

SCALA1 System



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1. Product description



TM080028

SCALA1 System

The SCALA1 System is a unit used for the management and distribution of rainwater, and is suitable for domestic rainwater harvesting, flushing of toilets, washing machines, floor cleaning systems and car washing. The system consists of the following components:

- SCALA1 self-priming pump
- electronic 3-way switch
- water tank
- support and mounting screws
- flexible hoses
- float switch with 20-metre cable.

The purpose of the system is to give priority to the use of rainwater over tap water. The system incorporates a back-up of mains water supply, which is automatically activated based on the water level inside the rainwater collection tank. The connection between the integral mains water tank and the suction pipe from the collecting tank is closed by a built-in three-way valve. There is also a possibility to override the automatic setting and force supply from water mains.

The SCALA1 system installation is in accordance with the EN1717 standard, and guarantees the separation between city water mains and the rainwater collection tank, preventing pollution of the water mains from backflow.

The SCALA1 System has built-in connectivity platform via the SCALA1 pump accessible with the Grundfos GO Remote app. **Further information on the SCALA1 pump can be found here:**



QR99735528

Product range

Pump type	Nominal flow rate [m ³ /h]	Max. head [m]
SCALA1 System 3-35	3	35
SCALA1 System 3-45	3	45

Features and benefits

The SCALA1 System has the following features and benefits:

- both automatic and manual changeover between the rainwater tank and the integrated mains water tank
- self-priming up to 8 metres ensures a stable operation, even if the pump is not fully filled with liquid
- noise level below 55dB(A)
- alarm indication
- automatic start/stop
- composite construction combined with excellent corrosion-resistant internal components ensure high robustness in operation
- operating status shown on the controller interface, BLE and Grundfos GO Remote app.

Protection features

Dry-running protection

The product incorporates dry-running protection that automatically stops the pump from running without liquid. Dry-running protection means less risk of pump damage and lower maintenance costs.

Anti-cycling function

The anti-cycling function prevents the product from starting and stopping too often in case of a minor leakage in the system or if a tap has not been closed completely. The anti-cycling function will stop the pump, and an alarm will be indicated.

Maximum runtime

The maximum runtime function is a timer that can turn the pump off if it runs continuously for a certain amount of time. This time period is adjustable via Grundfos GO Remote app.

Applications

The SCALA1 system is suitable for domestic and light commercial water supply, where pressure boosting is required.

We recommend the SCALA1 system for the following applications:

- pressure boosting of water from rainwater collection tank, storage tank or ground tank
- pressure boosting of city mains water.

Pumped liquids

The product is suitable for pumping rainwater and thin, non-aggressive and non-explosive liquids without solid particles or fibres or abrasive water.

The product is designed for water with a maximum chloride content of 300 ppm and a free chlorine content below 1 ppm. Examples of liquids:

- mains water
- rainwater.



If the water contains sand, gravel or other debris, there is a risk of pump blockage and pump damage. Install a filter on the inlet side or apply a floating strainer to protect the pump.

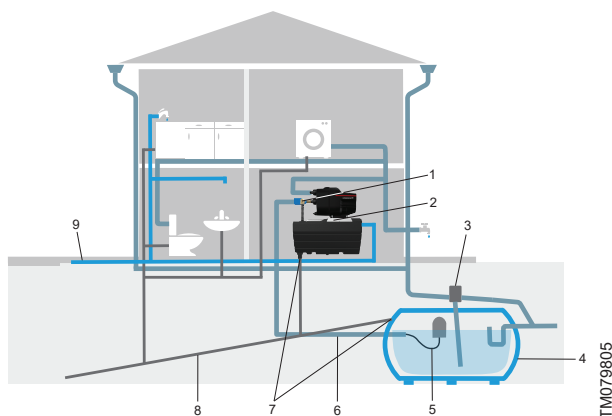
Sizing guide

Number of floors	1-5 draw-off points	6-10 draw-off points	11-20 draw-off points
4	SCALA1 System 3-45	-	-
3	SCALA1 System 3-45	SCALA1 System 3-45	-
2	SCALA1 System 3-35	SCALA1 System 3-45	-
1	SCALA1 System 3-35	SCALA1 System 3-35	SCALA1 System 3-45

Take into consideration the maximum suction height when sizing the system.

