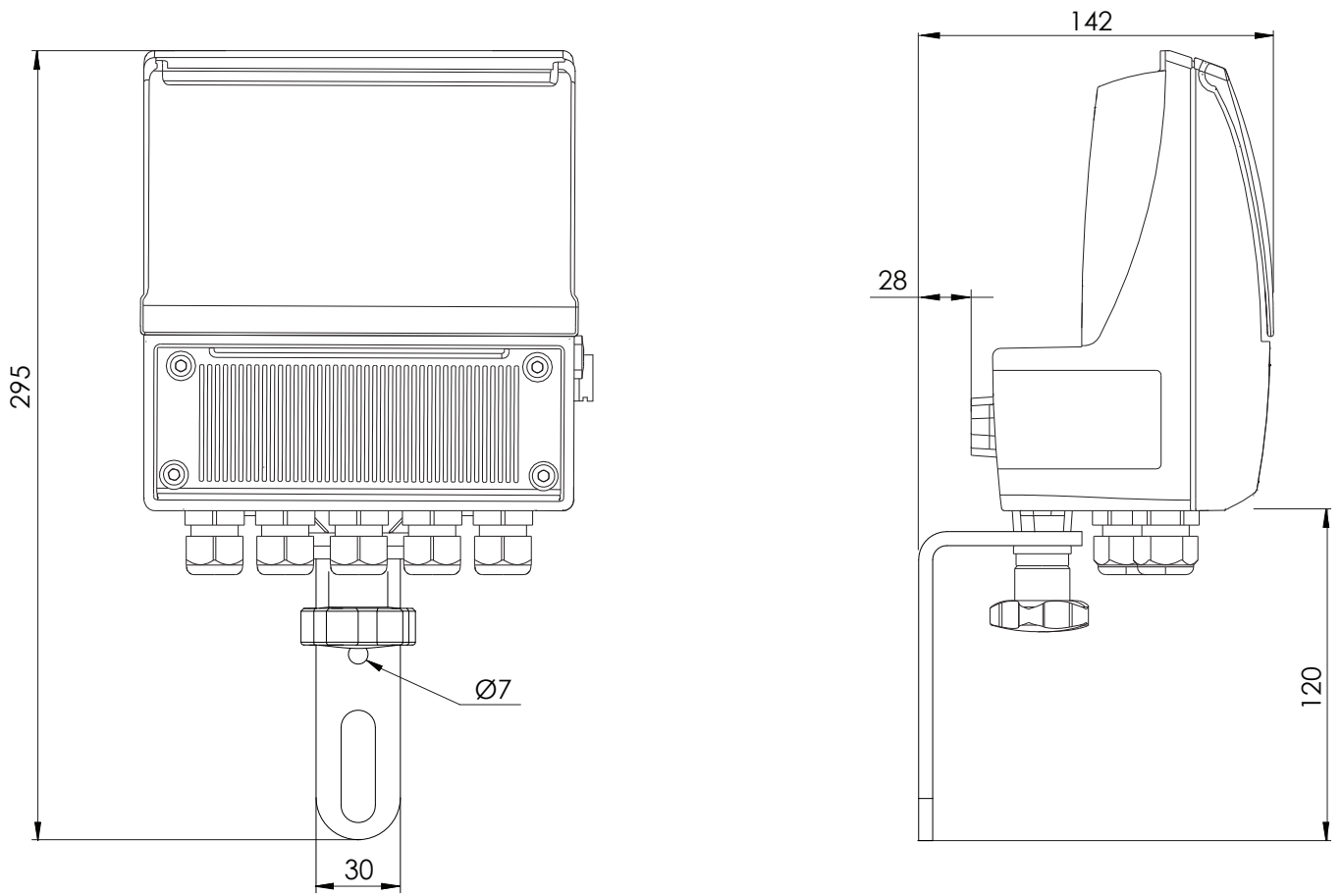
OVERALL DIMENSIONS

Compact version



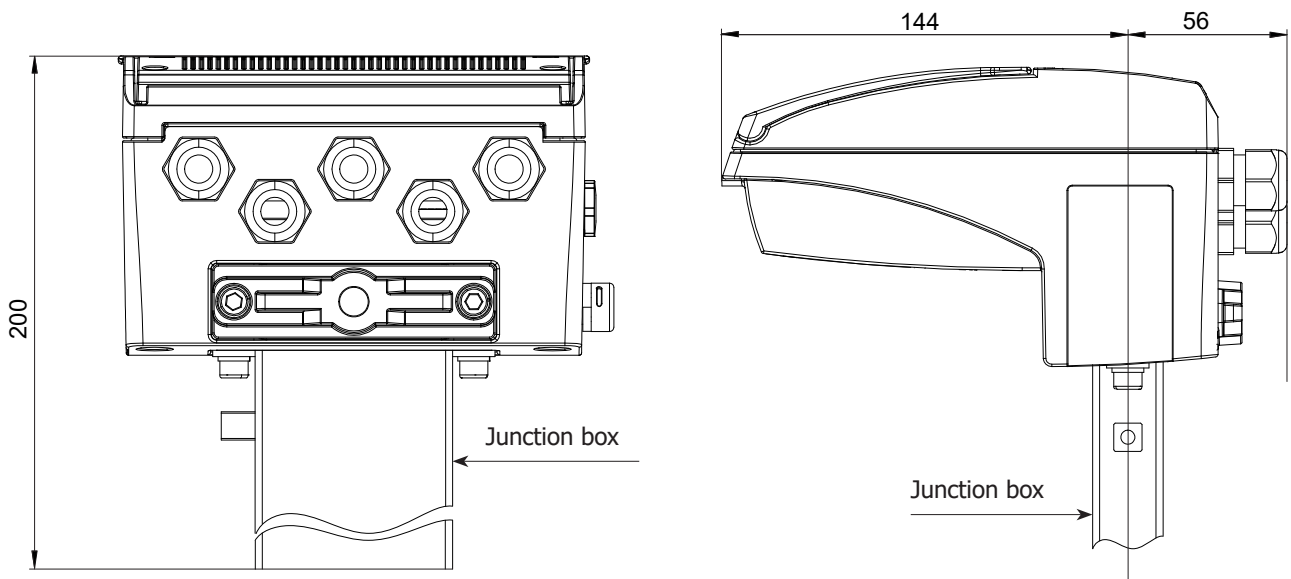
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Separate (wall) version

