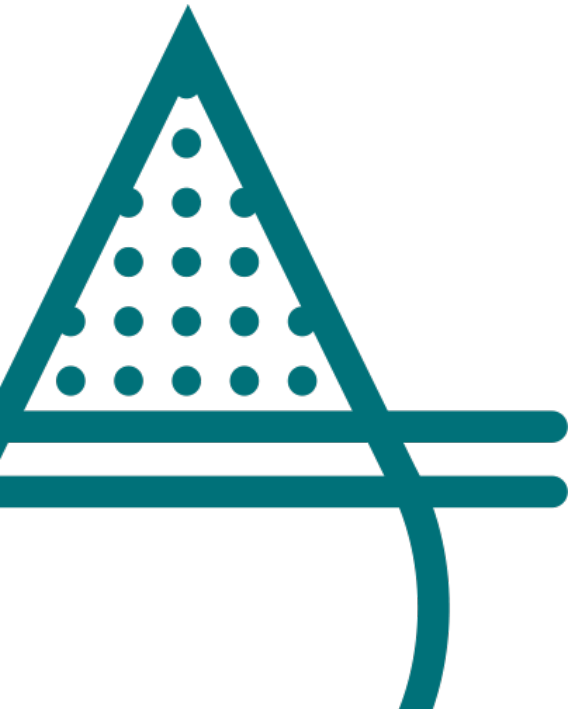


A series of thin, parallel yellow lines that curve from the top left towards the right side of the page, creating a sense of motion and flow.

NORTEK



FLUIDS
TECHNOLOGY



FILTRATION SOLUTIONS

Magnetic Separators



Magnetic separators **clean fluids from ferritic impurities and tramp oil** by magnetism.

Rolling and polishing fluids, as well as coolants used in steel processing, machining of cast iron and cleaning of sintering water are susceptible to **high metal contamination**.

These **foreign metallic bodies can contaminate in turn the finished product** and cause severe damage to the machinery.

We have **extensive experience in designing and manufacturing chain-type magnetic separators** in several configurations, especially for rolling mill emulsion systems.

Our broad range of separators includes **standardized and tailored models**, featuring in-house manufactured magnetic rods and chains to ensure quality to the extent possible.





How does a magnetic separator work?

Magnetic separators can be used in main flow or in by-pass mode. They work continuously and without pressure.

Special wipers remove the ferritic impurities (which are discharged on a conveyor) from the magnetic rods.

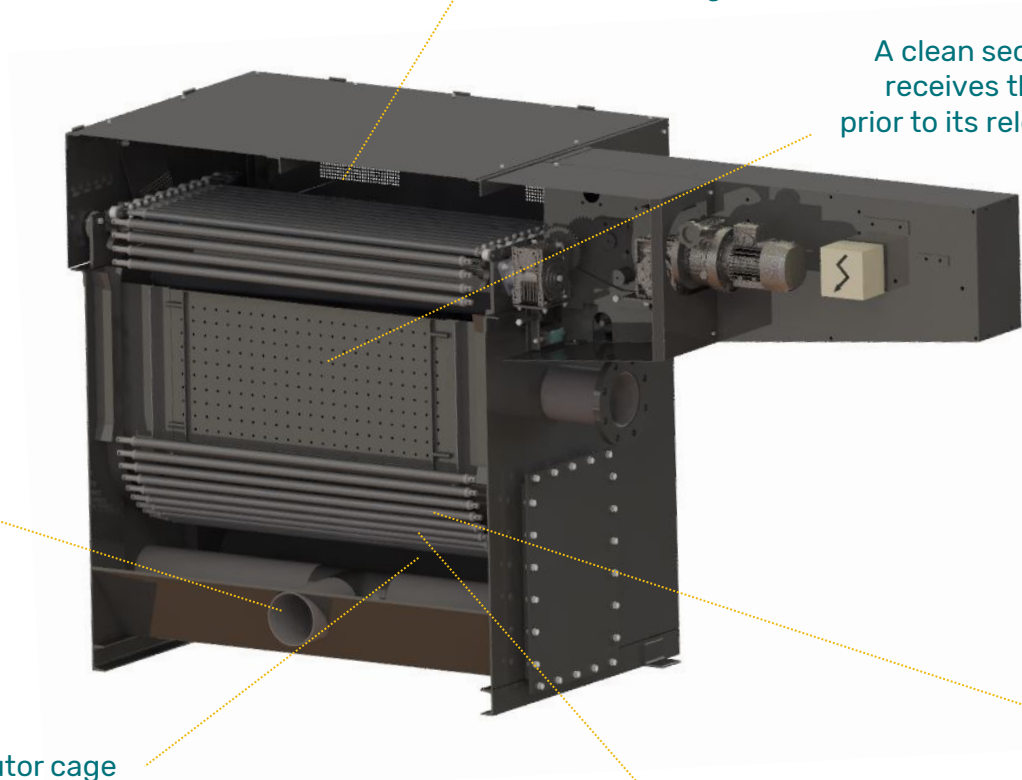
A clean section inside the separator receives the decontaminated fluid prior to its release to the clean fluid tank.