2. Installation and operation

Wall installation



TM079805

Pos.	Description
1	Electronic switch
2	SCALA1 System
3	Filter
4	Rainwater tank
5	Suction filter/float switch
6	Suction pipe
7	Tank overflow
8	Sewer line
9	Mains water supply

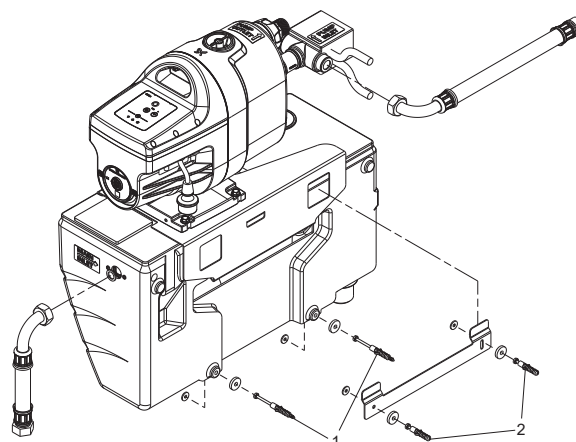
Before installing the product, ensure that the sewage system is at least 1 metre below where the SCALA1 system is to be installed. The following requirements must also be met:

- the room must have an outlet pipe that is connected to the sewage system
- the location must be dry and protected from rain
- flat wall, in horizontal position
- minimum distance from the ceiling: 50 cm.

Mounting the product



The security screws are essential to ensure the stability of the system and the safety of persons.



TM079194

SCALA1 system

Pos.	Description
1	Mounting screws for the bracket
2	Security screws

Follow the steps below to mount the SCALA1 system:

1. Install the mounting bracket on the wall.
Make sure it is horizontal using a spirit level, and mark the positions of the holes.
2. Drill the mounting holes using a D.10 drill bit.
3. Fix the bracket to the wall, making sure that it is level and securely attached to the wall.
4. Install the SCALA1 system as shown above.
5. Mount the security screws.
6. Place two of the supplied vibration dampers between the bracket and the wall, and place the remaining two between the tank and the wall to reduce the transfer of vibrations to the wall.

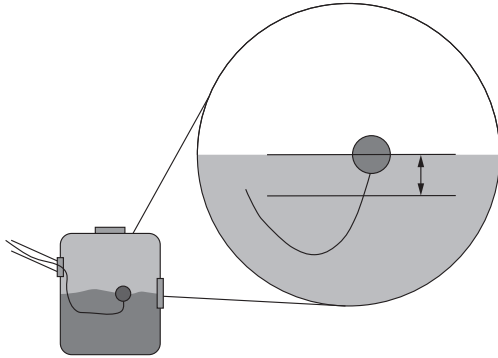
Connecting the rainwater inlet pipe

The inlet pipe must have an internal diameter of at least 25 mm, and it must always slope towards the tank.



We recommend installing in the rainwater tank a float switch fitted with a suction strainer and a non-return valve.

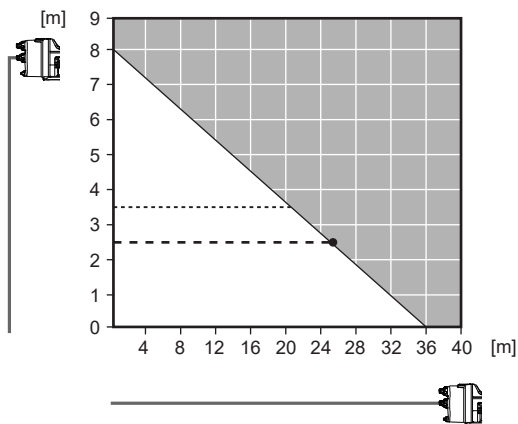
1. Install the system as close to the rainwater tank as possible.
 - a. Never exceed a suction height of 6 metres for optimum performance of the pump. The total of the suction distance and the suction loss depends on the length of the inlet pipe.
 - b. The inlet point must always ensure the suction of clean water. Use a suction kit, and install it as shown here.



