CE 0044

INSTRUCTION FOR USE

Goliat

Example illustration show typical configuration (hose connection and direct probe connection)

QMT-tech AB
Amerikavägen 6
39354 Kalmar, Sweden

Telephone
+46(0)480 44 02 00

Website/E-mail
www.qmttech.se
info@qmt3.com

Thank you for choosing Suction ejector Goliat from QMT-Tech ab

Your new Suction ejector Goliat is an advanced medical device with high-quality components and features for safe operation and high performance.

Read the information for use before installation, commissioning and use so that you are well informed about how it is installed, commissioned and used safely.

Information on use is supplemented with instructions on installation, operation and maintenance for a long and trouble-free use.

We wish you a long, safe and trouble-free use.

This manual describes the Suction ejector Goliat's functions for safe installation, commissioning and use.

The information for use should be read and understood by all intended users.

The following symbols are used in the user manual:

Warning

Note, important information

Read the information for use

Digital copy can be downloaded from qmt3.com

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Intended Use:
The Suction ejector Goliat is intended as the power device to create negative pressure for connected suction devices using a medical positive pressure gas source.

Intended User:
Installation - No installation into the medical gas pipeline system is required. The device is intended to be connected to an existing medical gas terminal unit or mounted on equipment rails. Connection shall be performed by healthcare personnel familiar with medical gas outlets and suction equipment.
Daily Use - Clinical personnel trained in the use of suction equipment and medical gas-driven devices.
Maintenance - Qualified technical personnel (medical technician or manufacturer-authorized personnel).

Target group:
Not limited as connected suction devices are used in all places of the hospital.

Indications:
Non-specific as connected suction devices are used in all places of the hospital for many different conditions.

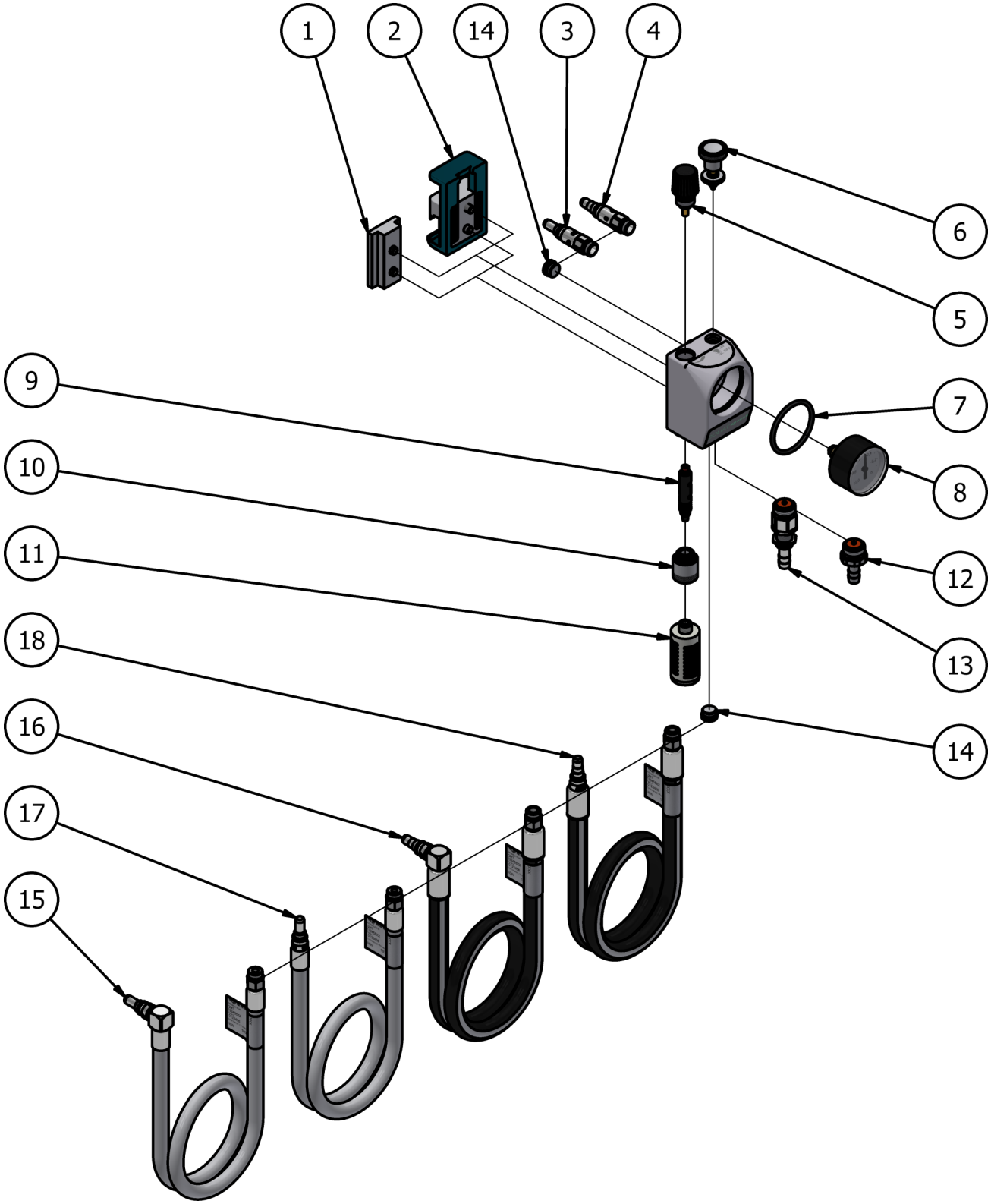
Contra indications / prohibited use:
The device must not be directly connected to any patient drain, catheter, or body-inserted device.

