

JetsTM Smart Vacuum Sanitary Solutions Supreme Comfort for Mobile Installations



JetsTM Sanitary Systems ... many thousands ...



made to please or just a few



Jets Sanitary Systems for applications like

- Construction sites
- Temporary facilities during renovations
- Field hospitals
- Filming on location
- Peacekeeping activities
- Defence
- Polar research
- Business continuity
- Sporting events
- Weddings
- Corporate events
- Toilets for wheelchair users
- Surveying teams

If you have 50,000 people you have a major

Imagine a large three-day outdoor event – and the toilets cope magnificently

Jets has supplied sanitary systems that function efficiently for installations ranging from prisons to the most breathtakingly luxurious yachts. Jets vacuum toilets offer comfort and hygiene that improve the prestige and profitability of the whole event.

With better sanitary facilities - people will be more tempted to stay at the festival

And they will spend their money there instead of looking for alternatives where the toilets are more inviting – or heading for the bushes and creating a health hazard for the local community – or leaving the event early.

At mass gatherings which attract people from many countries, greater hygiene helps to reduce the risk of spreading the intestinal diseases of one region to people from other areas with little immunity to these diseases.

Bacteria, viruses, and parasites in sewage can cause problems ranging from mild diarrhea to serious illnesses.

Customer satisfaction improves profit potential!

At some events, visitors pay a premium for VIP tickets – mainly for the peace of mind they get from knowing they have access to clean toilets.

Separate toilet facilities with hot and cold water for hand-washing must be available for the exclusive use of food-handlers.

Waste management crews and other festival staff also need access to toilets and washing facilities.

Easier maintenance

With traditional portable toilets, a cleaning crew needs to hose out every toilet – a time-consuming, unappealing job. With Jets vacuum toilets, the sewage collection tank for a whole block of toilets can be removed and replaced in one simple, clean operation. Sewage can be dealt with away from the public.

The closed system keeps sewage gases where they belong. The powerful vacuum helps to remove odours as well as bacteria- or virus-laden spray.

Vacuumarator™ pumps grind solids to prevent clogging. Foreign objects are trapped before they get to the pump. Water consumption and sewage volumes are low. Power consumption per toilet is only 10-15W per flush. Jets also offers solar-powered solutions.

Reliable performance

With years of proven success in vacuum sanitary systems all over the world, Jets can help you find exactly the right solution for your event.

The robust Jets systems stand the test of time.

Flexible configuration

Jets toilets can be built into any type of cubicle. You can choose the optimal number and configuration of toilets, disabled toilets, urinals, washbasins and showers for your specific needs.

at a festival or gathering, sanitary challenge...

Challenges

- Within hours, the toilets at a large outdoor event often become such a turn-off that guests wander off in search of other facilities
- Or they give up all hope of hygiene and make the mess worse, throwing in unsavoury foreign objects for good measure
- The sewage has to be sucked out unit by unit at regular intervals
- You need to plan access for the service truck to every unit
- Chemicals are needed to mask odours and combat some of the health hazards
- When the festival is over, the grounds look like a pigsty

Jets™ Solution

- Jets™ vacuum toilet system makes it possible to remove sewage hygienically from a single point and deal with it away from the crowds
- This efficient solution improves toilet capacity, simplifies access requirements for servicing and emptying, and frees resources for cleaning the toilets
- There is no limit on the number of uses before the toilets must be serviced
- Jets toilets are robust, lightweight, and compact. They lend themselves to a wide range of flexible solutions and layouts

Jets™ can be used in



Can be packed into
containers for any site sanitation ...

numerous applications

– to form the basis
for the most
luxurious VIP
Sanitary Systems



JetsTM in Container Modules for

Placing toilets close to the work site saves time and money

Jets vacuum toilets need very little water for flushing, so sewage volumes are dramatically reduced. Power consumption is minimal. Jets systems are highly reliable and easy to maintain even in remote areas. A complete Jets module can fit on a standardized trailer or semitrailer, saving transport costs.

Construction Sites

A modern, modular construction site toilet unit. The unit is a long, rectangular structure with a corrugated metal exterior. It has several open doors, each leading to a separate stall. Inside the stalls, there are white toilets. The unit is situated on a construction site, with a large metal structure visible in the background.