The contaminated fluid enters the device through a manifold.

A distributor cage inside the magnet system ensures a uniform flow, which is guided along the magnetic rods.

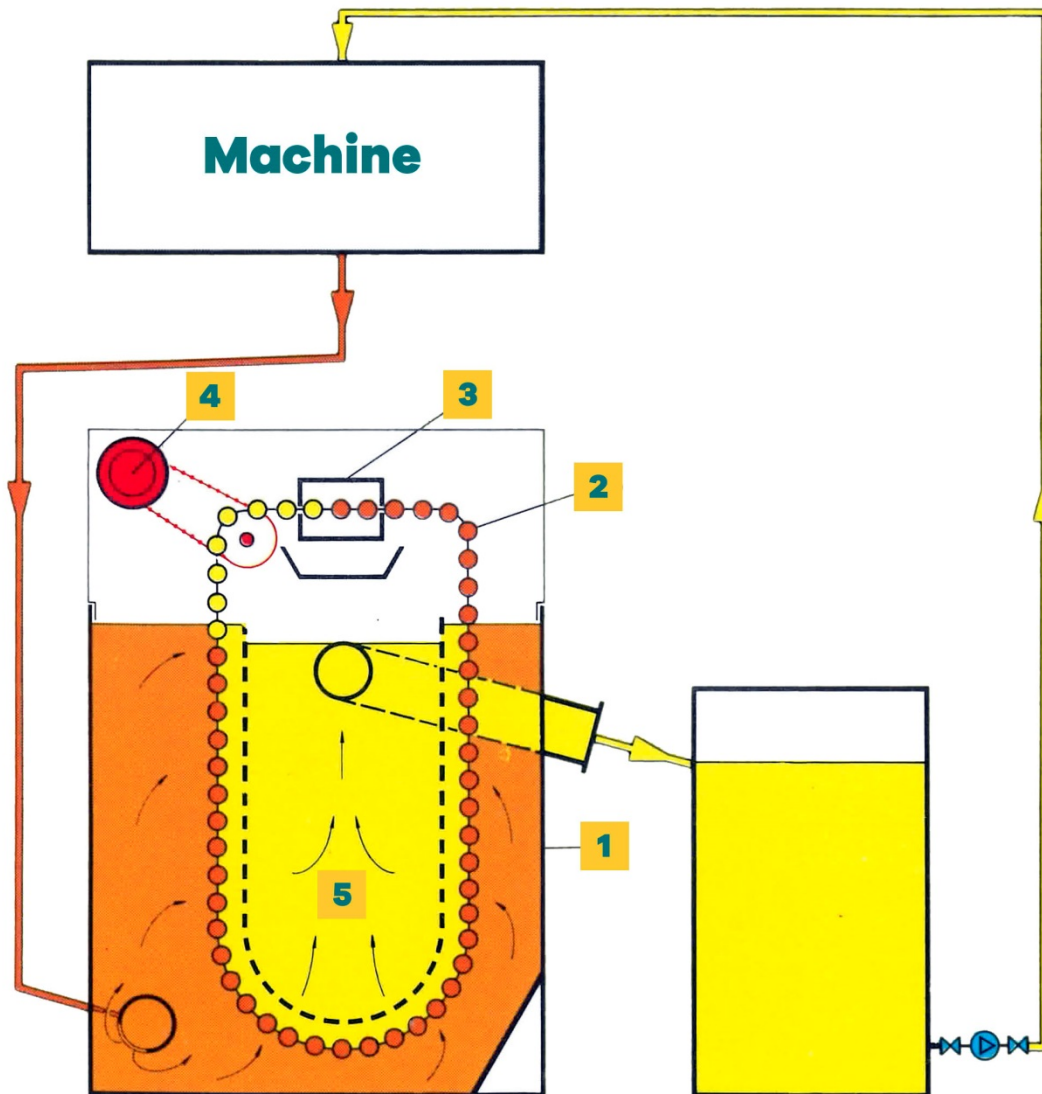
The permanent magnets of the moving rods create powerful magnetic fields, thus attracting the iron particles, which are removed from the fluid.