Compatibility and combination of devices:
The Goliat suction ejector is intended to be used as a power source for compatible medical suction equipment.
The device shall only be used in combination with:
- suction equipment intended for medical use
- collection canisters with overflow protection
- appropriate vacuum regulation components

The device must not be directly connected to:
- any patient-connected device
- drains, catheters or body-inserted tubes

The user is responsible for ensuring that connected equipment:
- is compatible with the required vacuum levels
- is intended for the same medical purpose
- is used in accordance with its own instructions for use

Improper combinations may result in excessive vacuum levels or unsafe operation.



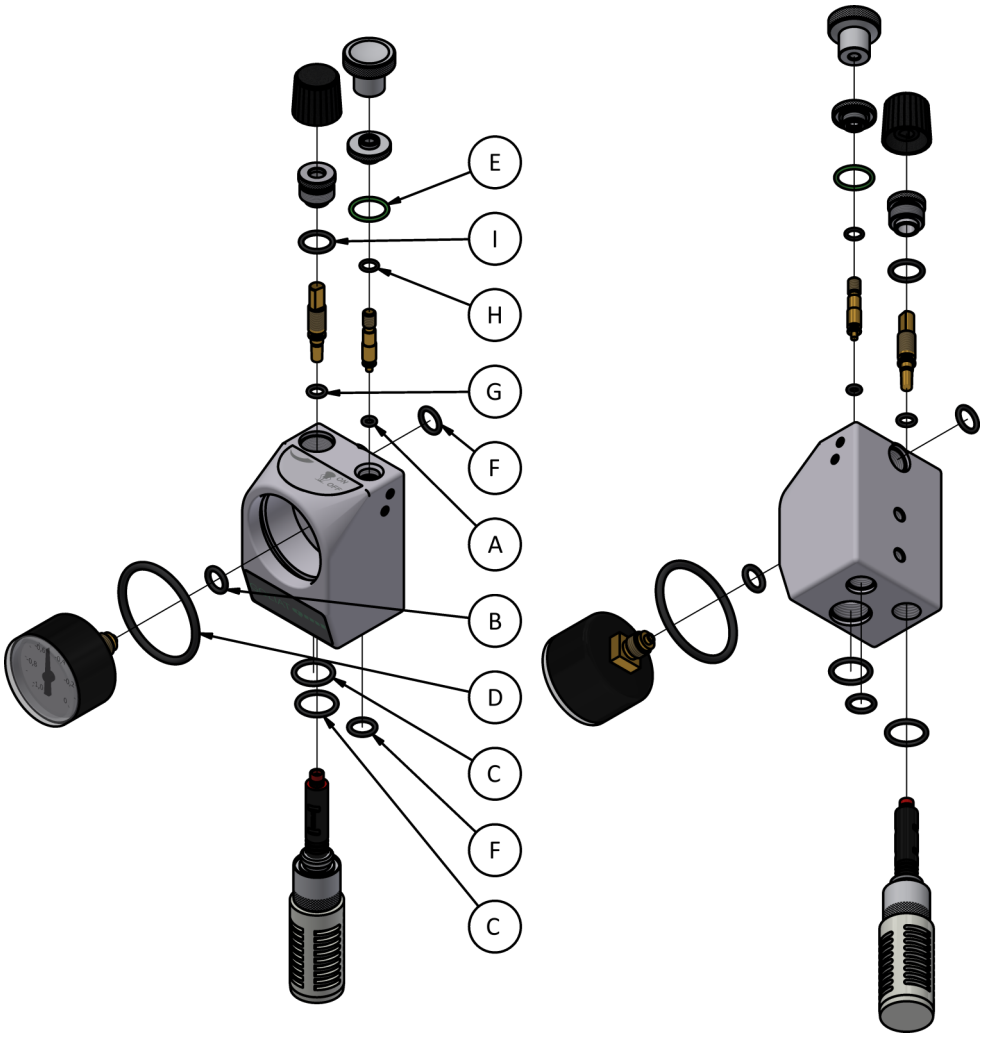
Picture 1

1	Equipment mount holder
2	Rail clamp
3	Male probe O2
4	Male probe AIR
5	Adjustment valve
6	On/Off valve
7	O-Ring 39,2x3,0
8	Pressure gauge 0 to -1,0 bar
9	Pipe ejector
10	Outlet nozzle
11	Silencer
12	Suction connection nipple with overpressure protection
13	Suction connection nipple with overpressure protection and vacuum valve
14	Plug
15	O2 hose with angled male probe
16	O2 hose with straight male probe
17	AIR hose with angled male probe
18	AIR hose with straight male probe

NOTE! The equipment listed above may vary depending on the area of use and the options chosen.

A	ITEM 1 - Q207626
B	ITEM 2 - Q215036
C	ITEM 3 - Q215471
D	ITEM 4 - Q232442
E	ITEM 5 - Q201777
F	ITEM 6 - Q215578
G	ITEM 7 - Q201521
H	ITEM 8 - Q219345
I	ITEM 9 - Q231065

NOTE! The equipment listed above may vary depending on the area of use and the options chosen.



Picture 2

Installation:
No specific installation is required. When unpacking, check that the device and its packaging is without visible damage. In case of damage to the device, please return the device with a description of the detected faults to QMT-Tech for further action.

