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NON-NUCLEAR DENSITY METERS


MINING INDUSTRY

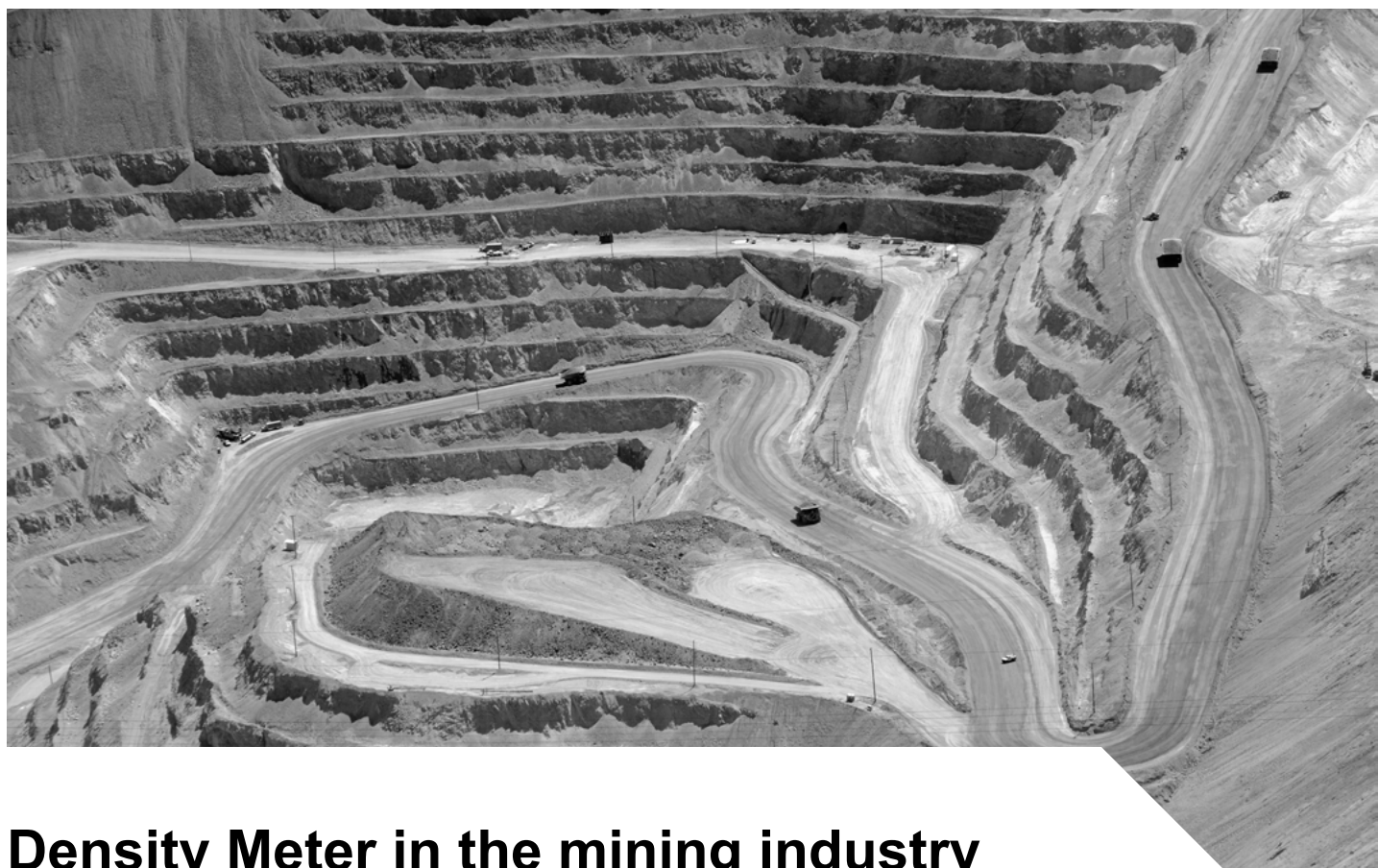
EDITION
DECEMBER 2017



Alia Instruments is a producer of process control equipment in various markets. The Alia Density Meters (ADMs) are used for the continuous density control of different slurries in many applications. These processes are often characterized as challenging processes due to their abrasive or corrosive characteristics.