The insignificant distance of the interspaces between the magnetic rods and the controlled flow speeds at those points (only a few cm/sec) allow the creation of a "filter layer", so that **very fine particles (of less than 1 micron) can be successfully separated.**





MAIN COMPONENTS



1

Casing, with entry and delivery section, and distributor cage. A frame without casing can be supplied upon request.

2

Moving magnetic rod system, provided with permanent magnets that exert a strong magnetic force. These are encased in a non-magnetic steel tube that ensures perfect wiping.

3

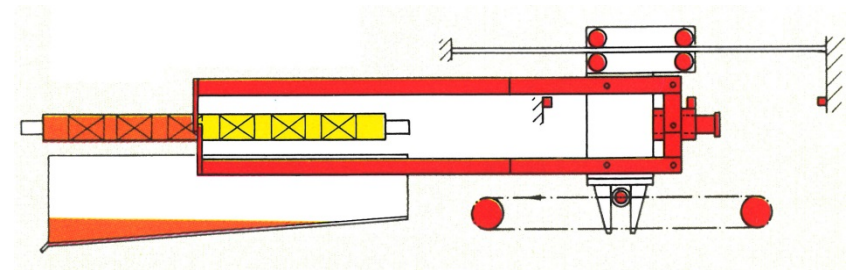
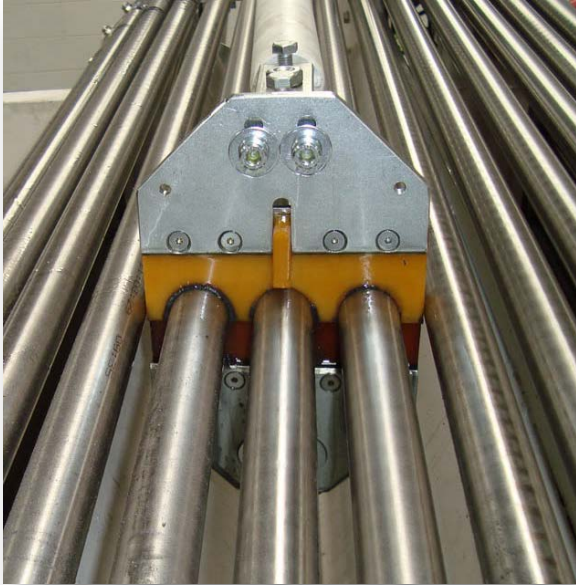
Wiper, which removes dirt adhering to the magnetic rods. This dirt is discharged by means of a worm conveyor.

