DIRTMAG® dirt separator

© Copyright 2024 Caleffi

5465M - NA5465 - NA5465M Series

Function

In heating and air conditioning control systems, the circulation of water containing impurities may result in rapid wear and damage to components such as pumps and control valves. It also causes blockages in the heat exchangers, heating elements and pipes, resulting in a lower thermal efficiency within the system. The dirt separator captures these dirt particles, collecting them in a large collection chamber, from which they can be removed even while the system is in operation. This device is capable of efficiently removing even the smallest particles, with extremely limited head loss.

The DIRTMAG® magnetic dirt separator removes both ferrous and non-ferrous impurities continuously, featuring powerful removable magnets that remove up to 100% of the ferrous impurities, including magnetite, that can form in a hydronic system, 2 ½ times the removal performance of a standard dirt separator and greater than 10,000 Gauss total strength.

This item is designed for use in closed hydronic systems. Do not use this item in plumbing applications. It does not meet the low-lead plumbing standards of U.S. and Canada.

Product range

5465M Series	Steel DIRTMAG magnetic dirt separator with ANSI flanged connections, sizes 2" - 4".
NA5465M Series	Steel DIRTMAG magnetic dirt separator with ANSI flanged connections (ASME and CRN Registered), sizes 2" - 12"; size 14" (ASME Registered). Consult Caleffi for 14" CRN.

546 series

SAFETY INSTRUCTION / CONSIGNE DE SÉCURITÉ

This safety alert symbol will be used in this manual to draw attention to safety related **instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD**.

Ce symbole d'avertissement servira dans ce manuel à attirer l'attention sur la sécurité concernant instructions. Lorsqu'il est utilisé, ce symbole signifie ATTENTION ! DEVENEZ ALERTE ! VOTRE SÉCURITÉ EST EN JEU ! NE PAS SUIVRE CES INSTRUCTIONS PEUT PROVOQUER UN RISQUE DE SECURITE.

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more nformation go to www.P65Warnings.ca.gov.

AVERTISSEMENT: Ce produit peut vous exposer à des produits chimiques comme le plomb, qui est connu dans l'État de Californie pour causer le cancer, dommages à la naissance ou autre. Pour plus d'informations rendez-vous www.P65Warnings.ca.gov.

WARNING: Caleffi shall not be liable for damages resulting from stress corrosion, misapplication or misuse of it's products.

AVERTISSEMENT: *Caleffi ne sera pas responsable des dommages résultant de la corrosion sous tension, d'une mauvaise application ou d'une mauvaise utilisation de ses produits.*

CAUTION: All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.

ATTENTION: *Tous les travaux doivent être effectués par du personnel qualifié formé à la bonne application, installation et maintenance des systèmes conformément aux codes et règlements locaux.*

CAUTION: If the DIRTMAG is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.

ATTENTION: *Si le DIRTMAG n'est pas installé, mis en service et entretenu correctement, selon les instructions contenues dans ce manuel, il peut ne pas fonctionner correctement et peut mettre en danger l'utilisateur.*

CAUTION: Make sure that all the connecting pipework is water tight.

ATTENTION: *S'assurer que tous les raccordements sont étanches.*

CAUTION: When making the water connections, make sure that the DIRTMAG connecting pipework is not mechanically over-stressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.

ATTENTION: *Lors des raccordements d'eau, veillez à ce que la tuyauterie de raccordement du DIRTMAG ne soit pas soumise à des contraintes mécaniques excessives. Au fil du temps, cela pourrait provoquer des ruptures, avec pour conséquence des pertes d'eau qui, à leur tour, pourraient causer des dommages aux biens et/ou aux personnes.*

CAUTION: Water temperatures higher than 120 °F can be dangerous. During the installation, commissioning and maintenance of the backflow preventer, take the necessary precautions to ensure that such temperatures do not endanger people.

ATTENTION: *Les températures de l'eau supérieure à 120 °F peut être dangereux. Au cours de l'installation, mise en service et l'entretien de la disconnecteur, prendre les précautions nécessaires afin de s'assurer que de telles températures ne compromettent pas les gens.*

WARNING: The outer surface of the device, especially in polymer type components, must not come into contact with any chemical substance, either on purpose or accidentally. The system fluid and any chemical additives used within the water piping system – whether for washing or as protection – must be compatible with the materials used to make the device and with the function it performs.