For many years, there was no option available other than using gamma radiation to measure these slurries from outside the pipe. However, with the inception of Alia Instruments, customers now have a sustainable alternative to control and optimize their processes.

 For more information about Alia Instruments, please refer to the company profile.








Density Meter in the mining industry

The Alia Density Meter has a variety of applications in the mining industry. They can e.g. be used in the wet mining process, as part of the production meter, where the combination of both values provide valuable data about the efficiency of the dredging process.

The meters also perform very well in the slurry streams around dewatering processes in the mining of various metals and minerals.

Among the many advantages that the ADM offers to the mining industry, the sustainability-related benefits are probably the most important today. The use of this density meter can contribute significantly to saving large amounts of water by providing the operator with an accurate and immediate reading of slurry densities, resulting in an optimal use of often-scarce water.

Advantages Alia Instruments

-  A simple, reliable, and robust product
-  Easy installation; no need for external commissioning engineers
-  An immediate signal, showing actual values
-  Measurement of all materials—e.g., sand, metals, rocks, and gases—without any problems (incl. freshwater and saltwater)
-  Easy integration with existing systems and software

Working principle


The meter's design is as straightforward as possible: an in-line density meter that is robust and exceptionally easy to install and use. The design makes use of Newton's second law of gravity to determine the mass of the slurry, while the volume is a known factor in the meter. This means that the output data is immediate and accurate regardless of pipe diameter or slurry composition.

In order to yield accurate results, all non-gravitational forces working on the device are mitigated. In particular, to overcome arduous process conditions—for example, a dredger rolling on ocean waves, or pipes vibrating under high pressure pumps—an accelerometer is implemented, which can calculate and neutralize any interfering forces simultaneously.



Sustainable
production
optimization



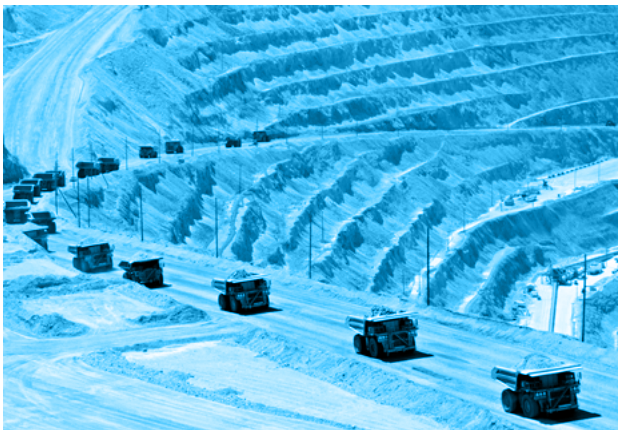
 *At Alia Instruments we believe in designing sustainable and reliable products that keep matters simple.*

Jan Peters

CEO Alia Instruments

Advantages of using a non-nuclear density meter

- + A more sustainable business management and company reputation
- + Employees who are not afraid to perform checks and repairs
- + No need for special trainings or specifically trained personnel
- + No concerns about more stringent regulations in the future
- + No more challenges when transporting nuclear sources
- + Demonstrating social responsibility, and responding to society's pressure to reduce nuclear waste



Available sizes

ADMs are available in the following standard inner-diameter sizes:

METRIC SIZES (MM)	80	100	150	200	250	300	350	400	450	500	550	600	650
METRIC SIZES (MM)	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300

IMPERIAL SIZES (INCH)	3	4	6	8	10	12	14	16	18	20	22	24	26
IMPERIAL SIZES (INCH)	28	30	36	32	34	36	38	40	42	44	46	50	52

- Apart from the standard sizes displayed above, Alia Instruments can also deliver any customized size.
- Alia Density Meters are delivered with DIN, ASME, JIS, or BS10 standard flanges.

i For specific information about the Alia Density Meter, please refer to the datasheet.



AGENT NETWORK

Alia Instruments aims for a widespread sales network, with representatives in all relevant regions. This enables us to best serve your business by providing someone who understands the local demands and speaks the local language, and who can therefore serve you in the most satisfactory manner.