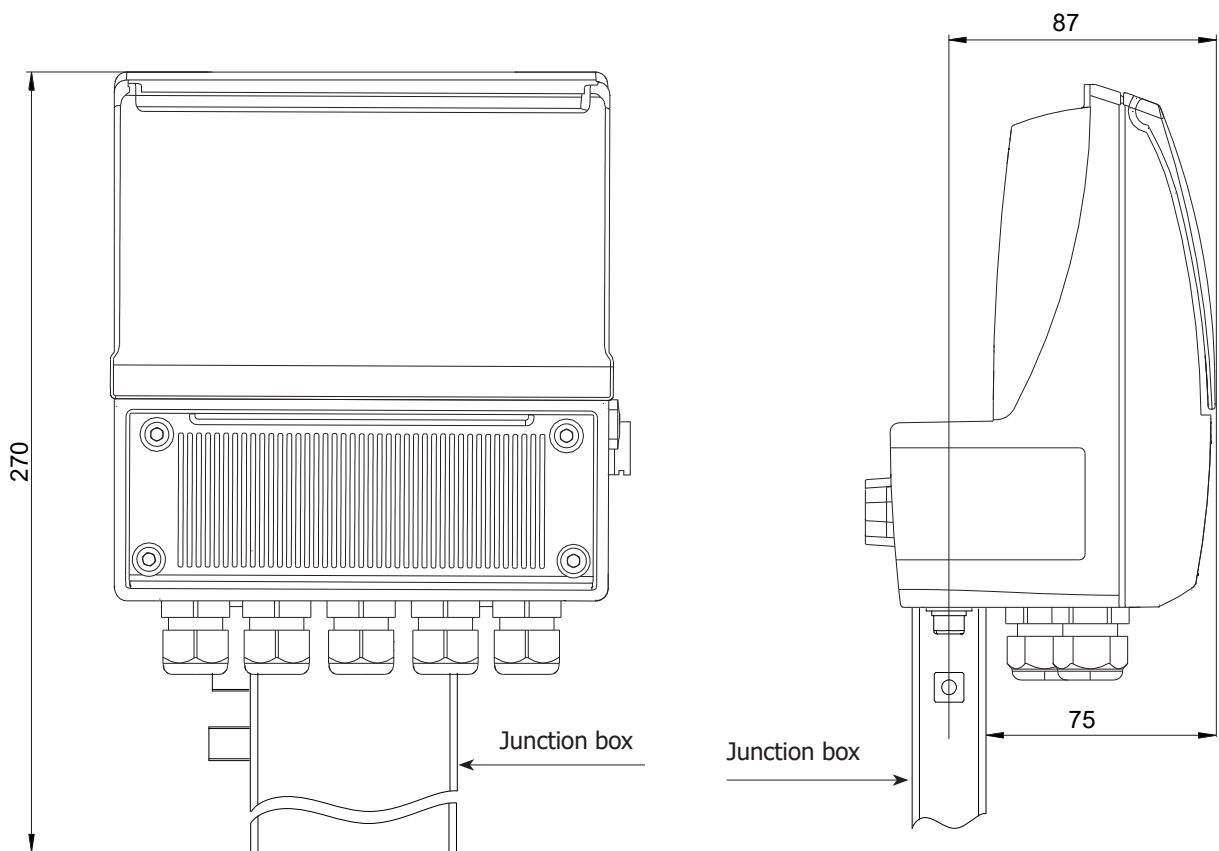


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Horizontal version

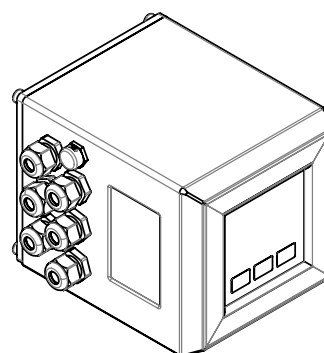
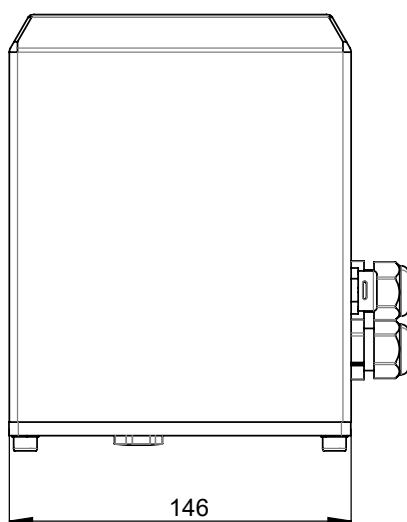
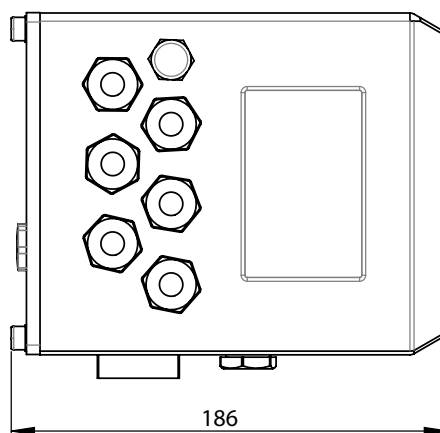
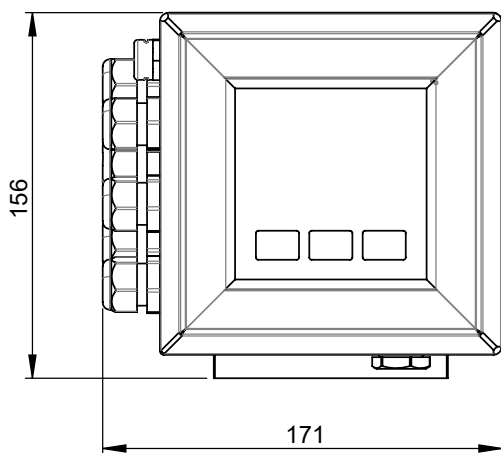


Vertical version



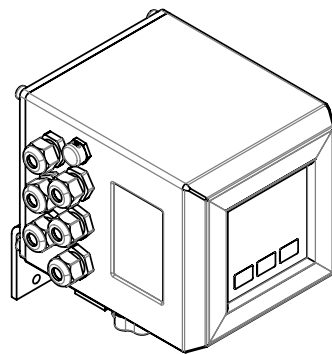
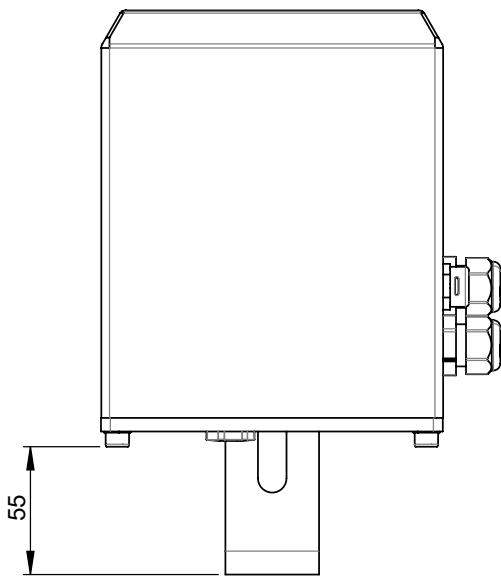
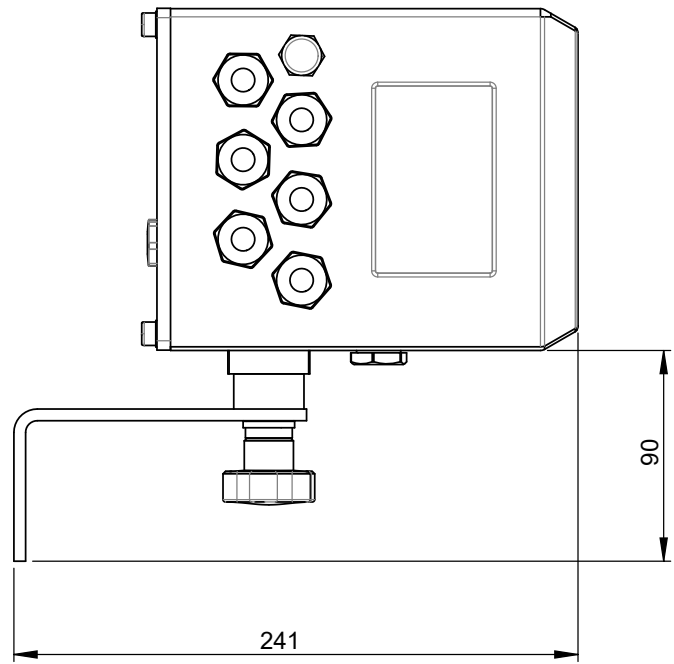
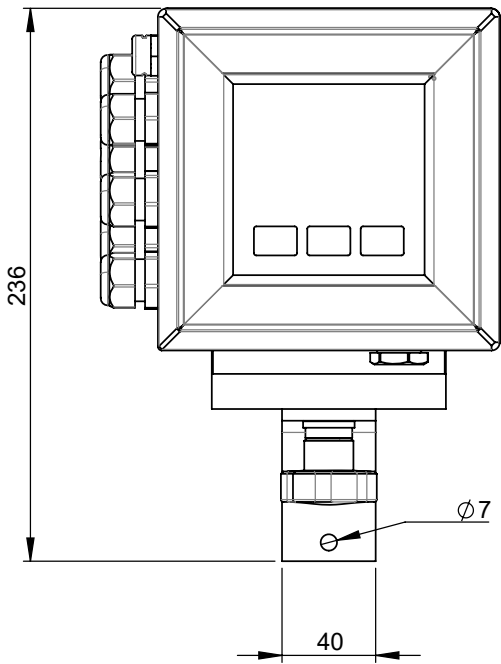
OVERALL DIMENSIONS (STAINLESS STEEL VERSION)