4

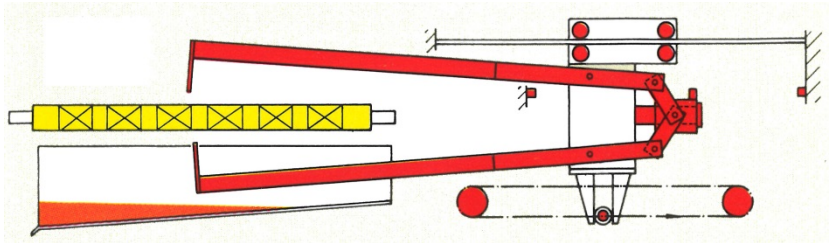
Variable-speed gear motor for the common drive of the magnetic rod system and the cleaning device.

5

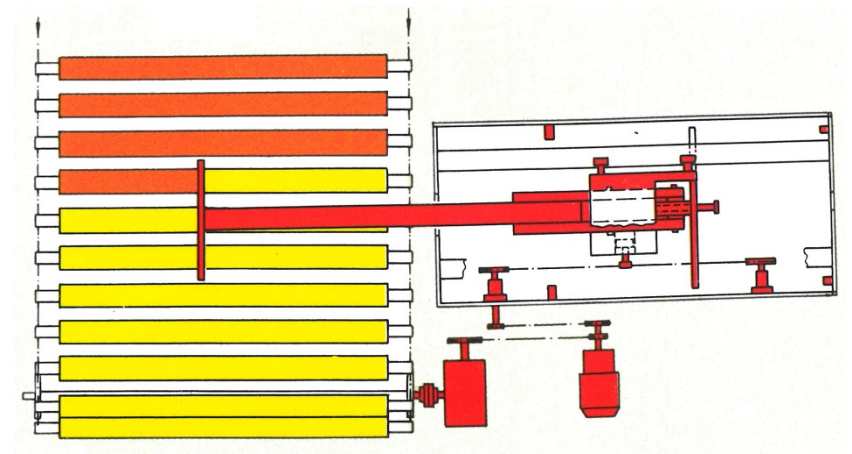
Clean section, to which the liquid which has passed the magnetic rods is conveyed. The fluid will flow through the discharge flange to a clean liquid tank.



Cleaning device during the cleaning stroke.



Cleaning device during the idle stroke.



Drive of the cleaning device and of the bar magnets with a common geared motor provided for continuous operation.



BACKGROUND EXPERIENCE

- NORTEK has been designing and manufacturing chain-type magnetic separators for oil and emulsions **since 1983**. Our systems are able to bring the concentration of ferritic particles **below 70 ppm**.



LEADING POSITIONS IN THE PRIMARY METALS MARKET

- We are a **global leading provider of lubrication and fluids systems for the steel & non-ferrous sector**, with more than 50 years of experience collaborating and developing international patents with premier companies all over the world.