AVERTISSEMENT: *La surface extérieure de l'appareil, en particulier les composants de type polymère, ne doit pas entrer en contact avec des substances chimiques, que ce soit volontairement ou accidentellement. Le produit et les additifs chimiques utilisés dans les canalisations d'eau - que ce soit pour le lavage ou la protection - doivent être compatibles avec les matériaux utilisés pour la fabrication de l'appareil et avec la fonction qu'il remplit.*

Caleffi shall not be liable for damages resulting from stress corrosion, misapplication or misuse of it products.

Caleffi ne pourra être tenue responsable des dommages résultant de la corrosion, d'une mauvaise utilisation ou une mauvaise utilisation des produits.

LEAVE THIS MANUAL FOR THE USER
LAISSEZ CE MANUEL AVEC L'UTILISATEUR

Technical specifications

Steel body dirt separators and magnetic dirt separators

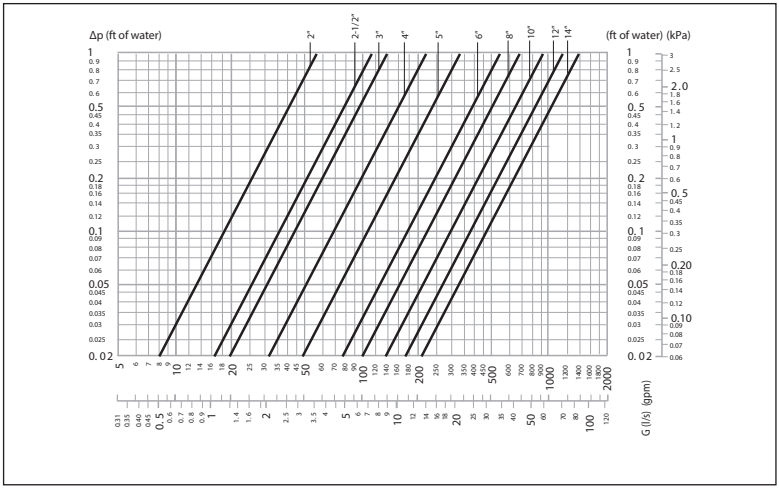
Connections:	- Main:	
	- NA5465M	2" - 14" ANSI B16.5 150 CLASS RF Flanged*
	- 5465M	2", 2 1/2", 3", 4" ANSI B16.5 150 CLASS RF Flanged
	- Top:	3/4" M (with plug)
	- Drain:	sizes 2 - 6 inch: 1" NPT sizes 8 - 14 inch: 2" NPT

*NA5465M 2" - 12" ASME/CRN registered. 14" ASME registered. Consult Caleffi for 14" CRN.

Materials:	- Body:	acrylic enamel painted steel (2 - 6" sizes) epoxy resin coated steel (8 - 14" sizes)
	- Internal element:	sizes 2" - 6": 302 stainless steel and HDPE sizes 8" - 14": stainless steel
	- Hydraulic seal:	non-asbestos fiber
	- Drain valve:	brass
	- Magnet:	neodymium rare-earth
	- Magnet probe drywell:	brass
Suitable fluids:		water, glycol solution
Max percentage of glycol:		50%
Max working pressure:		sizes 2" - 6" & 14": 150 psi (10 bar) sizes 8" - 12": 200 psi (14 bar)
Temperature range:		sizes 2" - 6": 32–270 °F (0–130 °C) sizes 8 - 12": 32–270 °F (0–130 °C)
Particle separation capacity:		to 5 µm (0.2 mil)
Ferrous impurities efficiency:		up to 100% removal
Total magnetic strength:		>10,000 Gauss

Agency approval:
Designed and built in accordance with Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code and tagged and registered with the National Board of Boiler and Pressure Vessel Inspectors, stamped for 150 psi (10 bar) working pressure, with ASME U stamp. 2 to 12 inch series NA5465AM are CRN Registered. Consult factory for 14 inch size.