Commissioning (see also Picture 3 page 12)**:**

1. Check that the adjustment valve [5] is completely closed, fully screwed in clockwise. NOTE! This should only be closed with a light handgrip, excessive force can wear out the valve seat over time.
2. Check that the On/Off valve [6] is closed, pressed all the way down.
3. For Goliat with male probe [3/4]: Connect the Suction ejector Goliat to a medical terminal unit. NOTE! Make sure to connect the male probe to the intended terminal unit of the same gas type.
4. For Goliat with equipment mount [1]: Mount the Suction Ejector Goliat equipment mount in the intended rail clamp with the corresponding equipment mount holder. Then connect the hose to a medical terminal unit. NOTE! Make sure to connect the male probe to the intended terminal unit of the same gas type.
5. For Goliat with rail clamp [2]: Press down the blue pusher and hang the rail clamp on the rail. Release the blue pusher and check that the rail clamp has gripped the rail properly. Then connect the hose to a medical terminal unit. NOTE! Make sure to connect the male probe to the intended terminal unit of the same gas type.
6. Pull the On/Off knob [6] upwards to start the Suction ejector Goliat.
7. Hold a finger on the suction connection nipple [12/13] and increase the suction power by turning the adjustment valve knob [5] counterclockwise. The vacuum pressure should now increase slowly, the pressure gauge [8] needle travels counterclockwise.
8. Depending on the operating pressure of the medical gas pipeline system, the maximum vacuum achieved may vary. At 4.0 bar system pressure, you get ≥-0.6 bar vacuum, at 4.5 bar system pressure, you get ≥-0.7 bar vacuum and at 5.0 bar system pressure, you get ≥-0.8 bar vacuum.
9. Close the On/Off valve [6] again and close the adjustment valve [5] completely again.
10. Connect the suction equipment to the hose nipple [12/13].
11. The suction ejector Goliat is now ready for operation.