Alia Instruments' representatives are carefully selected based on their market knowledge and professional business attitude. They are extensively trained by Alia Instruments and are able to provide you with optimal service and support. In order to find your regional point of contact, please visit our website.

SERVICE

Although the ADM is designed in such a manner that the customer can be fully self-sufficient, a complete service package is available:

- Commissioning supervisory service
- A customer support phone line
- The possibility for Alia Instruments remotely reading out the meter
- On-site assistance from the Alia Instruments service team can be requested anytime, anywhere

PRODUCT OPTIONS

Customers who are looking for a more complete service are also welcome. Alia Instruments is capable of delivering several standard options such as flow meters and cross-needle meters. In collaboration with our sister company, Alia Instruments can also deliver various automation solutions.



Alia Instruments is a technology leader, focused solely on our density meter. We aim to become, and remain, the market leader in non-nuclear density meters. This means that the company is in constant development to further improve the meter and make it even more adaptable to the applicable processes. Our meter strives to be the most suitable solution offering sustainable production maximization to each and every one of our customers. We believe that as long as we maintain this focus, we will progressively achieve all of our targets.

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NON-NUCLEAR DENSITY METERS DATASHEET

EDITION
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Specifications

GENERAL

Measuring	Density ρ (ton/m ³)
Range	Output will be set to applicable range, e.g. 1.000 - 1.800 kg/m ³
Maximum range	0.000 - 4.000 kg/m ³
Pressure operation	0 - 8 bar (0 - 116 psi)
Pressure peak	0 - 16 bar (0 - 232 psi)
Temperature process	0° - 60°C
Temperature ambient	-25° to 50°C
Temperature storage	-40° to 80°C
Reading Scale	kg/m ³
Calibration	Factory 3 point kalibration; application taring option in software
Vibration resistance	10-55 Hz

MEASUREMENT

Accuracy	0,5% of full scale
Temperature error coefficient	0,5% / 10°C (0,3% / 10°F)
Pressure error coefficient	0,1% / bar (0,069% / 10 psi)
Repeatability	± 0,1% of full scale
Signal delay	1 second

MECHANICAL

Housing material	Carbon steel
Colour	RAL 5015 (blue)
Type of painting	Industrial wet coating
Contact material	Natural Rubber. Other materials available on request
Mounting	Flanged connections, power supply in, signal output out
Flanges	DIN / ASME / BT10 / JIS

ELECTRICAL

Power consumption	Max. 0,55kW, 42 W under normal operation
Operating voltage	24Vdc
Connecting voltage	100 - 230Vac
Connecting frequency	50Hz / 60 Hz
Cabinet dimensions	300 x 300 x 210 mm
Cabinet colour	RAL 7035 (grey)
Length of cable	10 m
Interface type	4 - 20 mA
Optional interfaces	Different types of bus on request
Sampling rate	8 kHz intern/ 1Hz extern
Protection class	IP66 according to EN 60529
Explosion proof option	Expected Q3 2018

Metric Sizes

METRIC SIZES	ADM 80	ADM 100	ADM 150	ADM 200	ADM 250	ADM 300	ADM 350	ADM 400	ADM 450	ADM 500	ADM 550	ADM 600	ADM 650
Inner diameter (mm)	80	100	150	200	250	300	350	400	450	500	550	600	650
METER MEASUREMENTS													
Length (mm)	900	1000	1000	1400	1500	1600	1700	1750	1800	2000	2100	2200	2250
Width (mm)	400	400	500	800	800	900	950	1000	1000	1100	1200	1300	1350
Height (mm)	500	500	600	800	800	900	1100	1200	1350	1500	1600	1800	1950
Weight (kg)	120	160	240	400	800	1000	1250	1500	1800	2100	2600	3200	3600
PACKAGE MEASUREMENTS													
Length (mm)	1100	1200	1200	1600	1700	1800	1900	1950	2000	2200	2300	2400	2450
Width (mm)	600	600	700	1000	1000	1100	1150	1200	1200	1300	1400	1500	1550
Height (mm)	850	850	950	1150	1150	1250	1450	1550	1700	1850	1950	2150	2300
Weight (kg)	170	220	310	530	945	1160	1430	1700	2030	2360	2890	3535	3970