Installation of the suction kit

2. Connect the inlet pipe to the connecting piece.

Example:



Maximum inlet pipe length (horizontal axis) according to the suction lift (vertical axis)

Connecting the outlet pipe



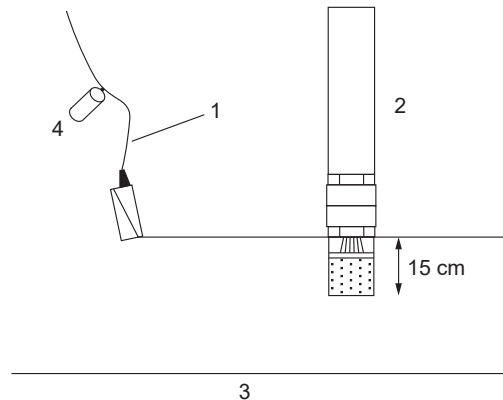
Install an on/off tap upstream of the float switch to cut off the mains water supply in case of breakage or malfunction so that maintenance can be carried out safely.

1. Connect the outlet pipe to the 1-inch connector with the supplied hose as shown below.
2. Fix the pipe to the wall with a suitable bracket.

Installing the level sensor

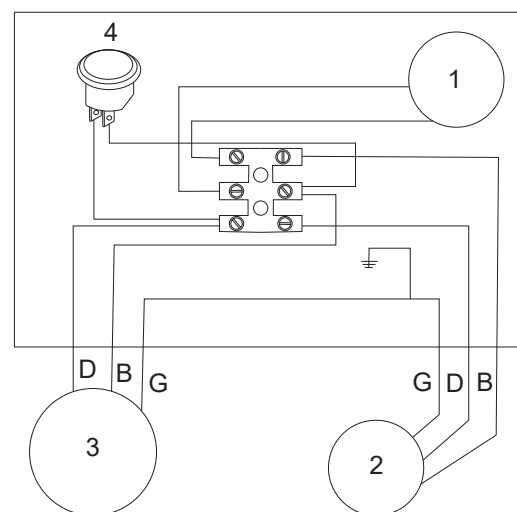
The level sensor must be installed in the rainwater tank. Please proceed as follows:

1. Place the float as shown below.



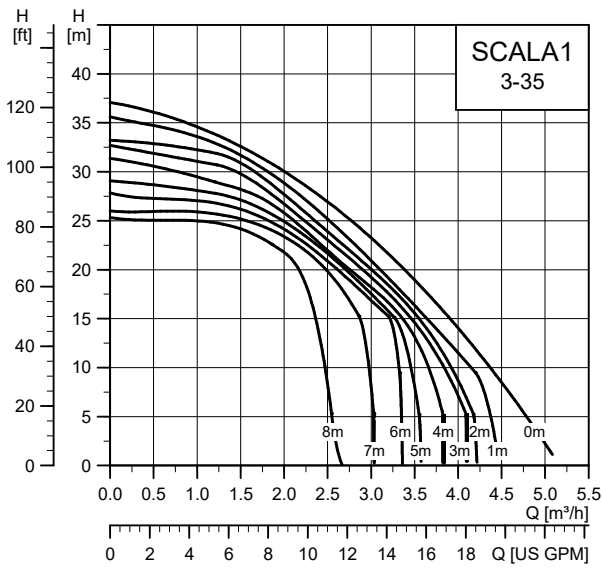
Installing the float switch

2. Adjust the counterweight so that it is at least 20 cm above the float.
3. After adjusting the float, make sure that the cable is protected along its entire length:
 - a. Place the cable in a casing tube.
 - b. Reconnect the float cable at the 3-way valve.