- Pressurized gas has a high energy content! Terminate the commissioning if leaks or shape abnormalities are detected.
- The user is responsible for checking that all connectors are correctly connected, that the correct function is achieved and that the correct operating pressure and/or flow is set.

- Please note that the product must be kept free from oil, grease and other contaminants.
- QMT recommends that a bacteria and virus filter (QMTC6057702) or a hydrophobic filter (QMT6001114) is placed before the suction inlet to the Suction Ejector Goliat.
- QMT recommends that canisters connected to the Suction Ejector GOLIAT are always equipped with overfill protection.

Operating instructions:

1. Follow the commissioning instructions on page 8 before each use.
2. Pull the On/Off knob [6] upwards to start the Suction ejector Goliat.
3. Set the desired vacuum level by turning the adjustment valve knob [5] counterclockwise to increase the vacuum level or clockwise to decrease the vacuum level.
4. Vacuum level is indicated on the pressure gauge in bar.
5. After use, turn off the Suction ejector Goliat with the On/Off knob [6] by pressing it all the way down and turning the adjustment screw [5] fully clockwise. NOTE! The adjustment screw [5] should only be closed with a light handgrip, excessive force can wear out the valve seat over time.
6. Disconnect the connected suction equipment.

Recurring tests:

1. Check the function of the Goliat suction ejector at least annually in accordance with the commissioning instructions on page 8.
2. Note the results of the checks and archive them in accordance with MDR 2017/745 and local procedures.

- The user is responsible for checking that all connections are correctly connected, that the correct function is achieved and that the correct operating pressure and/or flow is set.
- Be careful to follow the instructions for use for the connected equipment and check that the connected equipment is compatible with the Goliat Suction Ejector.

- The Goliat suction ejector should only be used and checked by persons with the required competence.
- Test results should be documented and saved in accordance with MDR 2017/745 and local procedures after the process has been completed.

Maintenance instruction:

1. The Suction ejector Goliat is normally maintenance-free. However, we recommend checking according to the following points annually. If faults and/or leaks are detected, all O-rings and the pipe ejector are replaced, see instructions under “Service”
2. Check the function of the Goliat suction ejector in accordance with the instructions for commissioning on page 8.
3. Check that all connections are leak tight and have no visible damage.
4. The outside of the equipment is cleaned with disinfectant according to local procedures, but preferably at least after each use.
5. All metallic components, with the exception of the pressure gauge, can be autoclaved. NOTE! The Suction ejector Goliat must not be autoclaved when assembled as the assembly contains non-autoclavable parts.

Service life:
The technical lifespan of the device is 15 years, provided that maintenance and functional checks are carried out in accordance with this IFU.
Continued safe use:
Continued safe use depends on:
- regular functional verification (at least annually)
- inspection of leakage and mechanical integrity
- replacement of wear parts when degradation is identified

Wear parts:
Components subject to wear include, but are not limited to:
- O-rings and seals
- pipe ejector
- valve components

These parts shall be replaced if:
- leakage is detected
- reduced performance is observed
- visible damage or wear is present

- When cleaning, ensure that no liquid enters the unit through the propellant gas connection or suction connection.
- Over-flowed/contaminated Goliat must be handled in accordance with AFS 2023:10 Chapter 11 Swedish Work Environment Authority regulations or other national regulations and local procedures.