Place the toilet unit exactly where you need it now

- Easy to move it to another site later
- Easy to add extra modules
- Streamlined solution saves space and weight

Better use of work time

- Less time to walk to the toilets
- Greater convenience
- Greater comfort
- Greater hygiene
- Adequate facilities stay cleaner

Jets vacuum toilets, hand-washing facilities, urinals, and showers can be combined in the optimal solution for your application.

Less water needed

- Uses mainly air for flushing
- Less sewage – greater capacity and fewer pumpouts.
Make optimal use of available sewer lines
- Compatible with any sewage treatment plant

Choose from

- Connection to a municipal sewer line, or...
- Complete self-contained module with a water tank and sewage collection tank serving several toilets

All you need is an electrical connection to AC or DC.

It is easy for a tanker to service the tanks. Sewage can be processed elsewhere.

Jets™ in Sanitation Trailers – A com

No need to connect to water or

- Quick to install
- Quick to expand
- Quick to take away



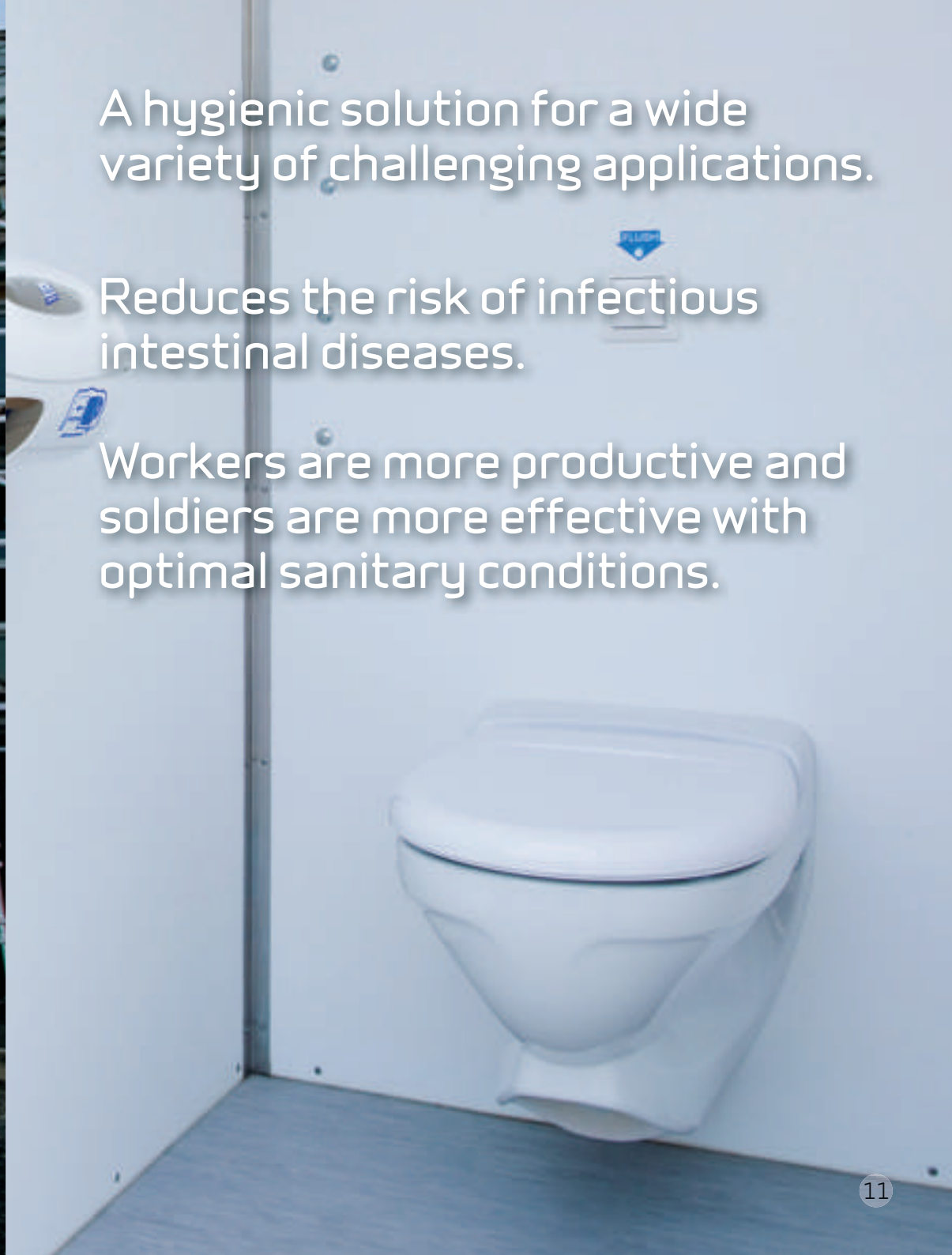
plete system sewerage



A hygienic solution for a wide variety of challenging applications.