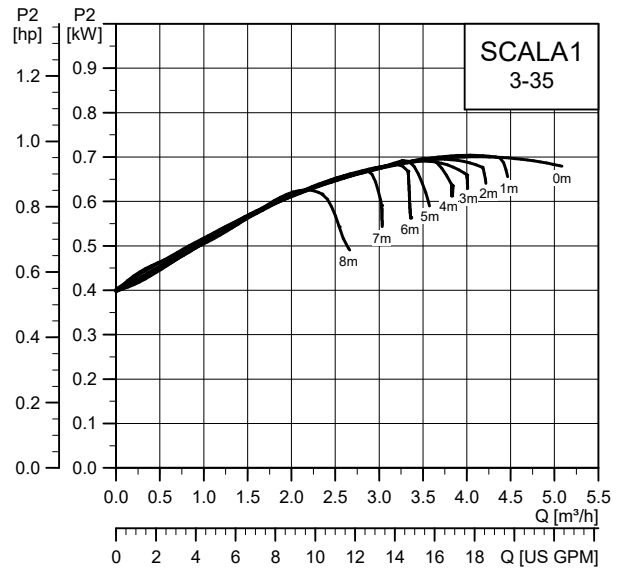


4. The float switch must change the contact at least 15 cm before the suction strainer fills with air.

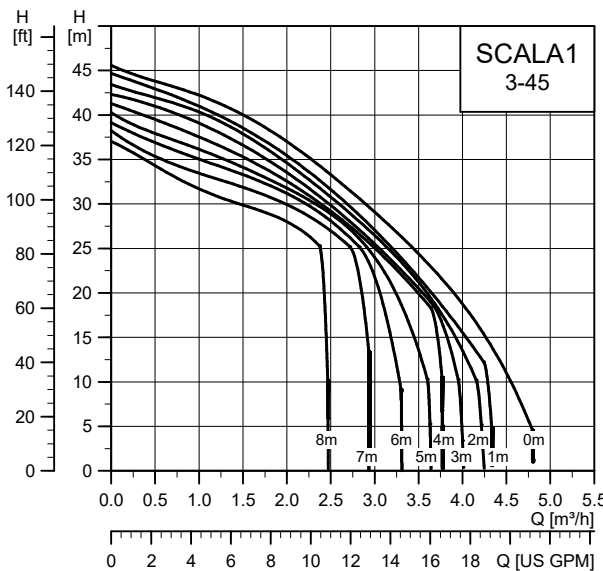
3. Performance curves



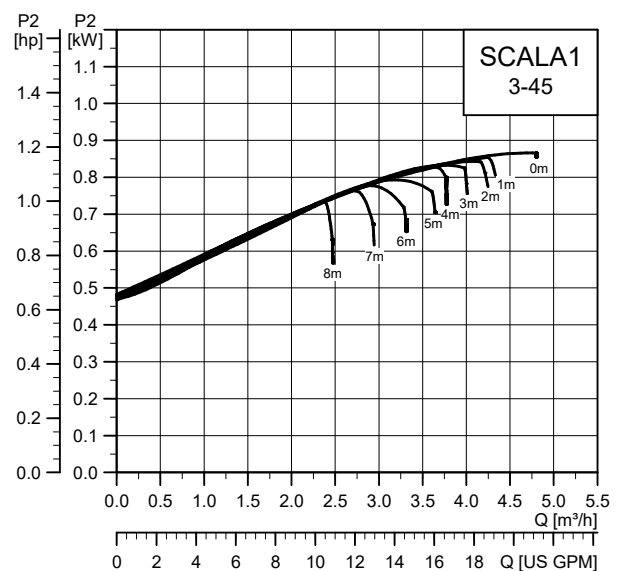
TM079643



TM079645



TM079644



TM079646

Product numbers

Pump model	Voltage [V]	Plug type/cable	Country of origin	Product number
SCALA1 System 3-35	1 x 230	SCHUKO	Italy	99976869
SCALA1 System 3-45	1 x 230	SCHUKO	Italy	99976872

4. Technical data

Electrical data

Pump type	Voltage [V]	P1 [W]	P2 [W]	n [rpm]	I _n [A]	I _{start} [A]	Standby power [W]
SCALA1 System 3-35	1 x 230	720	450	2800	3.27	13.0	1.5
SCALA1 System 3-45	1 x 230	910	580	2800	4.10	17.0	1.5