METRIC SIZES	ADM 700	ADM 750	ADM 800	ADM 850	ADM 900	ADM 950	ADM 1000	ADM 1050	ADM 1100	ADM 1150	ADM 1200	ADM 1250	ADM 1300
Inner diameter (mm)	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
METER MEASUREMENTS													
Length (mm)	2300	2400	2600	2750	2825	2900	3000	3100	3200	3300	3400	3450	3500
Width (mm)	1400	1500	1600	1700	1750	1800	1900	1950	2000	2100	2200	2300	2350
Height (mm)	2050	2200	2400	2450	2500	2700	2800	2950	3000	3200	3300	3450	3600
Weight (kg)	3950	4250	4650	5000	5300	5600	6050	6300	6600	7000	7300	7650	8000
PACKAGE MEASUREMENTS													
Length (mm)	2500	2600	2800	2950	3025	3100	3200	3300	3400	3500	3600	3650	3700
Width (mm)	1600	1700	1800	1800	1950	2000	2100	2150	2200	2300	2400	2500	2550
Height (mm)	2400	2550	2750	2900	2950	3100	3250	3400	3450	3650	3750	3900	4050
Weight (kg)	4350	4695	5170	5565	5915	6235	6767	7118	7457	7934	8296	8710	9111

Imperial Sizes

IMPERIAL SIZES	ADM I3	ADM I4	ADM I6	ADM I8	ADM I10	ADM I12	ADM I14	ADM I16	ADM I18	ADM I20	ADM I22	ADM I24	ADM I26
Inner diameter (inch)	3	4	6	8	10	12	14	16	18	20	22	24	26
METER MEASUREMENTS													
Length (inch)	35	39	39	55	59	63	67	69	71	79	83	87	89
Width (inch)	16	16	20	31	31	35	37	39	39	43	47	51	53
Height (inch)	20	20	24	31	31	35	43	47	53	59	63	71	77
Weight (kg)	120	160	240	400	800	1000	1250	1500	1800	2100	2600	3200	3600
PACKAGE MEASUREMENTS													
Length (inch)	43	47	47	63	67	71	75	77	79	87	91	94	96
Width (inch)	24	24	28	39	39	43	45	47	47	51	55	59	61
Height (inch)	33	33	37	45	45	49	57	61	67	73	77	85	91
Weight (kg)	170	220	310	530	945	1160	1430	1700	2030	2360	2890	3535	3970

IMPERIAL SIZES	ADM I28	ADM I30	ADM I32	ADM I34	ADM I36	ADM I38	ADM I40	ADM I42	ADM I44	ADM I46	ADM I48	ADM I50	ADM I52
Inner diameter (inch)	28	30	32	34	36	38	40	42	44	46	48	50	52
METER MEASUREMENTS													
Length (inch)	91	94	102	108	111	114	118	122	126	130	134	136	138
Width (inch)	55	59	63	67	69	71	75	77	79	83	87	91	93
Height (inch)	81	87	94	96	98	106	110	116	118	126	130	136	142
Weight (kg)	3950	4250	5000	5500	5300	5600	6050	6300	6600	7000	7300	7650	8000
PACKAGE MEASUREMENTS													
Length (inch)	98	102	110	116	119	122	126	130	134	138	142	144	146
Width (inch)	63	67	71	71	77	79	83	85	87	91	94	98	100
Height (inch)	94	100	108	114	116	122	128	134	136	144	148	154	159
Weight (kg)	4350	4695	5170	5565	5915	6235	6767	7118	7457	7934	8296	8710	9111



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NON-NUCLEAR DENSITY METERS COMPANY PROFILE

EDITION
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Alia Instruments is a Dutch-based builder of production monitoring equipment for a variety of industries, serving customers from all over the world.

Alia Instruments began with a clear goal in mind: to redefine industry standards in sustainability, compatibility, and process optimization by providing users with innovative non-nuclear production monitoring solutions, based on a straightforward gauging principle and built from industry-standard components.

Our engineering is the result of an innovative reconfiguration of trusted elements—technology that has proven itself in countless applications and conditions. We believe that what makes a reliable and accurate device is a comprehensive design that keeps matters simple.