IN-HOUSE EXPERTISE

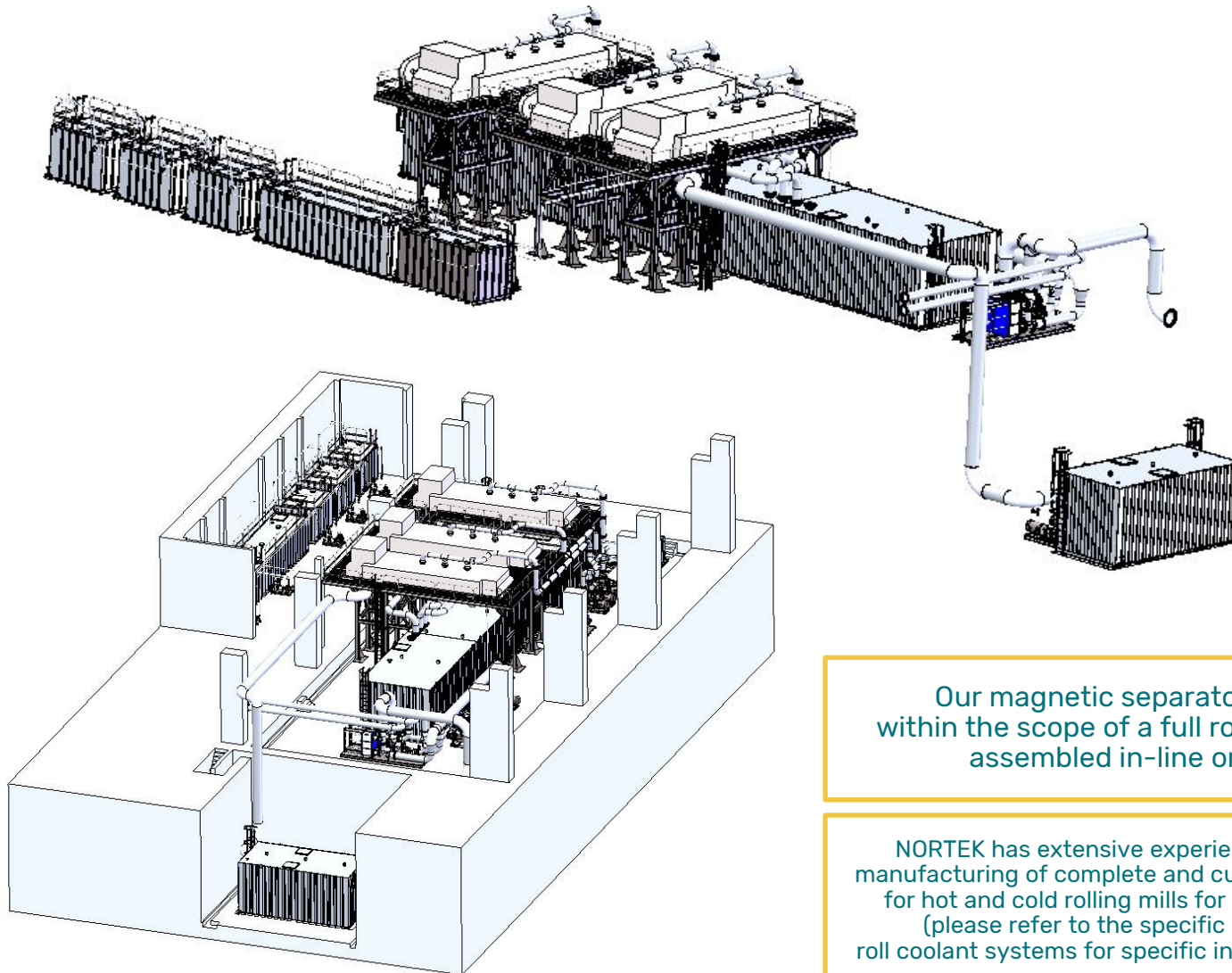
- Our multi-ability workshop guarantees top-quality manufacturing, including **ISO-3834-certified welding** procedures and **in-house production of magnetic rods and chains**.

STANDARD AND TAILOR-MADE

- We offer well-proven **standardized separators**, as well as **customized** magnetic filtering solutions in **various configurations and sizes**.