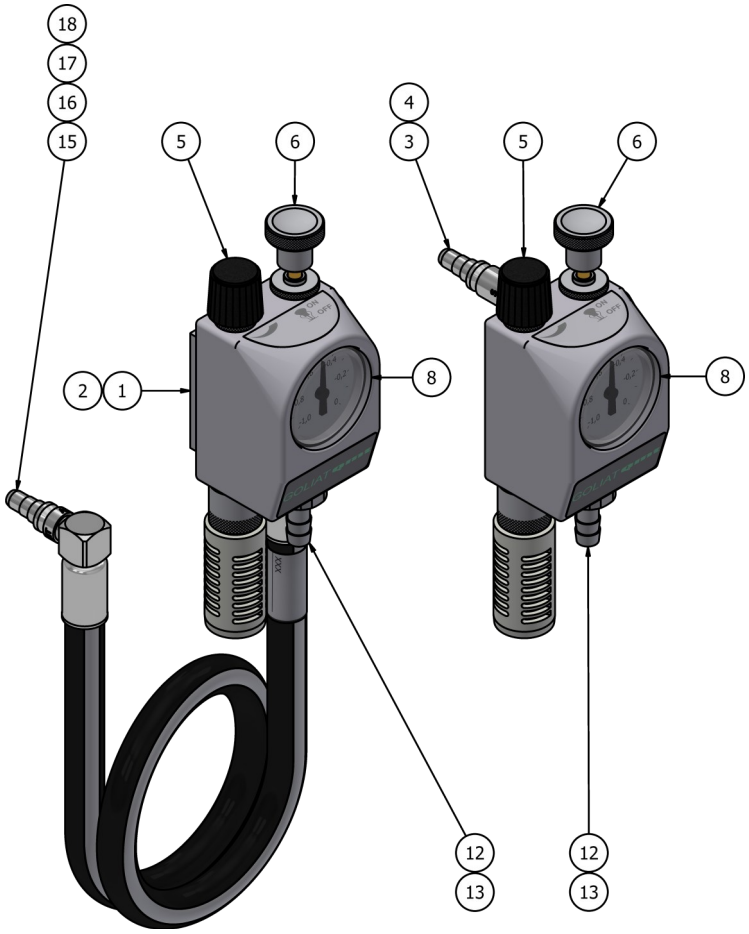
- Service and maintenance should only be performed by a person with the necessary knowledge, alternatively the unit can be sent to QMT-Tech for maintenance.
- Service and maintenance not performed in accordance with this manual may void any issued warranties.
- Results from tests and maintenance must be documented and saved in accordance with MDR 2017/745 and local procedures after the process has been completed.
- Leak testing can be performed in a variety of ways, with leak spray (bubble spray) being one of many methods.

Service instruction:

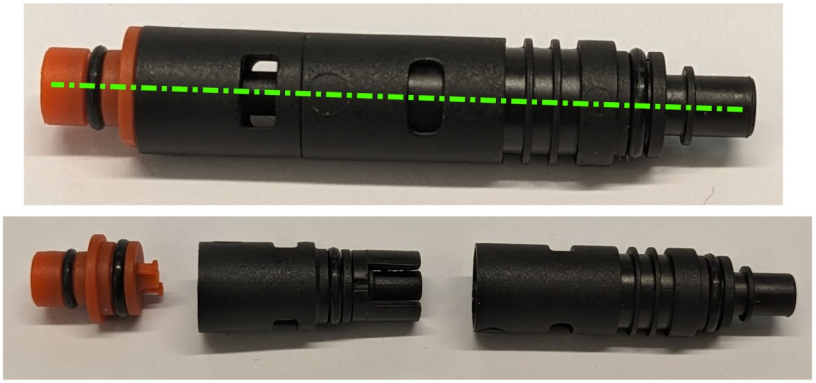
1. When O-rings or other broken components need to be replaced or cleaned, Goliat is disassembled according to these service instructions, see also pictures on pages 5, 7 & 12.
2. Unscrew the outlet nozzle [10] including the silencer [11].
3. Pull out the pipe ejector [9] if it was not removed when the outlet nozzle [10] was dismantled.
4. NOTE! If the pipe ejector [9] has split during disassembly, one or more parts are still in the Goliat. Then loosen the adjustment valve [5]. Carefully press with a long, narrow (max. 3.5 mm in diameter) object with a blunt nose from the top of the Goliat where the adjustment valve was mounted. The remaining pipe ejector parts will then fall out to the bottom. When mounting the pipe ejector [9], make sure that the mating groove and spline are aligned and that all square holes are aligned with each other, see picture 4 page 13. Remount the adjustment valve [5].
5. Screw in a G1/4" plug with O-ring [part number QMT(C)210012] into the hole where the pipe ejector [9] and outlet nozzle [10] and silencer [11] were mounted.
6. Close the adjusting valve [5].
7. Hold a couple of fingers over the pressure gauge [8] and blow dry and clean compressed air into the suction connection nipple [12/13]. The pressure gauge will now be pushed out of the housing.
8. Remove the G1/4” plug that was installed according to point 5.
9. Remove the suction connection nipple [12/13] using a 19 mm open-end wrench.
10. Remove the hose [15, 16, 17, 18] or male probe [3, 4] with a 12 mm open-end wrench.
11. Pull off the black plastic knob on the adjustment valve [5] and loosen the adjustment valve [5] with a pair of soft-nose pliers. The adjustment valve [5] is separated by turning the adjustment screw clockwise after it is fully disassembled from the Goliat.
12. Loosen the On/Off valve [6] with a pair of soft-nose pliers. The On/Off valve [6] is separated by turning the knob counterclockwise, after which the spindle can be pushed out. NOTE! The knob has a small amount of thread locking so you must carefully hold the spindle with a pair of soft-nose pliers to loosen the knob.
13. Loosen the plug [14] using a 6 mm Allen key.
14. Loosen the equipment mount holder [1] or rail clamp [2] by unscrewing the two Allen screws with a 5 mm Allen key.
15. All O-rings are now accessible for replacement, see exploded view on page 8.
16. All metallic parts except the pressure gauge [8] and plug [14] are autoclavable.
17. Reassemble everything in reverse order.
18. Check that the unit is operating according to the commissioning instructions on page 8.