A TRADITION OF INNOVATION

Historically, Dutch shipbuilders, instrument makers, and cartographers have been world leaders in technological innovation and expertise. This concentration of craftsmanship and maritime know-how transformed the Dutch Republic into a formidable naval power four centuries ago.

Today, the Dutch government, aware of this seafaring heritage, is actively promoting the maritime industry. The development of the meter was first initiated based on the demand from the dredging industry, and therefore Alia Instruments is a proud exponent of government incentives for 21st-century maritime innovation—and, as such, a proud exponent of a long and rich tradition.

REGIONAL ROOTS, GLOBAL REACH

Alia Instruments is based in Twente, a region of the Netherlands that emphasizes its entrepreneurial and tech-minded ethos. To further this ambition, the provincial government has implemented various programs to attract investors, young and talented entrepreneurs, and developers of disruptive technology. By being firmly rooted in this regional infrastructure, Alia has the support it needs to change a global industry.

A NETWORK OF KNOWLEDGE

At the core of Twente's tech infrastructure lies Twente University, one of four Dutch technical universities. The offices of Alia Instruments are located on the flagship innovation campus Kennispark, right next door to the university campus.

Our strong ties to our academic neighbor give us access to state-of-the-art research and allow us to collaborate with students and professors, as well as fellow tech entrepreneurs. This vast network of expertise informs both our product and our comprehensive customer service.



USING THE NETWORK

Alia Instruments actively cooperates with, and makes use of, the knowledge and services of other companies in the region. Alia maintains a very close relationship with two companies in particular (Demcon and Imotec), as both are large contributors to the development of our products.

Back in 2012, the maritime automation company Imotec, primarily active in the dredging industry, made the first steps toward the development of a non-nuclear density meter. A cooperation was sought with the engineering firm Demcon, and together they went through a long development process before Alia Instruments was founded in early 2017.

Mission Statement

“ *To provide innovative production monitoring solutions, redefining industry standards in sustainability, compatibility, and process optimization: Clear products that keep matters simple.*

Jan Peters

CEO Alia Instruments

Alia Instruments – Vision Statement

We started Alia Instruments with a clear goal in mind: to redefine industry standards in sustainability, compatibility, and process optimization by providing users with innovative non-nuclear production monitoring solutions. We strive to lead the industry with smart, green, and cost-efficient technology that enables sustainable growth in a wide variety of global markets in which Alia Instruments is active.

We believe that what makes a reliable and accurate device is a comprehensive and sustainable design that keeps matters simple. Based on a straightforward gauging principle, our engineering is the result of an innovative reconfiguration of trusted elements—robust technology that has proven itself in countless applications and conditions. Alia offers clear alternatives that make a difference.

Through simple design, our devices can be implemented and used in any environment, and serviced by local engineers anywhere. Improving an entire industry requires innovation that can make an industry-wide impact. With our versatile products, Alia Instruments aspires to do just that.



Alia Instruments – Values





OUR COMMITMENT

@Alia Instruments ...

-  We focus on genuine customer satisfaction.
-  We excel in our customer service.
-  We engage with our customers' challenges.
-  We strive for the highest quality in our work and our products.

OUR RELIABILITY





@Alia Instruments ...

-  We function as reliable business partners and colleagues.
-  We are honest with our customers and with each other.
-  We honor our commitments and are accountable for our deeds.
-  We are professionals who advocate for our customers and products.







OUR INNOVATION

@Alia Instruments ...

-  We encourage creativity.
-  We combine our talents to achieve success.
-  We know that improvement is a continuous process.
-  We have a pragmatic and proactive attitude.





OUR SUSTAINABILITY

@Alia Instruments ...

-  We believe that the planet, people, and profit go in harmony.
-  Our business model is based on sustainable profit maximization.
-  We work in an environmentally conscious manner.
-  We oppose and stand up against bribery and corruption.

OUR WORK ENVIRONMENT

@Alia Instruments ...

-  We work with passion and enthusiasm.
-  We enjoy our warm, informal atmosphere and treat each other with respect.
-  We work hard, but never at the expense of our private lives.
-  We form an open-minded, efficient team.





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