Reduces the risk of infectious intestinal diseases.

Workers are more productive and soldiers are more effective with optimal sanitary conditions.





With their lower weight, self-contained sanitation trailers from Scenvogn in Denmark are ideal for applications from surveying to mobile offices



The compact JetsTM system is a big advantage for ScenvognTM trailers



“Payback period is only one to two years”

“Thanks to the short payback period – only one or two years – we have had great success with Jets vacuum toilets in our PIONERvogn.

This is a completely self-contained trailer designed to be used out in the field with no connection to water, sewer lines or power.

“The vacuum solution means the trailer can be left five times longer...”

Because the Jets system uses so little water, the trailer can be left in remote areas for five times longer than for conventional flushing toilets.

The water tank in the PIONERvogn has a capacity of 180 litres and the sewage tank holds 200 litres.

Using solar power to charge the battery, the system can run for 12–14 days with no access to mains power.

This is an energy-saving solution that eliminates generator noise and hassles.

“Higher quality and flexibility than traditional toilets”

– are the main reasons for choosing Jets, says Stig Knudsen, Head of Sales and Marketing at Scenvogn in Denmark.

Scenvogn has been a Jets customer since 2001 and has delivered numerous trailers with Jets installations



“The benefit is the freedom you have to take the trailer exactly where you need it”

That might be out in the bush ... or in the city centre.

If you need toilets in an urban area for just a few days, you can park the PIONERvogn trailer where you need it without having to wait for all the permits and paperwork involved in connecting to municipal facilities.

We have also found the Jets system to be extremely stable and reliable with its powerful pump.

This is a growing market with great potential.

Scenvogn's new products such as mobile office trailers – complete with Jets vacuum toilets – have proved very popular.

We are also happy to see that many existing customers came back with new orders for the PIONERvogn.”

Jets™ offers a new Sanitary

At last – for your
special outdoor event
you can rely on
a toilet system ...



Standard for VIP events

... used on many of the world's
finest cruise liners
and luxury yachts

Flexiloo™ with Jets™ system at



Urinals and toilets can be combined as needed.

VIP event in UK Leeds Castle

Style to suit
the most luxurious
hospitality facilities for VIPs

An oasis of comfort and calm
with top quality fixtures.

The ingenious folding design of Flexiloo makes it possible to install temporary toilet facilities in a variety of locations.
The ultimate in elegant toilet facilities – quickly set up in a historical setting.



Flexiloo™

"When the occasion calls for a high standard of functional elegance, you can count on Jets."

For corporate events, community functions, festivals and weddings, smoothly functioning toilet facilities of high quality are a critical success factor".

Interview with Andrew Hay, who designed the unique folding Flexiloo concept

"I had experience with services for providing mobile toilets at special events. These involved preassembled modules under temporary cover, supplied on trailers to the top end of the market. But the units were cumbersome and unwieldy. I thought it must be possible to develop a more elegant solution that would be easy to move around, up stairs and through narrow doorways."

"It took me five years to get the folding design right"

It was very difficult to develop a lightweight, high-quality product that folded neatly, just the way I wanted it to work. But in 2006 I felt I had come up with an effective solution.



with Jets™ – an elegant solution

Then I investigated every single vacuum toilet system that looked like a candidate for the Flexiloo concept. I had experience with systems that use large vacuum tanks, but I needed something much lighter and easier to use. I scoured the Internet and phoned around.

“The Jets concept seemed by far the best possibility - I bought a Jets system and it worked very well”

The great advantage of the Jets design is that it is extremely compact. Since then I have had an ongoing dialogue with Bjarte Hauge and his team at Jets, working out the best ways to install the system. They have always been very helpful, and it is very easy to work with them.