- When cleaning, ensure that no liquid enters the unit through the propellant gas connection or suction connection.
- Over-flowed/contaminated Goliat must be handled in accordance with AFS 2023:10 Chapter 11 Swedish Work Environment Authority regulations or other national regulations and local procedures.

- Service and maintenance should only be performed by a person with the necessary knowledge, alternatively the unit can be sent to QMT-Tech for maintenance.
- Service and maintenance not performed in accordance with this manual may void any issued warranties.
- Results from tests and maintenance must be documented and saved in accordance with MDR 2017/745 and local procedures after the process has been completed.



Picture 3



Picture 4

- Suction ejector Goliat may not be returned to QMT without QMT's form BL 4-17-02 being included, fully completed, on the product's outer packaging. If a returned Goliat is suspected of being contaminated and not decontaminated or if BL 4-17-02 is not included on the product's packaging or is incomplete, QMT-Tech ab has the right to discard the product without further compensation and the customer may be invoiced for any costs for handling the discard.
- Gas under pressure has a high energy content! Interventions in medical devices, such as tightening or loosening components, must not be carried out when the devices are pressurized.
- Work on medical equipment may only be carried out by persons with the necessary competence.
- The medical gases can be fire promoting, suffocating and dissociative.
- The Suction ejector Goliat must not, either during installation or operation, be exposed to temperatures exceeding 80°C. Should this occur or be suspected, the Goliat suction ejector must undergo service and maintenance or be replaced.
- Do not install the device if the sealing plugs are removed, as it may be contaminated and unsafe to install in medical gas pipeline systems.
- Fire and explosion hazard: When Goliat is powered by Oxygen for breathing (O_2), the propellant gas is released through the silencer and may create an oxygen-enriched atmosphere in the surrounding area.
- Smoking, open flames, sparks, hot surfaces, and any ignition sources are strictly prohibited in the vicinity of the device during operation.
- Do not use non-intrinsically safe electrical equipment, mobile chargers, portable heaters, or other spark-generating devices near the device during operation in oxygen service.
- Ensure that the surrounding area is adequately ventilated and that local oxygen safety procedures are followed.
- Where oxygen-enriched atmospheres may occur, follow the healthcare facility’s fire prevention and medical gas safety procedures.
- Patient safety warning: The Suction ejector Goliat must never be connected directly to any drain, catheter, tube, or device inserted into the patient’s body, including but not limited to thoracic drains, wound drains, pleural drains, surgical drains, or suction catheters.
- Goliat is intended only as the power device for compatible external suction equipment with appropriate collection canister, overflow protection, and vacuum regulation.
- Direct connection to the patient may expose the patient to excessive negative pressure and may result in serious injury.
- Always verify that the connected suction equipment is specifically intended for patient use and is compatible with the required vacuum level.
- Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

- Work with medical devices must be carried out by a person with the required knowledge.
- Results from service, maintenance, renovation and tests must be documented and saved in accordance with MDR 2017/745 and local procedures after the process has been completed.

- Read the entire user manual so that you are well acquainted with the product before installation, use, service and maintenance.