Compact Version



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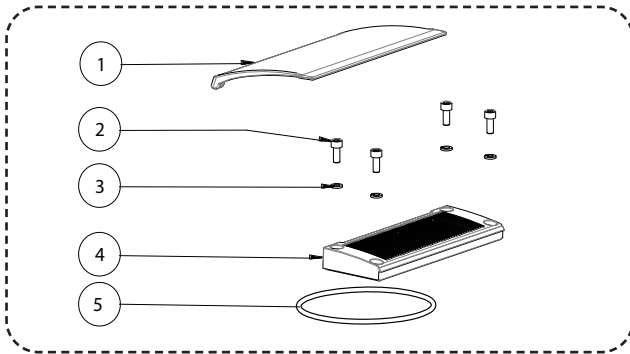
Separate Version



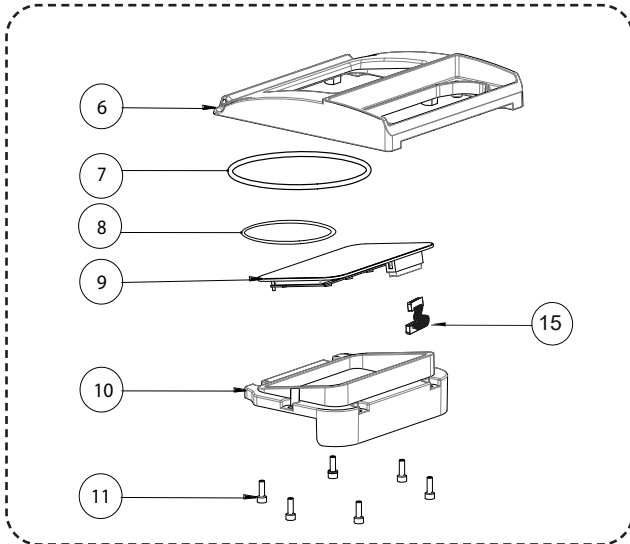
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MV210 EXPLODED LAYOUT