Year	Quantity	Fluid	Flow (L/min)	No. of Magnets	Customer	Final Destination
1983	1	Coolant	5,000	200	ENSIDESA	Asturias, Spain
1984	1	Coolant	5,000	200	ENSIDESA	Asturias, Spain
1986	1	Coolant	4,000	174	INA RODISA	Guipúzcoa, Spain
1986	4	Oil	1,000	69	Altos Hornos de Vizcaya	Vizcaya, Spain
1987	1	Oil	1,000	69	Altos Hornos de Vizcaya	Vizcaya, Spain
1987	1	Coolant	1,250	76	INCO S.A.	Kenya
1987	1	Coolant	1,000	69	Gonvarri	Burgos, Spain
1988	1	Coolant	1,000	69	APM	Mexico
1988	1	Coolant	1,000	69	Arania	Vizcaya, Spain
1988	1	Coolant	1,000	69	Laminaciones y Derivados	Vizcaya, Spain
1989	2	Coolant	8,400	201	ENSIDESA	Asturias, Spain
1989	1	Coolant	9,200	219	Altos Hornos de México	Mexico
1989	1	Coolant	6,700	174	Altos Hornos de México	Mexico
1992	1	Oil	8,000	222	Vizdürr	GM plant, Spain
1992	1	Oil	1,000	68	Altos Hornos de Vizcaya	Vizcaya, Spain
1993	1	Oil	1,750	90	Laminación Vizcaya	Vizcaya, Spain
1995	1	Oil	1,000	69	Sidmed	Sagunto, Spain
1997	1	Oil	6,000	219	Hylsa	Mexico
1997	2	Coolant	4,000	174	Aceralia Transformados	Navarra, Spain
1998	1	Coolant	1,000	68	Orkli	Guipúzcoa, Spain
1996	1	Coolant	3,500	150	SIDMED TS	Sagunto, Spain
1996	1	Coolant	6,100	219	SIDMED	Sagunto, Spain
1999	1	Coolant	3,000	150	Arania	Vizcaya, Spain
2001	1	Coolant	3,500	150	Aceralia Etxebarri	Bilbao, Spain
2003	2	Coolant	6,000	219	Danieli Wean United	Vietnam
2004	1	Coolant	9,200	219	Altos Hornos de México	Mexico
2011	1	Coolant	4.800	198	Siemens-VAI Metals Technologies, Ltd.	Fujian, China
2011	1	Coolant	14,400	354	Siemens-VAI Metals Technologies, Ltd.	Fujian, China
2012	1	Oil	3,500	150	RDI-MET (Fagor)	China
2013	3	Coolant	2,500	126	Siemens-VAI Metals Technologies, France	Tangshan, China
2013	2	Coolant	833	69	Siemens-VAI Metals Technologies, France	Tangshan, China
2015	1	Coolant	7,700	246	Danieli	Atakas, Turkey
2015	1	Coolant	6,600	228	Danieli	Atakas, Turkey
2017	1	Oil	1,666	90	Primetals Technologies, France	AHMSA, Mexico
2017	1	Oil	833	69	Primetals Technologies, France	AHMSA, Mexico

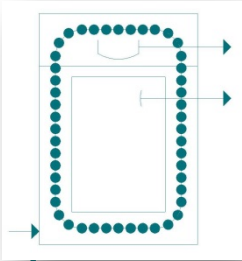


Our magnetic separators may be supplied within the scope of a full roll coolant system order, assembled in-line or within the tank.

NORTEK has extensive experience in the engineering and manufacturing of complete and customized roll coolant systems for hot and cold rolling mills for steel, aluminum and copper (please refer to the specific presentation of NORTEK roll coolant systems for specific information on this application).



COMPACT MODELS



FREE-SETUP MODELS

MS-FS

(in-line standard model)

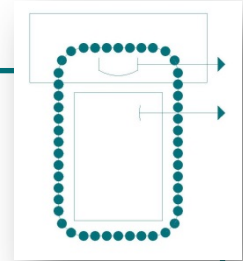
Compact model for free setup in an installation. Commonly used for removing dirt in suspension; for example, in emulsions used for steel rolling. This is NORTEK's standardized solution (check available configurations further on).

IN-TANK MODELS

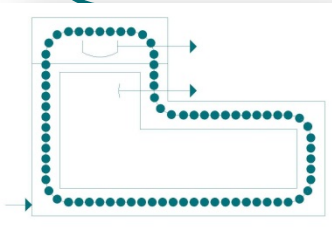
MS-TS

(in-tank standard model)

Frame model for setup within the dirty part of a tank. Tailor-made design and manufacturing upon customer's request.