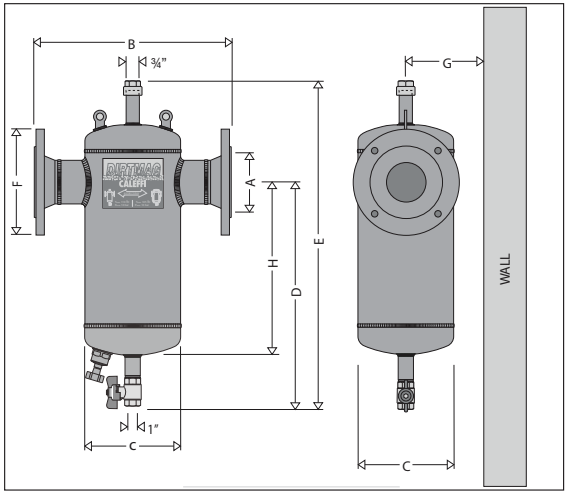
Hydraulic characteristics



ft of water x .433 = psi

	FLOW RATE									
Size	**2"**	**2½"**	**3"**	**4"**	**5"**	**6"**	**8"**	**10"**	**12"**	**14"**
GPM	89	150	227	355	816	904	1,570	2,450	3,525	4,800
l/s	5.6	9.5	14.3	22.4	51.5	57	99	155	222	303
Cv	88	176	211	328	520	842	1,055	1,400	1,755	2,075

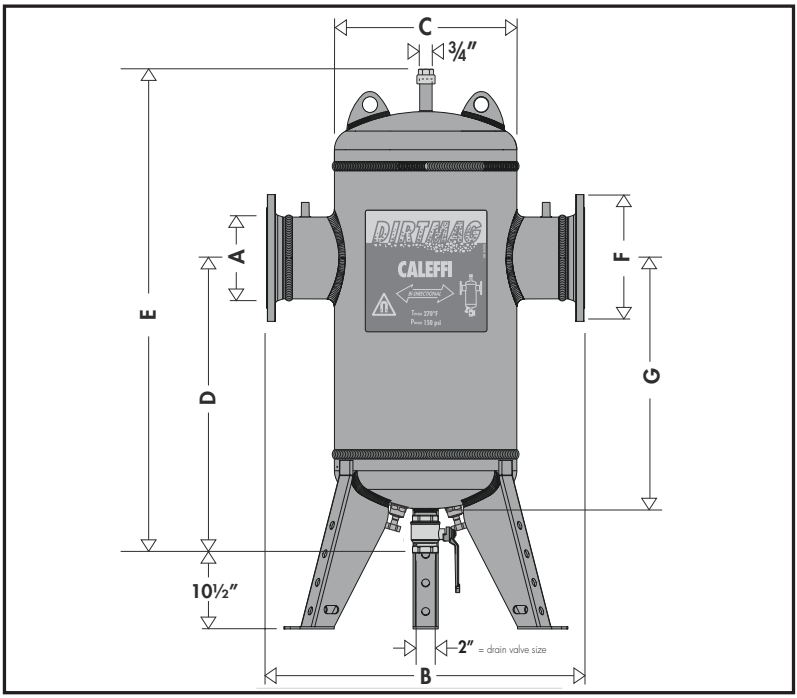
Dimensions



Code	A	B	C	D	E
546550AM	2"	13¾"	6⅝"	16 5/16"	23 7/8"
546560AM	2½"	13¾"	6⅝"	16 5/16"	23 7/8"
546580AM	3"	18 3/8"	8⅝"	20 11/16"	30⅝"
546510AM	4"	18 3/8"	8⅝"	20 11/16"	30⅝"
NA546550AM	2"	13¾"	6⅝"	16 5/16"	23 7/8"
NA546560AM	2½"	13¾"	6⅝"	16 5/16"	23 7/8"
NA546580AM	3"	18 3/8"	8⅝"	20 11/16"	30⅝"
NA546510AM	4"	18 3/8"	8⅝"	20 11/16"	30⅝"
NA546512AM	5"	25"	12¾"	23 3/16"	34 15/16"
NA546515AM	6"	25"	12¾"	23 3/16"	34 15/16"

Code	F	G*	H	Capacity (gal)	Wt. lb (kg)
546550AM	6"	6 5/16"	12"	1.8	41 (20)
546560AM	7"	6 5/16"	12"	1.8	41 (20)
546580AM	7½"	7 5/16"	13 3/8"	4.8	58 (26)
546510AM	9"	7 5/16"	13 3/8"	4.8	58 (26)
NA546550AM	6"	6 5/16"	12"	1.8	41 (20)
NA546560AM	7"	6 5/16"	12"	1.8	41 (20)
NA546580AM	7½"	7 5/16"	13 3/8"	4.8	58 (26)
NA546510AM	9"	7 5/16"	13 3/8"	4.8	58 (26)
NA546512AM	10"	9 3/8"	17 3/16"	13.7	141 (65)
NA546515AM	11"	9 3/8"	17 3/16"	13.7	151 (70)

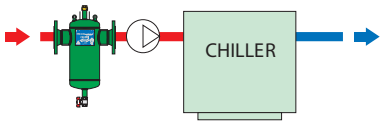
*This dimension allows for a minimum of 3" wall clearance to accommodate insulation if used.