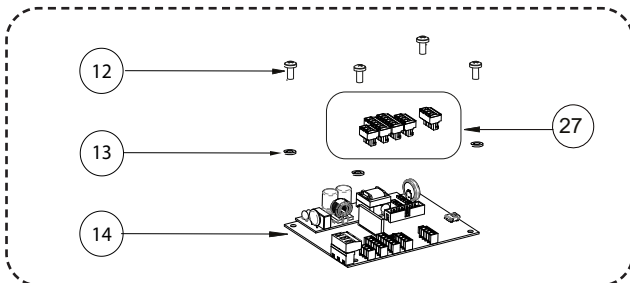
TERMINAL BLOCK COVER



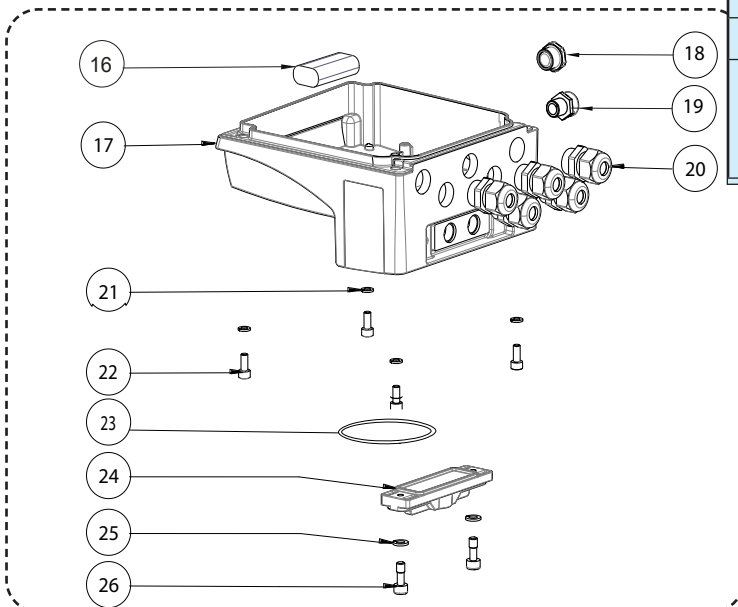
MAIN HOUSING COVER



PCB MV210

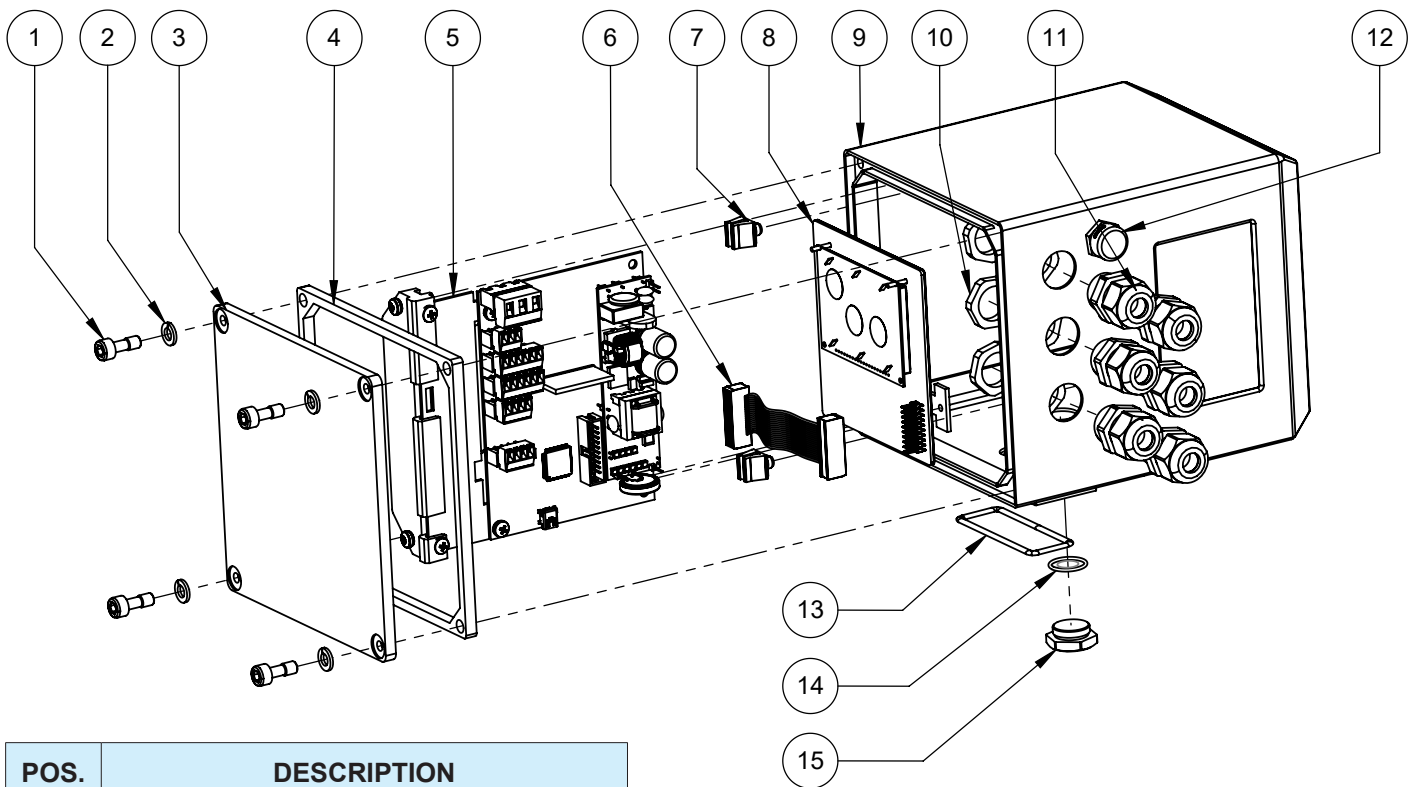


MAIN HOUSING

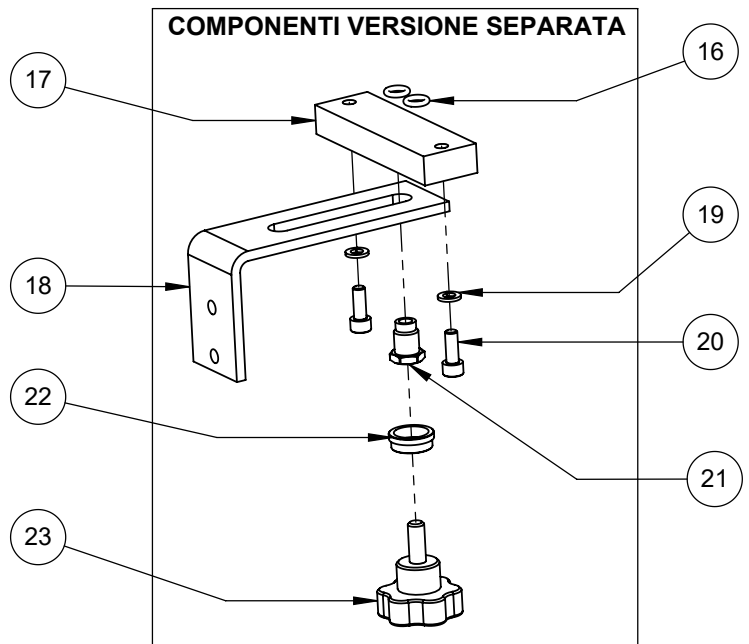


POS.	DESCRIPTION	
	PA6 VERSION	ALLUMINIUM VERSION
1	PROTECTION COVER	
2	VITE M4x12	VITE M5x12
3	GROWER Ø4	GROWER Ø5
4	TERMINAL COVER	TERMINAL COVER
5	O-RING-4400	
6	HOUSING COVER	HOUSING COVER
7	O-RING-4700 (HOUSING COVER)	
8	O-RING-117x3 (DISPLAY)	
9	DISPLAY	
10	FIXING DISPLAY FRAME (MATERIAL PA06)	
11	SELF-TAPPING SCREW 4x10	TRILOBO SCREW 4x10
12	SELF-TAPPING SCREW 4x10	TRILOBO SCREW 4x10
13	GROWER Ø4	SPRING WASHER Ø4
14	PCB MV210	
15	FLAT CABLE	
16	LITHIUM BATTERY	
17	PA6 MAIN HOUSING	ALUMINIUM MAIN HOUSING
18	PG9 CAP	
19	PRESSURE COMPENSATION PLUG	
20	PG11 CABLE GLAND CABLE DIAMETER: Ø5-Ø10mm	
21	GROWER Ø4	SPRING WASHER Ø5
22	SCREW M4x12	SCREW M5x12
23	O-RING-155	
24	VERSION CAP (MATERIAL PA06)	
25	GROWER Ø6	
26	SCREW M6x16	
27	TERMINAL BLOCK SOLID WIRE: 26-16 AWG / 0.129-1.31 mm ² STRANDED WIRE: 26-16 AWG / 0.129-1.31 mm ² TORQUE: 3.0 Lb.In / 0.34 Nm	

MV210 CONSTRUCTION (STAINLESS STEEL VERSION)

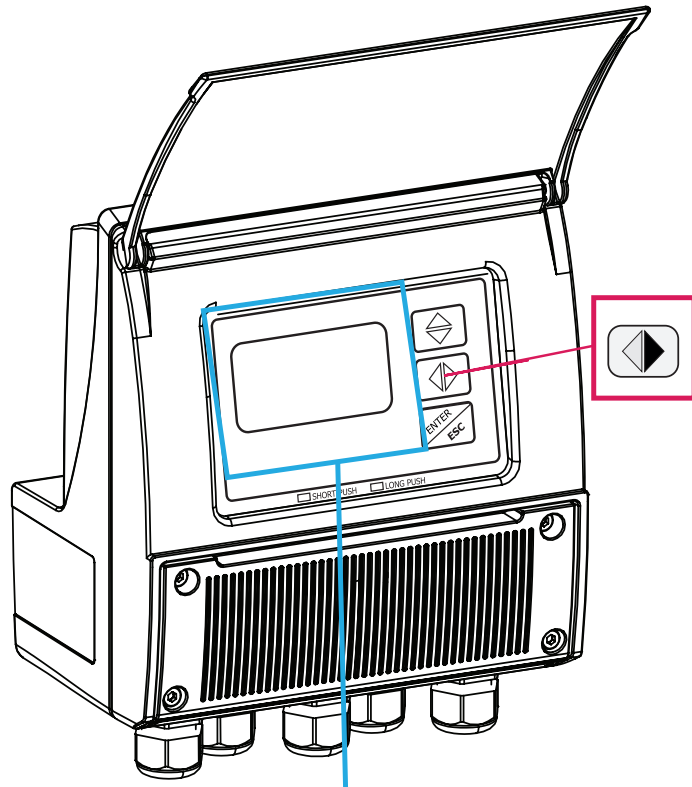


POS.	DESCRIPTION
1	SCREW M6X16
2	GROWER Ø 6
3	POLISHED COVER
4	GASKET FOR Stainless steel HOUSING
5	BOARD FRAME M3C
6	FLAT CABLE
7	BOARD FIXING CLIPS
8	DISPLAY/BLIND
9	POLISHED Stainless steel HOUSING
10	PG11 NUT
11	FLAT GASKET O-RING 155
12	O-RING ORM 0160-15 Ø16X1.5
13	STAINLESS STEEL CAP M18X0.75
14	PG11 CABLE GLANDS
15	ANTICONDENSATION CAP
16	O-RING 109
17	BRACKET FIXING PLATE
18	WALL BRACKET
19	GROWER Ø6
20	SCREW M6 x 16
21	FIXING SCREW
22	FIXING BUCKLE
23	FIXING KNOB 8X20



MAIN PAGES VISUALISATION

Different visualization possibilities by simply pressing of a key.