“We launched the first Flexiloo/Jets system in 2006 – it had a great impact”

In October 2006, it was launched at the Showman's Show in Newbury, Berkshire. This is a major exhibition of products, services and entertainments for the outdoor and special event world in the United Kingdom.

It had a great impact. I was really heartened by the enthusiastic reception to the idea. I even sold a system on the spot – to a customer from the south of France. After that, the Flexiloo solution was exhibited at RSVP and the Event Show, which are both held in London. Enquiries started coming in from all over the world – from Finland to Uganda and Dubai to South Africa.

The market for toilet hire has grown over the last few years – and we are seeing great potential among quality-conscious customers who refuse to accept sub-standard sanitation at prestige events. I believe that there is a huge future for Flexiloo.

“We see a very promising market in systems for business continuity and emergency response”

With events such as earthquakes, floods, epidemics, fires, power blackouts, political upheaval or terrorist attacks in mind, far-sighted enterprises understand that planning for portable toilets is one of the factors that can help to keep critical business functions operating in a crisis.”



A single Vacuumarator™ pump can serve multiple toilets

Hygienic

- Closed system
- No bacteria-laden aerosol from toilet flushes
- Tanks can be exchanged without exposing the service crew to sewage
- Greater hygiene means less risk of spreading intestinal diseases
- The vacuum draws odours out of the cubicle into the plumbing
- Toilet facilities with adequate capacity stay cleaner

Capacity

It is easy to add or reduce capacity, for example during different stages of a project.

Water requirements

Uses only a tenth of the fresh water needed for gravity systems.

Sewage volumes

Sewage is reduced to a tenth of the volume produced by gravity toilets. Vacuumarator™ pump transports a steady flow of black water finely pulped by the integrated macerator – suitable for any treatment process.

A central Jets™ module can serve virtually any challenge!

Flexibility

- Connect to a collecting tank ...
- Or to existing infrastructure
- Route small-diameter vacuum piping upward and around obstacles , or even to a municipal sewer several hundred metres away.

Environment

Vacuum systems prevent sewage pollution on site and reduce the risk of wastewater seepage.

JetsTM in the driest, coldest,
most uninhabited continent

... meeting challenges
in the extreme Antarctic

Challenges

- ❶ **Water shortage in a desert of ice**
All water supplies are produced by thawing ice.
- ❷ **Removal of all waste**
The treated sewage must be shipped out of Antarctica for disposal.
- ❸ **All-year reliability**
The toilets must function no matter what! The airfield, a 7-hour flight from Cape Town, is normally closed during the winter season. Surface transport involves days at sea and an arduous overland trip uphill over rock and ice.

Jets solution

- ❶ **Water supply**
Jets vacuum system reduces water use to one tenth of that needed by gravity toilets. Water recovered from the sewage treatment can be used for flushing.
- ❷ **Removal of waste**
The concentrated sewage takes up the least possible space.
- ❸ **All-year reliability**
With our wealth of experience in robust sanitary systems for ships on the seven seas, Jets was entrusted with this demanding delivery.

The Troll Station Antarctica

- ❶ Built in 1989-90 in Queen Maud Land, 235 km from the ice edge at 72° south.
- ❷ Run by the Norwegian Polar Institute.
- ❸ The Troll airfield, 7 km from the base, was scraped out of blue ice.

Research at Troll

The activities include monitoring of

- ❶ Glaciers
- ❷ Greenhouse gases
- ❸ Ultraviolet radiation
- ❹ Heavy metals in the air
- ❺ Meteorology
- ❻ Birds


Facilities at Troll

The all-year facilities consist of insulated container modules designed for temperatures down to -60 °C. A team of up to 10 spends the winter season here every year. Up to 40 visitors stay at a tent camp in the summer season, with up to 75 for shorter periods.

A "green" research station

The aim is to use the smallest possible amount of fossil fuel and purify all emissions virtually 100%. Heated remotely from the cooling systems for the power station.







Greater comfort is appreciated by the team at the station



Jets delivered a complete sanitary system and sewage treatment package, with functionality for recycling black- and greywater.



The rugged system must keep functioning reliably throughout the extremes of the Antarctic winter.