ANGULAR-SHAPED MODELS



MS-FL

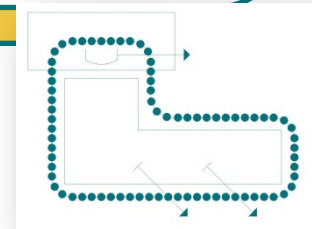
(in-line L-type model)

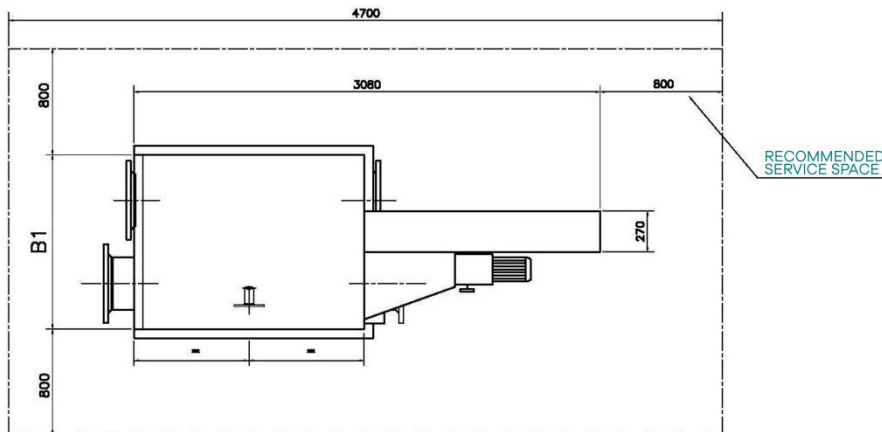
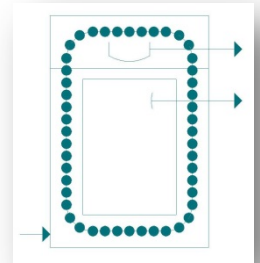
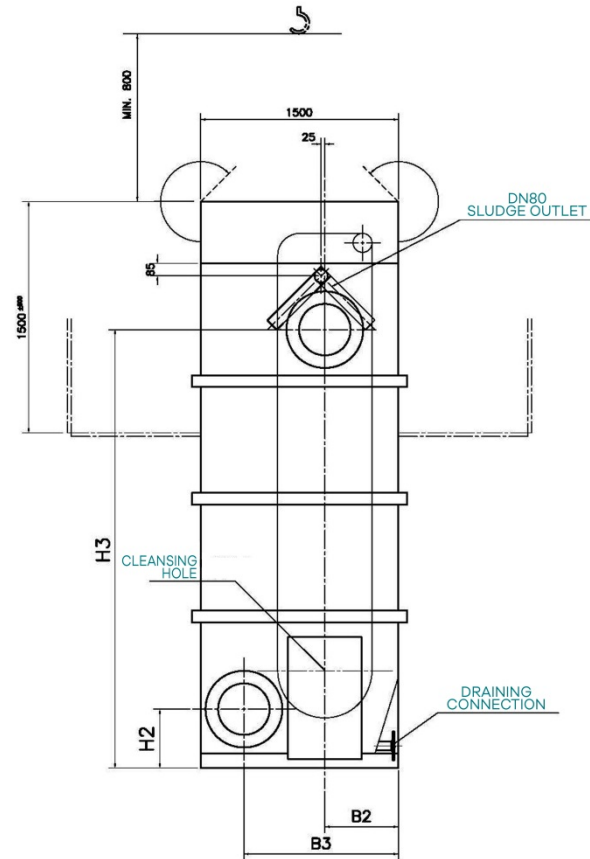
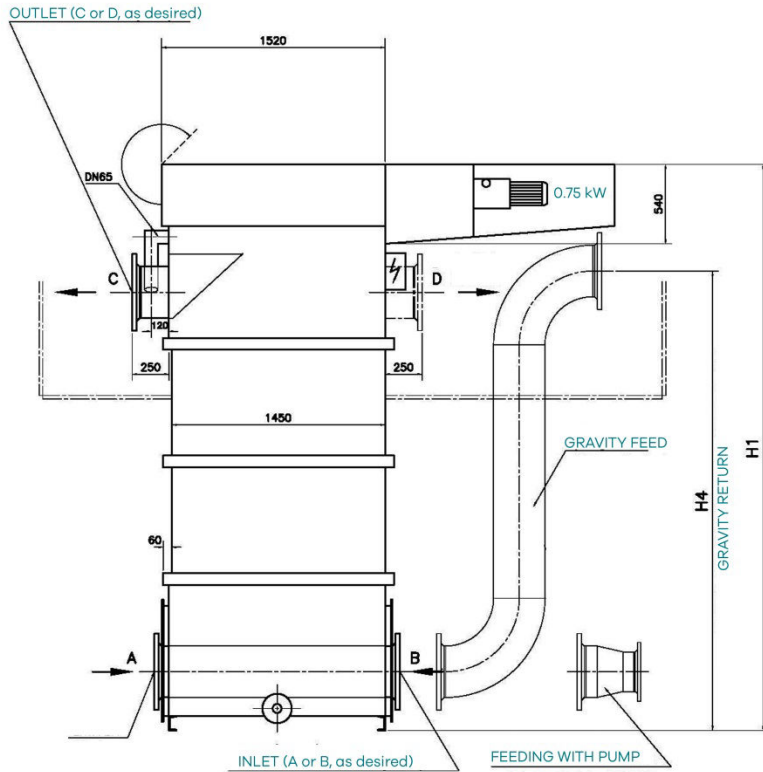
Angular-shaped model for free setup in a site where the available distance in the return line is not high enough to allow the installation of the compact model. Tailor-made design and manufacturing upon customer's request.