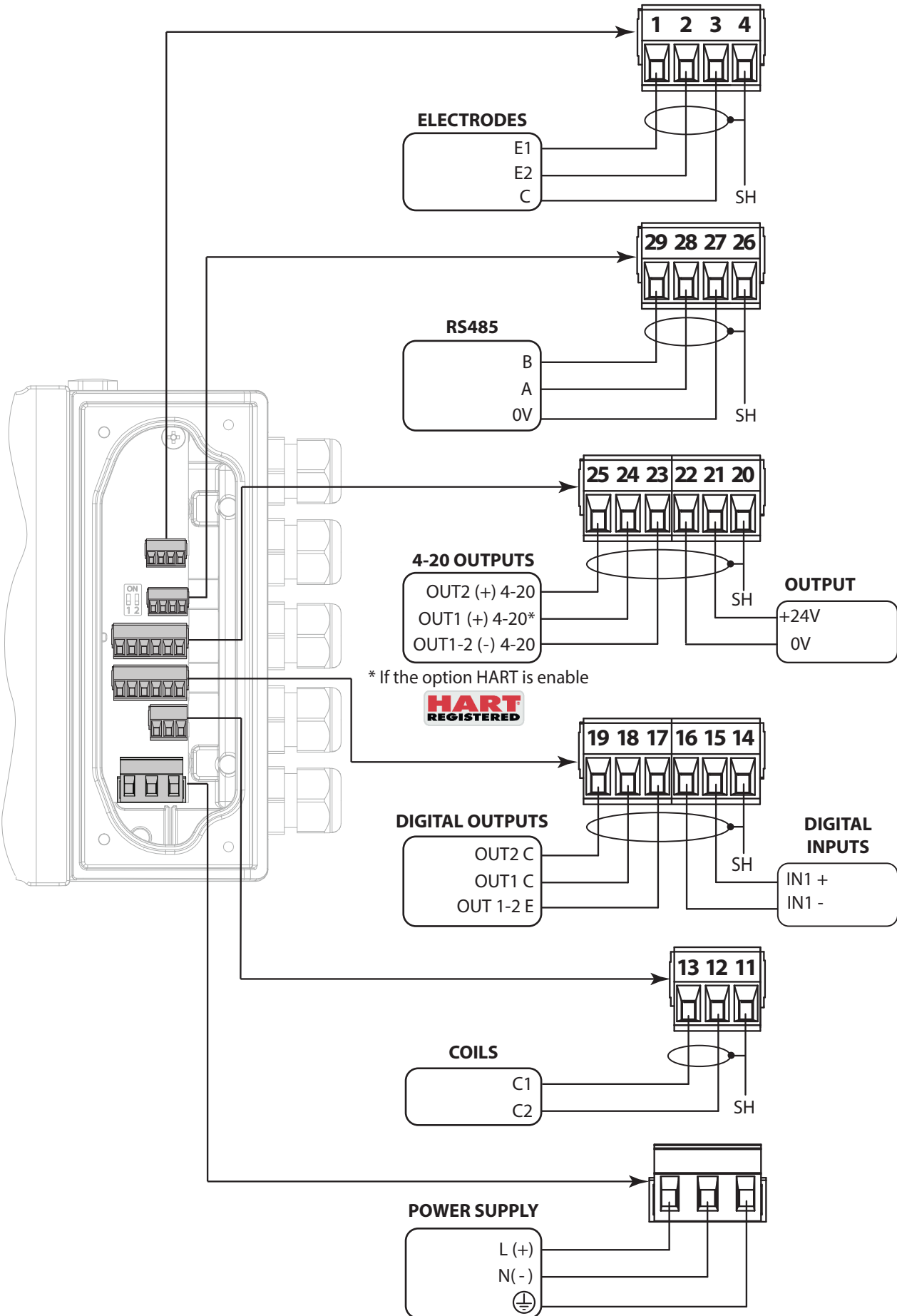


The image shows a vertical stack of six LCD screen displays, each representing a different visualization mode accessible by pressing a key. The screens are as follows:

- Screen 1:** Shows flow rate in dm^3/s as 0.0000, a graph with a vertical bar, and velocity in m/s as +0.000+.
- Screen 2:** Shows flow rate in dm^3/s as 0.0000, velocity in m/s as +0.00%, and a '3 ALARM(S)' indicator.
- Screen 3:** Shows flow rate in dm^3/s as 0.0000, cumulative flow in T+dm^3 as 0.000, and a '3 ALARM(S)' indicator.
- Screen 4:** Shows flow rate in dm^3/s as 0.0000 and a '3 ALARM(S)' indicator.
- Screen 5:** Shows cumulative flow in T+dm^3 as 0.000 and a '3 ALARM(S)' indicator.
- Screen 6:** Shows error messages: '3 ALARM(S)', 'CLOCK NOT SET', 'EXCITATION ERROR', and 'SIGNAL ERROR'.

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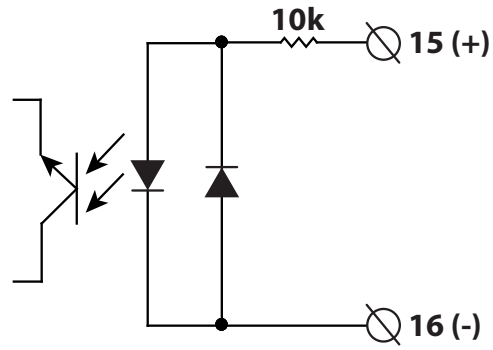
ELECTRICAL CONNECTIONS



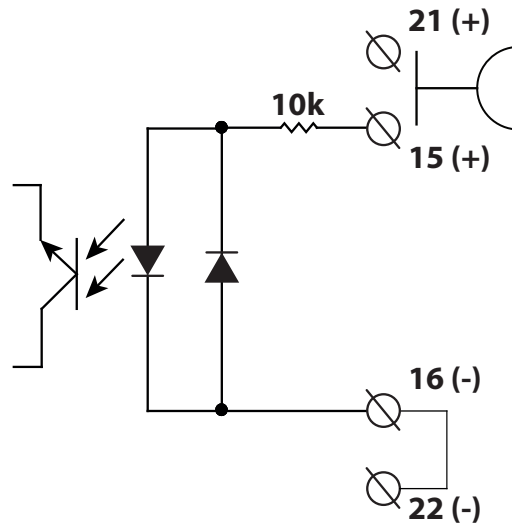
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DIGITAL INPUT

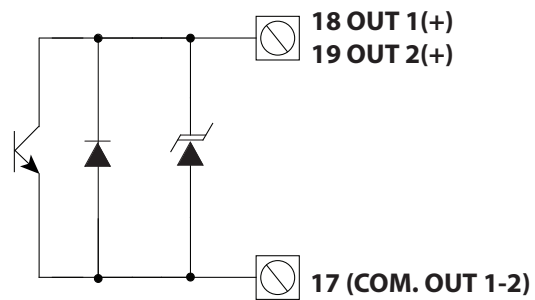
on/off input
(external power supply)