A complete Jets™ System packed in containers

For easy and fast installation, the equipment was delivered in fully assembled modules with preinstalled piping for connection to the existing technical room. The small-diameter pipes simplify the plumbing. Insulated waste pipes heated with cables must be used because of the permafrost. Flexible Jets vacuum piping made it much easier to add 3 toilets in the existing building, where installing a gravity system would have caused considerable problems.

The Jets™

The robust Jets solution has proved to be highly practical for numerous applications.

In-line installation of Vacuumator™ pumps combined with a small footprint and low weight allows unique installation flexibility and considerable weight savings compared with other systems.



FLOOR-MOUNTED VITREOUS CHINA



WALL-MOUNTED VITREOUS CHINA



STAINLESS STEEL



URINAL



SQUAT PAN

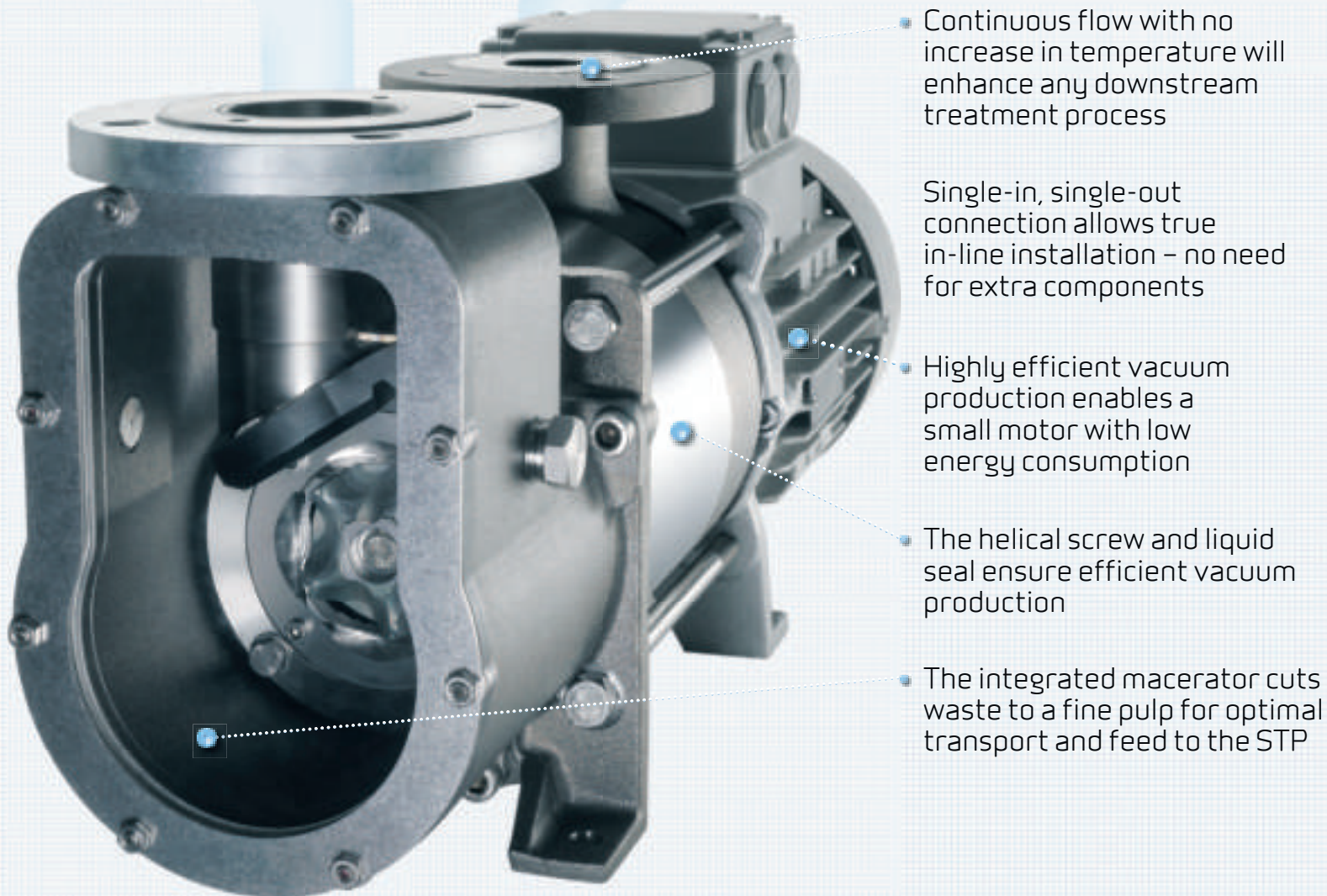


GREYWATER INTERFACE UNIT

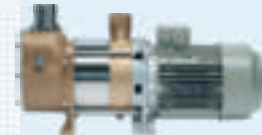
System

The unique Vacuumarator™

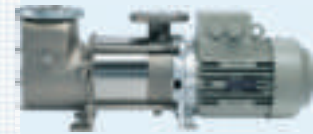
The patented Vacuumarator™ pumps are the most compact, efficient and reliable vacuum generator available for vacuum toilet systems



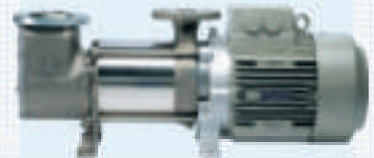
MINI: 10NT



SMALL: 15MB-D



MEDIUM: 25MBA



LARGE: 65MBA



XXL: 250NT

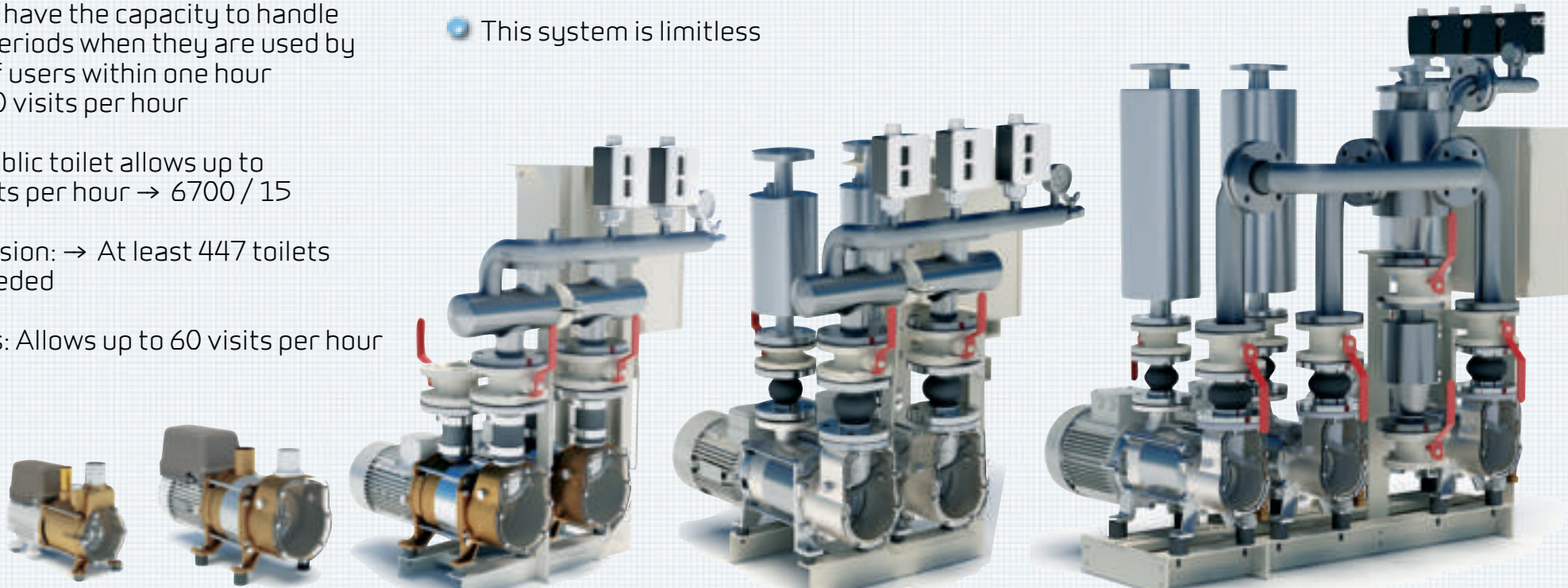
Jets™ is a practically

Calculate how many toilet flushes you need.
Example: **Construction site with 10,000 workers**

- ISO standards stipulate that toilets should have the capacity to handle peak periods when they are used by 67% of users within one hour
= 6,700 visits per hour
- One public toilet allows up to 15 visits per hour → $6700 / 15$
- Conclusion: → At least 447 toilets are needed
- Urinals: Allows up to 60 visits per hour