Article number	Designation	Item
QMTC7SW50426	Equipment mount holder	1
QMTC7750569N	Rail clamp	2
QMTC7150RG1	Male probe O2	3
QMTC7150RG3	Male probe AIR	4
QMTC7SU37100	Adjustment valve	5
QMTC7SU37200	On/Off valve	6
QMTC7SU3218425	O-Ring 39,2x3,0	7
QMTC7SW10150	Pressure gauge 0 to -1,0 bar	8
QMTC7SU3219137	Pipe ejector	9
QMTC7SU3750890	Outlet nozzle	10
QMTC7SU3750890	Silencer	11
QMTC7SU3750899	Suction connection nipple with overpressure protection	12
QMTC7SU37300	Suction connection nipple with overpressure protection and vacuum valve	13
QMTC7210011	Plug	14
QMTC7SW10171V	O2 hose with angled male probe	15
QMTC7SW10173V	O2 hose with straight male probe	16
QMTC7SW10171	AIR hose with angled male probe	17
QMTC7SW10173	AIR hose with straight male probe	18
QMTC210012	G1/4” Plug (service instructions point 5 page 12)	-
QMTC6057702	Bacteria and Virus filter	-
QMTC6001114	Hydrophobic filter	-

ITEM number in accordance with Picture 1 page 5

Manufacturer:	QMT-tech AB Amerikavägen 6 39354 Kalmar
Basic UDI-DI:	734020615MQ
UDI-DI:	734026100054
Product Name:	Suction ejector Goliat
Article number:	QMT7SU3ABCDEEFFG (see page 17)

Inlet pressure:	Max 10 bar
Working pressure:	4-8 bar (nominal distribution pressure in accordance with EN ISO 7396-1)
Outlet pressure:	0 to -0,9 bar
Flow:	See flow diagrams
Storage:	-40 to 70 °C dry indoors
Operating conditions:	0 to 40 °C
Technical lifespan:	Technical lifespan: 15 years, provided that maintenance and functional checks are performed in accordance with this IFU.