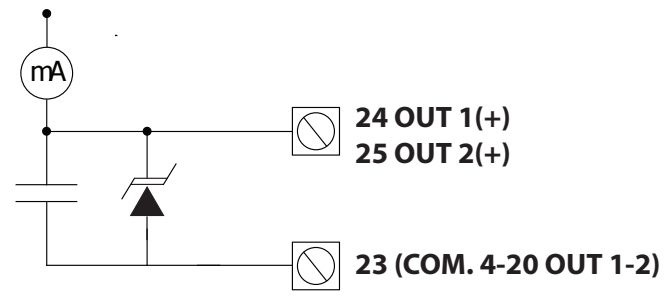
on/off input
(internal power supply)



DIGITAL OUTPUTS



ANALOG OUTPUTS



FUNCTIONS MENU

SENSOR

MAIN MENU			
1-Sensor			
SENSOR			
S. model =	0	1.1	Sensors model: Enter the first two characters of the serial number of the sensor
Lining =	UNSPEC.	1.2	Flow sensor lining material type
S. type =	FULL BORE	1.3	Type of sensor: fullbore or insertion
u.type=	METRIC	1.4	Type of measure units for sensor parameter: metric or imperial
Diam	mm 00025.0	1.5	Insert ND of sensor (0-2500)
HA =	+00.9637	1.6	Calibration data of sensor visualized on sensor's label
HA- =	-04.4904	1.7	Calibration data of sensor for negative flow
HZ =	+0000000	1.8	Sensor coefficient KZ (zero point)
HD=	+0000000	1.9	Sensor coefficient KD
Ins. position=	0	1.10	Insertion position
KP Dinamic=	OFF	1.11	KP dynamic, coefficient for insertion
Ki=	01.8727	1.12	Sensor coefficient Ki
Kp=	01.0000	1.13	Sensor coefficient Kp
KC=	1.0000	1.14	Sensor coefficient KC
C.curr =	025.0	1.15	CW volume total. decimal point position
C.Reg.PB=	004	1.16	Current regulator proportional band
C.Reg.DK=	008	1.17	Current regulator derivation constant
S. Freq.= Hz	50	1.18	Measure sampling frequency
Preamplif.	OFF	1.19	Enables the preamplifier
E.P Detect=	ON	1.20	Enables the empty pipe detection feature
R max= kohm	0500	1.21	Empty pipe detection threshold
El. Cleaning=	OFF	1.22	Electrode cleaning
S. cable=	m 000	1.23	Sensor connecting cable length
S. err. delay=	010	1.24	Signal error delay (n. sample)
Sens. verify=	OFF	1.25	Automatic sensor verify enable
Zero point cal.		1.26	Pipe hydraulic zero calibration
KL	00.0000000	1.27	Linearization coefficient

UNITS

MAIN MENU			
1-Sensor			
2-Units			
3-Scales			
UNITS			
Diam.	mm	2.1	Nominal diameter measure unit
S.cable	m	2.2	Cable length on separate version
FR.unit	METRIC	2.3	Flowrate type measure unit: metric or not metric
PI1 unit	METRIC	2.4	Pulse 1 type measure unit: metric or not metric
PI2 unit	METRIC	2.5	Pulse 2 type measure unit: metric or not metric
T+ unit	METRIC	2.6	Total direct totalizer measure unit type: metric or not metric
T+ unit	g	2.7	Total direct totalizer measure unit
T+ D.P	3	2.8	Total direct totalizer decimal point position
P+ unit	METRIC	2.9	Partial direct totalizer measure unit type: metric or not metric
P+ unit	g	2.10	Partial direct totalizer measure unit
P+ D.P	3	2.11	Partial direct totalizer decimal point position
T- unit	METRIC	2.12	Total reverse totalizer measure unit type: metric or not metric
T- unit	g	2.13	Total reverse totalizer measure unit
T- D.P	3	2.14	Total reverse totalizer decimal point position
P- unit	METRIC	2.15	Partial reverse totalizer measure unit type: metric or not metric
P- unit	g	2.16	Partial reverse totalizer measure unit
P- D.P	3	2.17	Partial reverse totalizer decimal point position
Temp.unit	°C	2.18	Temperature measure unit
Mass units	ON	2.19	Enable/disable the selection of mass units on full scale set
Sg=kg/dm3	1.0000	2.20	Specific gravity coefficient

SCALES

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5- Alarms
6- Inputs
7- Outputs
8-
9-
10-
11-
12-
13-
    
```

SCALES	
FS1 g/s	4908.7
B.qty dm3	1.00000
FS2 g/s	4908.7
Pls1=g	1000.00
Tpls1=ms	0050.0
Pls2=g	1000.00
Tpls2=g	0050.0
Frq1=Hz	1000.00
Frq2=Hz	1000.00

3.1	Full scale flow rate 1
3.2	Batching quantity
3.3	Full scale flow rate 2
3.4	Pulse value on channel 1
3.5	Duration of the pulse generated on channel 1
3.6	Pulse value on channel 2
3.7	Duration of the pulse generated on channel 2
3.8	Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
3.9	Full scale frequency for channel 2 (0.1Hz-1000.0Hz)

MEASURES

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5- Alarms
6- Inputs
7- Outputs
8-
9-
10-
11-
12-
13-
    
```

MEASURES	
Damping	SMART
Cut-off= %	00.1
DT Min.	ON
T1HC enable	ON
T1HC	OFF

4.1	Measure filter
4.2	Low flow zero threshold: 0-25% of full scale value
4.3	Automatic calibration verify
4.4	Automatic change of measurement range
4.5	High immunity inputs

ALARMS

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5- Alarms
6- Inputs
7- Outputs
8-
9-
10-
11-
12-
13-
    
```

ALARMS	
Max+ = dm3/s	OFF
Max- = dm3/s	OFF
Min+= dm3/s	OFF
Min-= dm3/s	OFF
Hysteresis=%	03
mA v. alarm=%	000
Hz v. alarm=%	000

5.1	Maximum value alarm set for direct flow rate
5.2	Maximum value alarm set for reverse flow rate
5.3	Minimum value alarm set for direct flow rate
5.4	Minimum value alarm set for reverse flow rate
5.5	Hysteresis threshold set for the minimum and maximum flow rate alarms
5.6	Current output value in case of failure
5.7	Frequency output value in case of alarms

INPUTS

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5- Alarms
6- Inputs
7- Outputs
8-
9-
10-
11-
12-
13-
    
```

INPUTS	
T+ reset	OFF
P+ reset	OFF
T- reset	OFF
P- reset	OFF
Count lock	OFF
Meas.lock	OFF
Calibration	OFF
Range change	OFF

6.1	Total direct (positive) flow totalizer reset enable
6.2	Partial direct (positive) flow totalizer reset enable
6.3	Total reverse (negative) flow totalizer reset enable
6.4	Partial reverse (negative) flow totalizer reset enable
6.5	Totalizer counting lock command
6.6	Measure zero lock command
6.7	Calibration external command
6.8	Range change external command

OUTPUTS

MAIN MENU	
1-Sensor	
2-Units	
3-Scales	
4-Measure	
5-Alarms	
6-Inputs	
7-Outputs	
8-Communication	
OUTPUTS	
10- Out1	PULSES+
11- Out2	PULSES-
12- Out mA1	4_22 +/-
13- Out mA2	4_22 +/-
A1S	4.9087
A2S	4.9087

7.1	Output 1 functions
7.2	Output 2 functions
7.3	Choice of the function and the range of current output n.1
7.4	Choice of the function and the range of current output n.2
7.5	Full Scale value for analog out1
7.6	Full Scale value for analog out2

COMM.