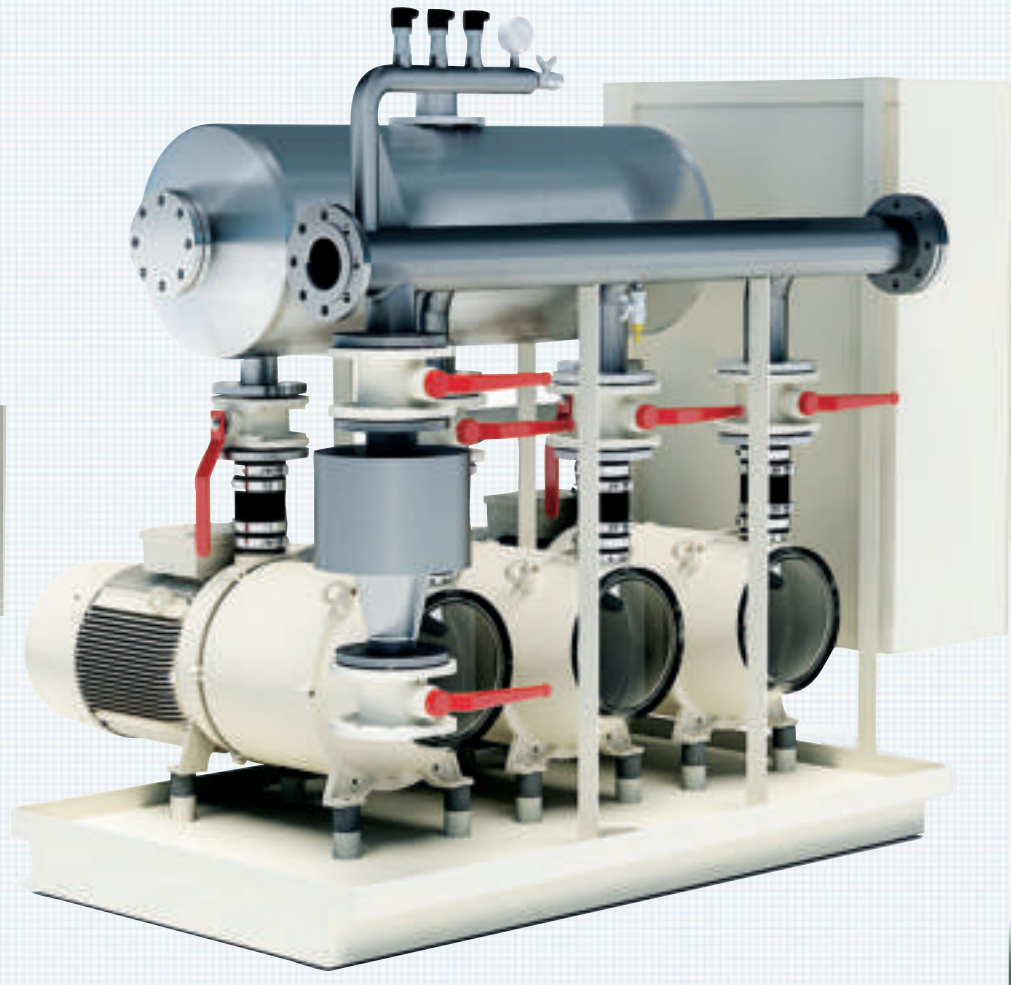
Solutions in container modules:
20 toilets per container /
2 dl urine per flush

- A Jets solution can be configured for any capacity and configuration.
- This system is limitless