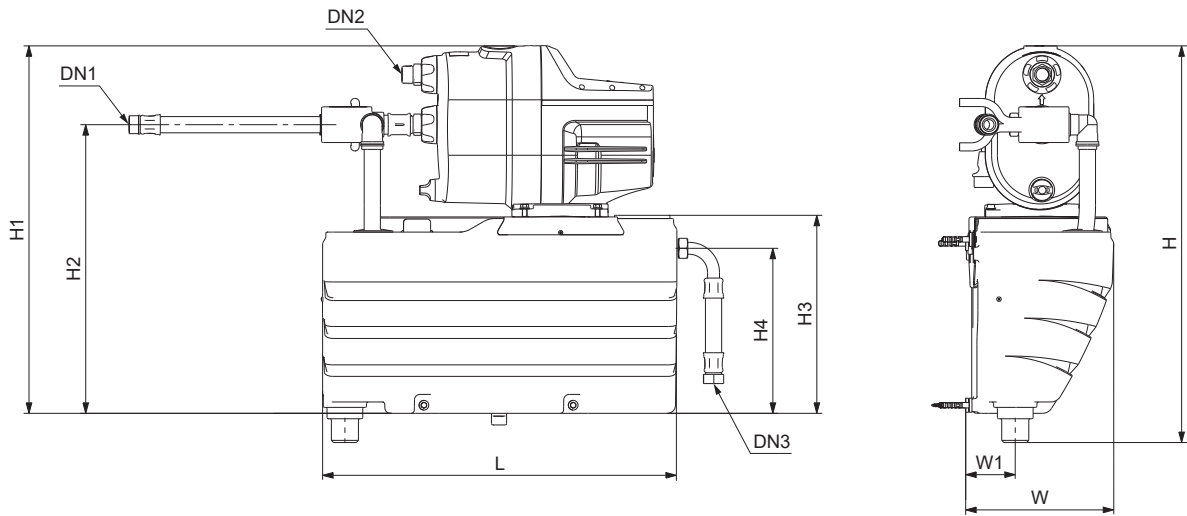
Operating conditions

	SCALA1 System	
	3-35	3-45
Pump water temperature [°C]	5 - 35	5 - 35
Max. ambient temperature [°C]	55	55
Max. liquid temperature [°C]	45	45
Max. system pressure [bar]	8	8
Max. inlet pressure [bar]	4	3
Max. head [m]	36	45
Nominal head [m]	20	25
Nominal flow [m ³ /h]	3.72	3.59
IP Rating System	IP 20	IP 20
Pumped liquid	Rainwater	Rainwater
Noise level [db(A)]	< 55	< 55
Frequency of starts and stops	25 per hour	25 per hour
Start pressure (pstart) [bar]	1.5	2.2
Inlet and outlet connections	1"	1"
Diameter of tap water pip	3/4"	3/4"
Diameter of overflow	PP DN 50 M	PP DN 50 M
Tank capacity [L]	15	15
Material of tank	HDPE (high-density polyethylene)	
Float switch level of tank	Start/Stop float switch with 20 m cable	
Media type	Non-aggressive and non-explosive liquids without solid particles or fibres or abrasive water.	

* Noise level of SCALA1 pump

** Useful volume is 12 L

Dimensions and weights

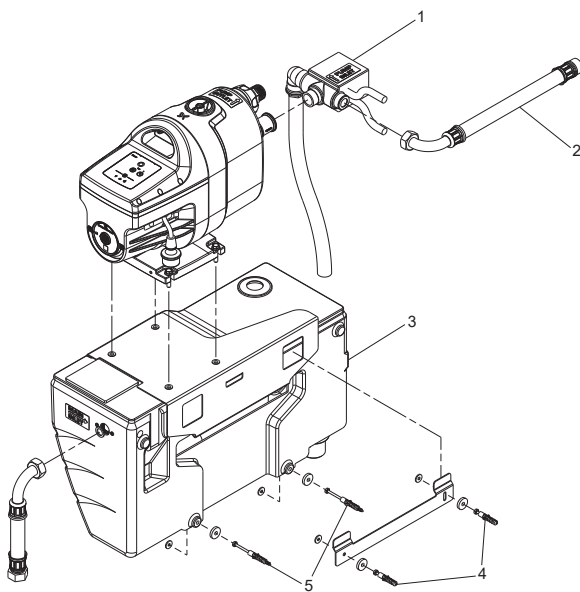


TM079191

Pump	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	H4 [mm]	L [mm]	W [mm]	W1 [mm]	DN1	DN2	DN3	Weight [kg]
SCALA1 System 3-35	733	679	533.5	366	305	650	259.3	77	1"	1"	3/4"	26
SCALA1 System 3-45	733	679	533.5	366	305	650	259.3	77	1"	1"	3/4"	27