MAIN MENU	
1-Sensor	
2-Units	
3-Scales	
4-Measure	
5-Alarms	
6-Inputs	
7-Outputs	
8-Communication	
9-Display	
10-Data logger	
11-Functions	
12-Diagnostic	
13-System	

The Communication menu contains the functions related to the communication protocols. For further details regarding the Hart, MBus, MODbus and BACnet communication protocols and the description of the related functions, see the separate manuals.

N.B: the numbering of the functions in the communication menu depends on the communication protocol selected during the order phase

DISPLAY

MAIN MENU	
1-Sensor	
2-Units	
3-Scales	
4-Measure	
5-Alarms	
6-Inputs	
7-Outputs	
8-Communication	
9-Display	
10-Data logger	
11-Functions	
12-	DISPLAY
13-	

Language	EN	9.1	Choice of the language
Contrast	5	9.2	Display contrast
Disp.time=s	020	9.3	Display/keyboard inactivity time
D.rate=Hz	5	9.4	Display updating frequency: 1-2-5-10 Hz
Disp. Fn.	1	9.5	Display function number
Disp.lock	ON	9.6	Display function selection lock
Part. Tot	ON	9.7	Partial totalizer enable
Neg. Tot.	ON	9.8	Negative totalizer enable
Net tot.	ON	9.9	Net totalizer enable
Disp.date	ON	9.10	Time and date display enable
Quick start	ON	9.11	Quick start menu visualization

DATA LOGGER

DATA LOGGER

D.logger en.	ON	10.1	Data logger enabling
Meas. units	ON	10.2	Measure units recording enable
Field separat.	;	10.3	Field separator character
Decimal separ.	.	10.4	Decimal separator character
Interv.	01:01:00	10.5	Sampling interval
Log T+	ON	10.6	Enable logging of total direct totalizer
Log P+	ON	10.7	Enable logging of partial direct totalizer
Log T-	ON	10.8	Enable logging of total reverse totalizer
Log P-	ON	10.9	Enable logging of partial reverse totalizer
Log TN	ON	10.10	Enable logging of total net totalizer
Log PN	ON	10.11	Enable logging of partial net totalizer
Log Q (UM)	ON	10.12	Enable logging of flow rate in measure unit
Log Q (%)	ON	10.13	Enable logging of flow rate in percentage
Log AL.EV	ON	10.14	Enable logging of alarm events
Log STR	ON	10.15	Enable logging of sensor test results
Log BTS	ON	10.16	Enable logging of board temperature
Log IBV	ON	10.17	Enable logging of internal board voltage
Log EDC	ON	10.18	Enable logging of electrodes DC voltage
Log EAC	ON	10.19	Enable logging of electrodes AC voltage
Log EIZ	ON	10.20	Enable logging of electrodes impedance
Log SCU	ON	10.21	Enable logging of sensor coils value

```

M
10-Data logger
11-Functions
12-Diagnostic
13-System
9-Display
8-Communication
7-Outputs

```

FUNCTIONS

FUNCTIONS

T+ reset		11.1	Execute immediate reset of total direct totalizer
P+ reset		11.2	Execute immediate reset of partial direct totalizer
T- reset		11.3	Execute immediate reset of total reverse totalizer
P- reset		11.4	Execute immediate reset of partial reverse totalizer
Load Sens. F. def		11.5	Load sensor factory default
Load Conv. F. def		11.6	Load converter factory default
Save Sens. F. def		11.7	Save sensor factory default values
Save Conv. F. def		11.8	Save converter factory default values
Calibration		11.9	Execute immediate internal circuit calibration

```

M
11-Functions
12-Diagnostic
13-System
9-Display
8-Communication
7-Outputs
6-Data logger
5-Functions
4-System
3-Display
2-Communication
1-Outputs

```

DIAGNOSTIC

DIAGNOSTIC

Self test		12.1	Self test diagnostic function
Test display		12.2	Function tests physical display
Sens. verify		12.3	Sensor verify diagnostic function
Flow sim. =	ON	12.4	Flow rate simulation enabling
Display measures		12.5	Display internal measured value
Disp. Comm. Vars		12.6	Display comm. diagnostic values
Display graphs		12.7	Display measure as graphs
Gen. sens. set		12.8	Generic sensor parameters set
SD card info		12.9	Sd card status informations
Firmware info		12.10	Firmware version/revision
S/N=	999001	12.11	Board serial number
WT=	002:21:00 : 22	12.12	Total working time

```

M
12-Diagnostic
13-System
9-Display
8-Communication
7-Outputs
6-Data logger
5-Functions
4-System
3-Display
2-Communication
1-Outputs

```

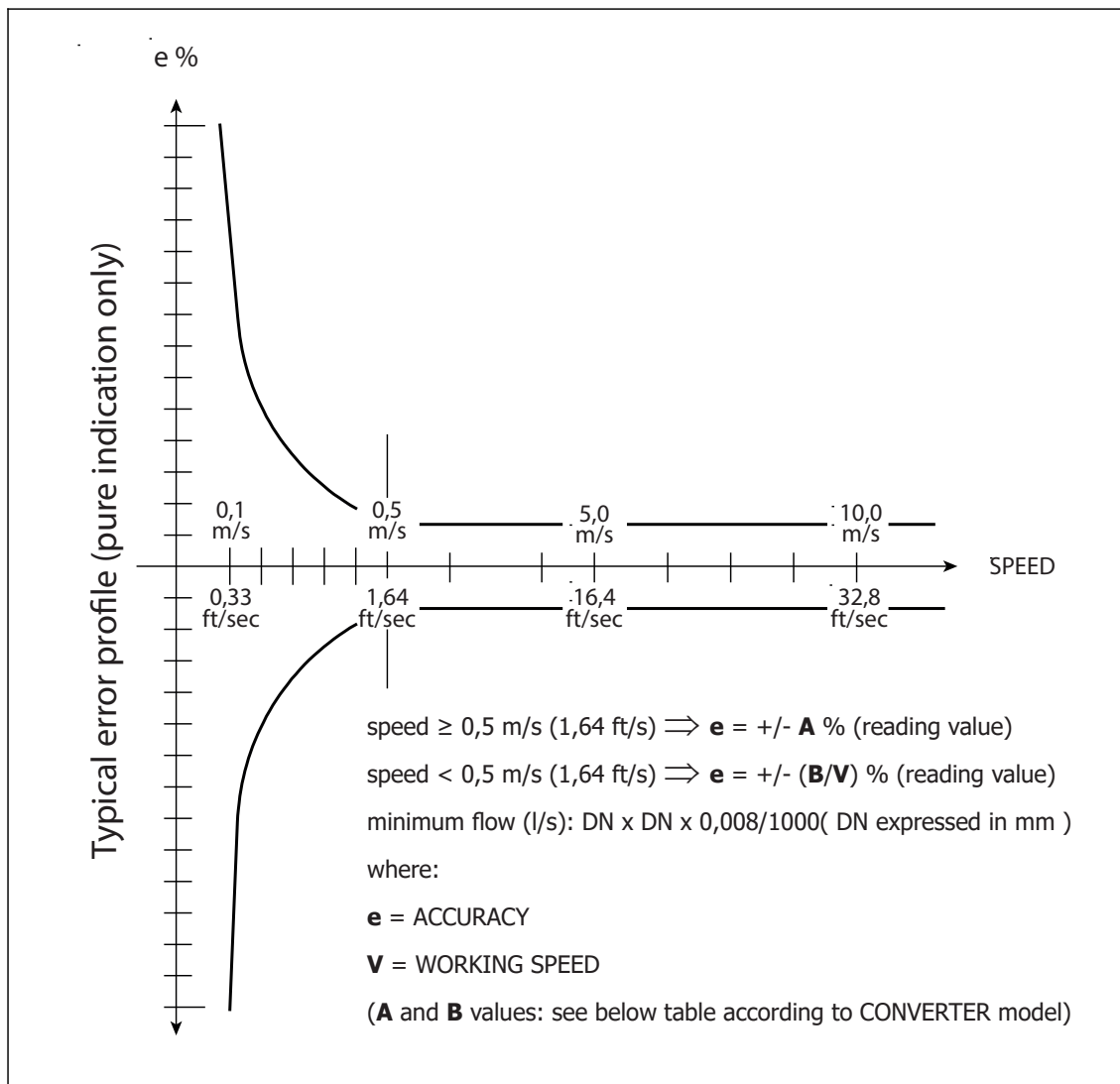
SYSTEM

```

SYSTEM
Dayl. Saving =          ON
Time zone =            h+01.00
2016/04/04-16:07
L1 code =              *****
L2 code =              *****
L3 code =              *****
L4 code =              *****
L5 code =              *****
L6 code =              *****
Restr. Access=         ON
010.011.012.013
010.011.012.014
255.255.255.000
HT                     0.96469
HS                     1.00000
HR                     1.00000
DAC1                   (°C)
DAC1                   (°C)
DAC2                   661
DAC2                   3327
Stand-by               3453
FW update              14718
13-1 Daylight saving time change
13-2 Localized time zone
13-3 System date and time
13-4 Access level 1 code
13-5 Access level 2 code
13-6 Access level 3 code
13-7 Access level 4 code
13-8 Access level 5 code
13-9 Access level 6 code
13-10 Restricted access level
13-11 Device IP network address
13-12 Client IP network address
13-13 Network mask
13-14 Calibration coefficient KT
13-15 Calibration coefficient KF
13-16 Calibration coefficient KR
13-17 DAC1 out 4mA calibration point
13-18 DAC1 out 20mA calibration point
13-19 DAC2 out 4mA calibration point
13-20 DAC2 out 20mA calibration point
13-21 Stand-by
13-22 firmware update

MAI
09-Display
10-Data logger
11-Functions
12-Diagnostic
13-System
    
```