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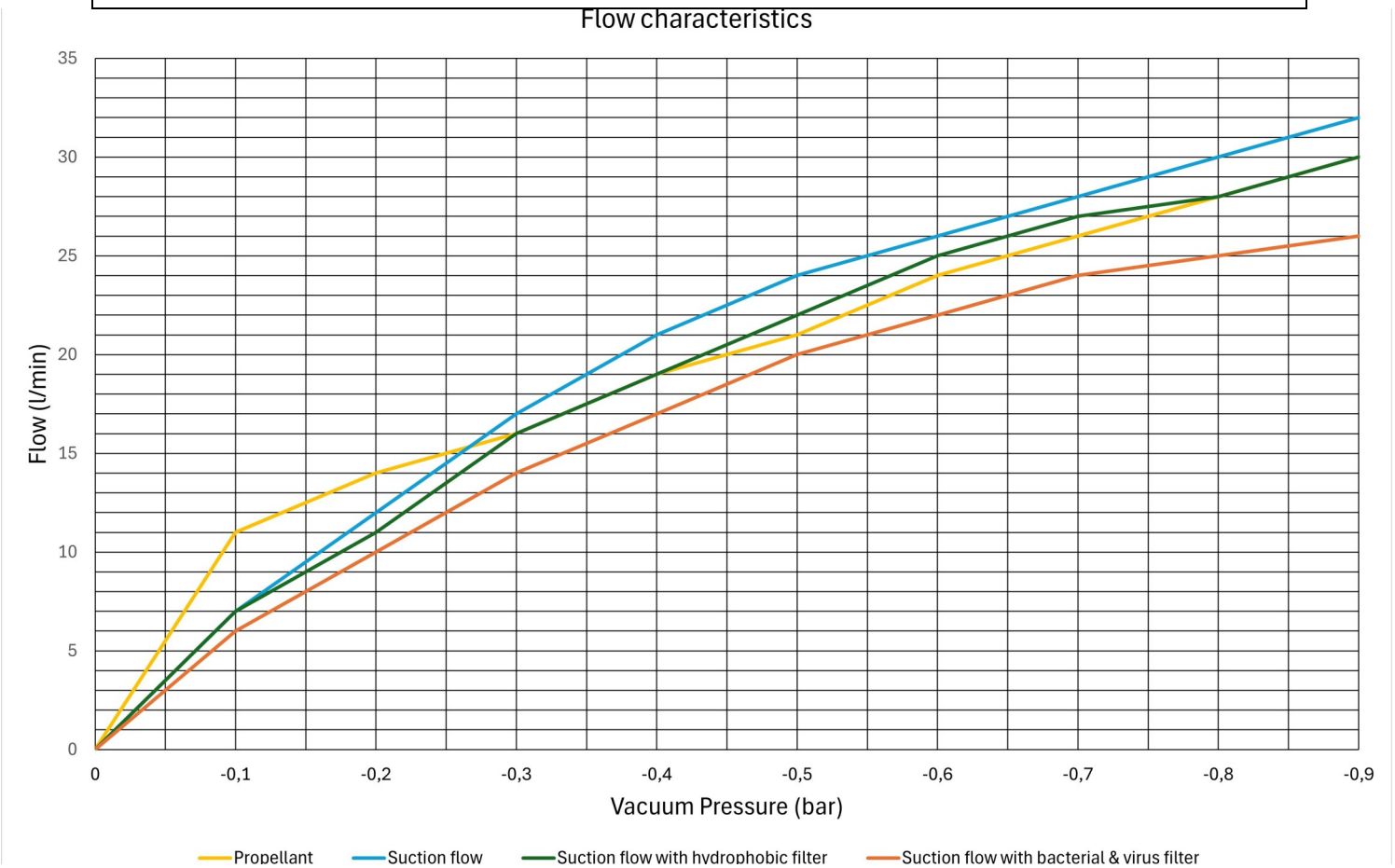
Flow characteristics (l/min)				
Vacuum (bar)	Propellant	Suction flow	Suction flow with hydrophobic filter	Suction flow with bacteria & virus filter
0	0	0	0	0
-0,1	11	7	7	6
-0,2	14	12	11	10
-0,3	16	17	16	14
-0,4	19	21	19	17
-0,5	21	24	22	20
-0,6	24	26	25	22
-0,7	26	28	27	24
-0,8	28	30	28	25
-0,9	30	32	30	26
4,0 bar propellant pressure provides ≥ -0,6 bar vacuum				
4,5 bar propellant pressure provides ≥ -0,7 bar vacuum				
≥ 5,0 bar propellant pressure provides ≥ -0,8 bar vacuum				



QMT7SU3ABCDEEFFG

	Type	Gas	Mount	Connector	Hose length	N/A	Restricted
QMT7SU3	A	B	C	D	EE	FF	G
Standard	1						
MR	5						
O2		1					
AIR		3					
Air for driving tools		4					
O2/AIR		X					
O2/AIR/ILU		Y					
Slit clamp			1				
Grip clamp			2				
Male			3				
Double			4				
Panel mounted			5				
Slit clamp side mounted			6				
Angled grip clamp			7				
Male G1/4 connector			8				
Without probe				0			
Straight male				1			
Angled male				2			
Straight male with recoil protector				3			
Angled male with recoil protector				4			
Hose nippel (withou hose)				X			
Hose length in meter (ex 1,5 m=15)					00		
						00	
No							0
Restricted (-0,2 bar)							2
Restricted (-0,4 bar)							4

Manufacturer:	QMT-tech AB Amerikavägen 6 39354 Kalmar
Basic UDI-DI:	734020615MQ
UDI-DI:	734026100054
Product name:	Suction ejector Goliat
Article number:	QMT7SU3ABCDEEFFG (see page 18)
EMDN code:	Z0601010299
Warranty period:	2 years

Meets the requirements of:

MDR 2017/745	Class IIa
EN ISO 10079-3	2022
EN ISO 10079-4	2021

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The number “Q220997-1” indicated on the device UDI-label is an internal label identification number used by the manufacturer for document and production control purposes.
It is not related to device identification, model designation, or UDI information and has no relevance for the user.

- All metals in the unit can be recycled, shall be handed over to an authorized recycling company.
- Rubber gaskets are handed in to an authorized recycling company.
- Teflon gaskets are handed in to an authorized recycling company.
- In normal use, the product is not contaminated by residues that are hazardous to health or the environment.

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