Construction

Approvals and markings



TM079674



TM021695

Pos.	Description	Material
1	Electronic switch	-
2	Hose	-
3	Tank	HDPE (high-density polyethylene)
4	Screw TE-AB 6, 3x50 DIN 7976 ZNT C15	-
5	Screw TE-AB 6, 3x50 DIN 7976 ZNT C15	-

5. Accessories

Inlet filter



Inlet filter accessory

When using SCALA products for pumping rainwater or well water, we recommend installing a filter on the inlet side to provide clean water to increase the longevity of the pump, and to protect it from sand, gravel or other debris.

Features of the filter include:

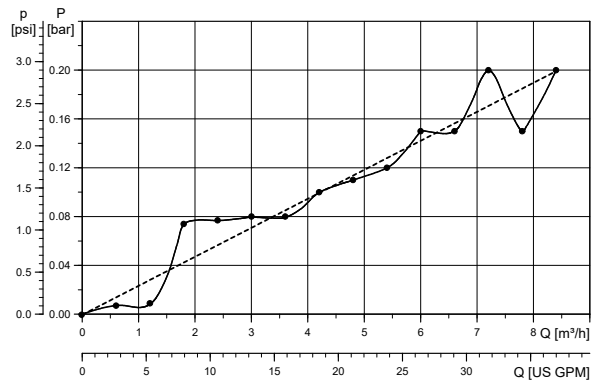
- Clean water provides long life for the pump.
- Quick and easy installation.
- Easy maintenance and cleaning.

The square mesh allows a uniform flow along the entire surface of the cartridge itself, which minimizes the possibility of clogging. Also, the smooth surface of the filter ensures easy washing and cleaning. The filter cartridges provide a nominal filtration with an efficiency of 80 %. If properly used, they can be used repeatedly maintaining constant efficiency.

The inside core is manufactured from talc-filled polypropylene and a welded nylon net. The filter housing is composite.

Filter specifications

Micron rating	250
Efficiency percentage	80
Max. working pressure [bar (psi)]	8 (116)
Max. differential pressure [bar (psi)]	0.8 (11.6)
Max. working temperature	45 °C (113 °F)



Inlet filter pressure loss

Product numbers

Description	Connection	Part number
Inlet filter, 250 micron	1" Rp	99725183
Inlet filter, 250 micron	1" NPT	99725185

TM075393

TM075373

Flexible hoses



TM080290

The flexible hose range provides a safe and taint-free conveyance of potable water supplies in domestic and commercial applications. The range is designed to achieve robust and flexible solutions with the following attributes:

- Water Regulation Advisory Scheme (WRAS)-approved for both hot and cold water
- Strong construction with excellent abrasion and crush-resistant construction
- Excellent flexibility and kink resistance.

Product numbers

Description	Product number
Flexible hose set	99891639
Flexible hose set (with brass elbow connection)	99891647

6. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

From the international view, you can select your specific country to view the product range available to you.

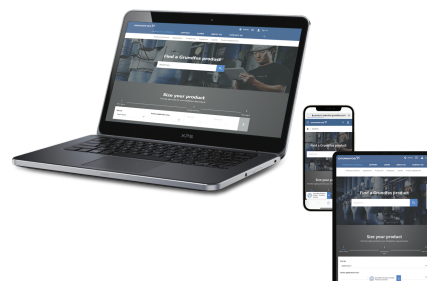
International view: <http://product-selection.grundfos.com>

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.



When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.

Example: <https://product-selection.grundfos.com/uk>

Pos.	Description
1	Products & services enables you to find products and documents by typing a product number or name into the search field.
2	Applications enables you to choose an application to see how Grundfos can help you design and optimise your system.
3	Products A-Z enables you to look through a list of all the Grundfos products.
4	Categories enables you to look for a product category.
5	Liquids enables you to find pumps designed for aggressive, flammable or other special liquids.
6	Product replacement enables you to find a suitable replacement.
7	WWW enables you to select the country, which changes the language, the available product range and the structure of the website.
8	Sizing enables you to size a product based on your application and operating conditions.

Revision Info

Last revised on 09-09-2020