ACCURACY



Full bore sensor

MS501/MS1000/MS2410/MS2500			MS 600			MS5000		
A	B(m/s)	B(ft/s)	A	B(m/s)	B(ft/s)	A	B(m/s)	B(ft/s)
0,2	0,1	0,66	0,4	0,2	1,32	2	1	3,28

Insertion sensors

See sensors DATA SHEET

Reference conditions below and as per internal testing procedures:

- Constant flow rate during the test
- Pressure: >30 Kpa
- Flow condition : fully developed flow profile
- Zero stability +/- 0,005 %

OIML R49

The sensor **MS2500** diameters below, coupled with **MV110** are certified in accordance with OIML R49:2013

CLASS 1

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.10	0.064	250
32	1 ¼	25	0.16	0.10	
40	1 ½	40	0.26	0.16	
50	2	63	0.40	0.25	
65	2 ½	100	0.64	0.40	
80	3	160	1.0	0.64	
100	4	250	1.6	1.0	
125	5	400	2.6	1.6	
150	6	630	4.0	2.5	
200	8	1000	6.4	4.0	
250	10	1600	10	6.4	
300	12	2500	16	10	
350	14	2500	16	10	
400	16	4000	26	16	
450	18	4000	26	16	
500	20	6300	40	25	
600	24	10000	64	40	

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.26	0.16	100
32	1 ¼	25	0.4	0.25	
40	1 ½	40	0.64	0.4	
50	2	63	1.01	0.63	
65	2 ½	100	1.6	1	
80	3	160	2.6	1.6	
100	4	250	4	2.5	
125	5	400	6.4	4	
150	6	630	10.1	6.3	
200	8	1000	16	10	
250	10	1600	26	16	
300	12	2500	40	25	
350	14	2500	40	25	
400	16	4000	64	40	
450	18	4000	64	40	
500	20	6300	101	63	
600	24	10000	160	100	

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.32	0.2	80
32	1 ¼	25	0.5	0.31	
40	1 ½	40	0.8	0.5	
50	2	63	1.3	0.79	
65	2 ½	100	2	1.25	
80	3	160	3.2	2	
100	4	250	5	3.13	
125	5	400	8	5	
150	6	630	13	7.88	
200	8	1000	20	12.5	
250	10	1600	32	20	
300	12	2500	50	31.25	
350	14	2500	50	31.25	
400	16	4000	80	50	
450	18	4000	80	50	
500	20	6300	126	78.75	
600	24	10000	200	125	

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CLASS 2

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.064	0.040	400
32	1 ¼	25	0.10	0.063	
40	1 ½	40	0.16	0.10	
50	2	63	0.25	0.16	
65	2 ½	100	0.40	0.25	
80	3	160	0.64	0.40	
100	4	250	1.0	0.63	
125	5	400	1.6	1.0	
150	6	630	2.5	1.6	
200	8	1000	4.0	2.5	
250	10	1600	6.4	4.0	
300	12	2500	10	6.3	
350	14	2500	10	6.3	
400	16	4000	16	10	
450	18	4000	16	10	
500	20	6300	25	16	
600	24	10000	40	25	
650	26	10000	40	25	
700	28	10000	64	40	250
750	30	10000	64	40	
800	32	16000	160	100	160
900	36	16000	160	100	
1000	42	16000	256	160	100
1200	48	16000	320	200	80
1400	56	16000	320	200	
1600	64	16000	320	200	
1800	72	16000	640	400	40
2000	80	16000	640	400	

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.10	0.064	250
32	1 ¼	25	0.16	0.10	
40	1 ½	40	0.26	0.16	
50	2	63	0.40	0.25	
65	2 ½	100	0.64	0.40	
80	3	160	1.0	0.64	
100	4	250	1.6	1.0	
125	5	400	2.6	1.6	
150	6	630	4.0	2.5	
200	8	1000	6.4	4.0	
250	10	1600	10	6.4	
300	12	2500	16	10	
350	14	2500	16	10	
400	16	4000	26	16	
450	18	4000	26	16	
500	20	6300	40	25	
600	24	10000	64	40	
650	26	10000	64	40	
700	28	10000	64	40	
750	30	10000	64	40	
800	32	16000	160	100	160
900	36	16000	160	100	
1000	42	16000	256	160	100
1200	48	16000	320	200	80
1400	56	16000	320	200	
1600	64	16000	320	200	
1800	72	16000	640	400	40
2000	80	16000	640	400	

CLASS 2

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0.16	0.10	160
32	1 ¼	25	0.25	0.16	
40	1 ½	40	0.40	0.25	
50	2	63	0.63	0.40	
65	2 ½	100	1.0	0.63	
80	3	160	1.6	1.0	
100	4	250	2.5	1.6	
125	5	400	4.0	2.5	
150	6	630	6.3	4.0	
200	8	1000	10	6.3	
250	10	1600	16	10	
300	12	2500	25	16	
350	14	2500	25	16	
400	16	4000	40	25	
450	18	4000	40	25	
500	20	6300	63	40	
600	24	10000	100	63	
650	26	10000	100	63	
700	28	10000	100	63	
750	30	10000	160	100	
800	32	16000	160	100	
900	36	16000	160	100	
1000	42	16000	250	160	100
1200	48	16000	320	200	80
1400	56	16000	320	200	
1600	64	16000	320	200	40
1800	72	16000	640	400	
2000	80	16000	640	400	

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<http://www.isoil.it/en>



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