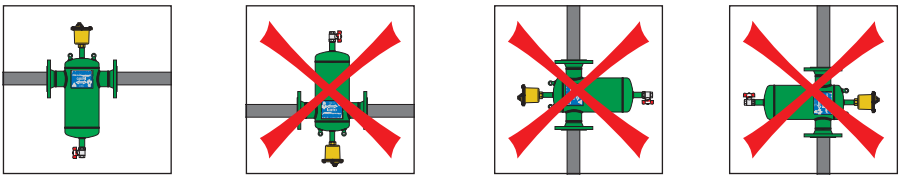


Code	A	B	C	D	E	F	G	Capacity (gal)	Wt. lb (kg)
NA546520AM	8"	35½"	20"	34½"	53"	13½"	28¾"	56	345(156)
NA546525AM	10"	41¾"	26"	40"	59"	16"	34½"	110	630 (286)
NA546530AM	12"	46½"	30"	45 1/8"	66 7/8"	19"	39 3/8"	170	880 (400)
NA546535AM	14"	48"	36"	57½"	82¾"	21"	51¾"	305	1010 (458)

Installation

The dirt separator must always be installed in a vertical position, preferably on the return circuit upstream of the boiler (or chiller). This enables it to intercept dirt particles already present in the circuit, particularly when it is first started, before they reach the boiler (or chiller).
Flow direction for DIRTMAG magnetic dirt separators is bi-directional; flow in either direction is permitted.

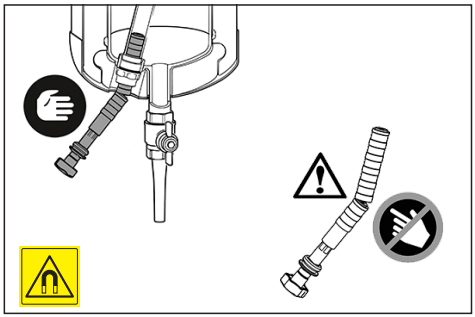




Draining off dirt and ferrous impurities

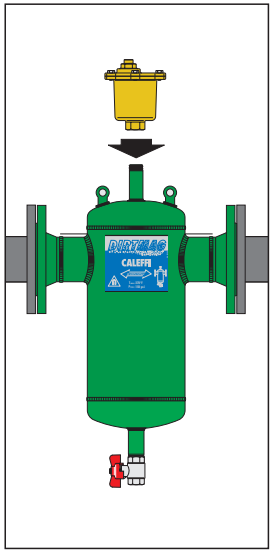
The magnetic dirt separator collection chamber has a drain valve. Using the handle provided it is possible to drain off the accumulated dirt particles even with the system in operation.

To purge the ferrous impurities in the steel DIRTMAG, the flexible magnetic stack is removed from the brass dry-well and, with the system still running, the drain valve is opened. Aided by the system pressure, the dirt and ferrous impurities, including magnetite flushes out quickly and effectively.



Use of top connector

The connector on top of the dirt separator can be used for optional installation of an automatic air vent valve. Use Caleffi code 501502A for flanged 5465M and NA5465M Series, replacing the standard 3/4" NPT End Cap (pn 41525).



Use bottom connector

The dirt separators come complete with drain valves installed on the bottom port: code NA39753 (1") for sizes 2 - 6", NA59600 (2") for sizes 8 - 14" flanged 5465M and NA5465M series.

Safety

The dirt separator must be installed by a licensed plumber in accordance with national regulations and/or relevant local requirements.

Make sure that all connecting joints are water tight.

When making pipe connections take care not to damage the thread in the body of the valve by over tightening. Take care not to apply too much force to the body of the valve when making pipe connections.

Water temperatures greater than 100 °F may cause serious burns. When installing, using and maintaining dirt separators take appropriate measure to ensure that these temperatures do not cause harm to persons.

LEAVE THIS MANUAL WITH THE USER.

Laissez ce manuel à la disposition de l'utilisateur.

CALEFFI
Hydronic Solutions

Caleffi North America, Inc.
3883 West Milwaukee Road
Milwaukee, WI 53208
T: 414.238.2360 F: 414.238.2366

09-2024

For Technical Support call 1-414-338-6338, or email techsupport.us@caleffi.com