Type	10NT	15MB	30MB-D	50MBA	195MBA
No. of flushes	100	150	300	480	1800

limitless system



750NT
7500



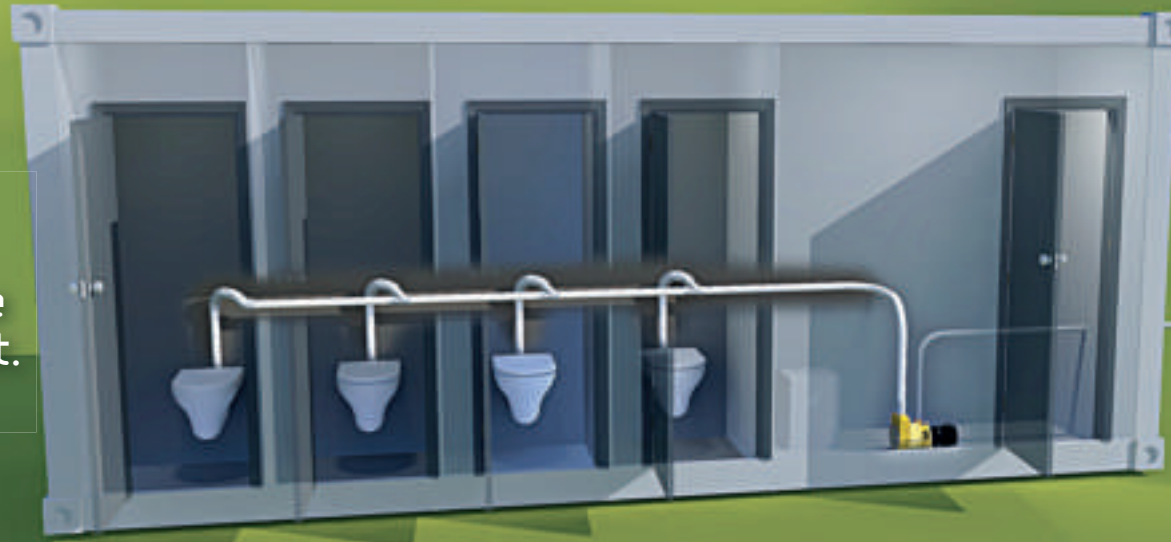
LIMITLESS
Limitless

Jets™ allow you to choose

VOD

VACUUM ON DEMAND

The vacuum is created only when you press the button to flush the toilet. Maximum 4 toilets.



Can be connected to

- ☒ Collecting tank
 - Internal
 - External
- ☒ Sewage treatment plant
- ☒ Public sewer

CVS

CONSTANT VACUUM SYSTEM

This system maintains the vacuum all the time, and is suitable for larger installations.



A comparison of Jets™ versus...

Chemical Toilets

- Have to be emptied one by one
 - A Jets toilet module has one common point for emptying sewage far from the public
- Chemical tank capacity is limited
 - Jets vacuum toilets can be used for indefinite periods
- Need chemicals to mask odours
 - Vacuum solves the problems of odours and aerosols when flushing
- You can see straight into the waste tank when you open the lid
 - A Jets toilet feels like a normal toilet. The bowl can be flushed clean after every visit

Gravity Toilets

- Gravity toilets have to be positioned with the water network in mind, and installation involves excavation. Jets vacuum toilets can be located where they fit best logistically, saving valuable time
- Gravity toilets leave the aerosols and odours in the cubicle
 - Vacuum toilets cut down on these aerosols and gases when flushing
- Water consumption is cut dramatically – and sewage volumes are correspondingly low
- Smaller pipes simplify installation and operation

Vacuum toilets – vacuum tank

- Jets systems do not need a vacuum tank, which is both bulky and expensive
- A vacuum tank has a LARGE footprint
 - The Jets system is compact
- The Jets Vacuumator pump can be used to discharge the waste tank if needed without any additional pump
- A large compressor generating the vacuum may be noisy
 - The Jets system solves this

Traditional macerating toilets

- Must have at least 6 litres of water to function
 - Jets systems need only 0.5 litres per flush
- High risk of clogging if foreign objects such as tissues, tampons or too much toilet paper are placed in the bowl
 - The Jets pump and knife keep the toilet working reliably
- The grinding mechanism is directly behind the toilet
 - The Vacuumator is in a separate compact unit, which can be positioned remotely where it fits in best.
- Must have electrical power close to the toilet
 - The Jets toilet does not need a power connection

JetsTM Sanitary Systems – made to please

Jets for All Kinds of Buildings



Jets in Trains



Jets in Buses and Coaches



Jets Mobile Solutions



Jets for Leisure Areas



Jets for Cabins



Jets in Supermarkets



Every Second Ship to be Built Worldwide – Chooses Jets



– solutions that make sense for a new century



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Parts of the JETSTM sanitary systems (including, but not limited to, VACUUMARATORTM pump technology) are patent protected by JETS AS
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