MS-TL

(in-tank «L-type» model)

Angular-shaped model for setup within the dirty part of low-height tanks. Tailor-made design and manufacturing upon customer's request.





This is NORTEK's **standardized compact model** to be installed in-line (in main flow or in by-pass mode).

Features a 0.75-kW geared motor, two limit switches (to control overload at the bar transfer and the wiper) and a float switch to protect from overflow, all wired in terminal box / control panel.

It can be manufactured in different sizes. Customer may choose between a standard and a reinforced magnetic rod chain (see part numbers below).



Part number	No. of Magnets	MAGNETIC ROD CHAIN		Volumetric Flow L/min	Empty Weight kg	Filler Content L	Inlet A/B DN/PN	Outlet C/D DN/PN	DIMENSIONS						Drain connection DN/PN
		Standard (42 mm)	Reinforced (63 mm)						B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	
4100068 4100069	68 69	X	X	1000	1000	1600	150/16	1150	500	950	1540	280	800	1030	40/16
4100075 4100076	75 76	X	X	1250	1100	1750	200/10	1150	500	950	1685	280	900	1130	40/16
4100090	90	X	X	1750	1400	2600	250/10	1250	550	1030	2030	300	1220	1460	50/16
4100110 4100111	110 111	X	X	2300	1650	3400	250/10	1250	550	1030	2470	300	1660	1900	65/16
4100126	126	X	X	2750	1800	4400	300/10	1350	600	1100	2835	330	1990	2250	65/16
4100150	150		X	3500	2100	5400	300/10	1350	600	1100	3340	330	2510	2750	80/16
4100174	174		X	4250	2400	6700	350/10	1400	600	1120	3865	360	2980	3250	80/16
4100200	200		X X	5000	2800	8400	400/10	1500	600	1170	4410	410	3480	3780	80/16
4100219	219		X	6100	3300	9200	400/10	1500	600	1170	4810	410	3880	4180	80/16



A set of three MS-FS magnetic separators



69-magnet MS-FS magnetic separator
with control panel



Two NORTEK MS-TL magnetic separators, ready for shipment.



A magnetic separator actuator head



A detail of our in-house-manufactured magnetic rod system



Chain system within
a magnetic separator

NORTEK



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