GB USA

Vetter Mini-Lifting Bags 8 bar (116 psi)
Vetter Super Mini-Lifting Bags 8 bar (116 psi)

Contents

Introduction

Lifting bags may only be operated with compressed-air - or with water in exceptional cases -(accessories on request), though never with flammable or aggressive gases. The lifting bags may only be operated using original Vetter fittings.

Mini-Lifting Bags (steel or Aramide) of types V24 - V31 - V40 - V54 - V68 (VS26 - VS34 - VS43 - VS59 - VS74) fall under the Pressure Vessel Legislation from July 1st, 1980, in Germany (DruckbehV). These lifting bags may only be put into operation after submission of the manufacturer's certificate of official acceptance. This test certificate should be kept in a safe place and presented to the test expert at the repeat test.

Pay attention to DIN 7716 if stored for longer periods of time. We will be happy to supply an excerpt from this standard.

Safety instructions

- Use only Vetter original fittings. Only these have been tested in the works in accordance with the Pressure Vessel Legislation.
- Please check the perfect and correct condition of the lifting bags and accessories before and after every use.
- Insert bags at suitable points so that at least 75% of the bag's surface is beneath the load.
- Avoid angles larger than 30 degrees (relationship between base and load to be lifted). The bag could be catapulted out of the gap. Create a parallel base to the load to be lifted whenever possible using a sturdy substructure.
- Never place more than two bags on top of one another.

- Secure load against slipping. Keep inserting props the higher the lifting height.
- If a substructure is used always ensure that this is stable and firm. The substructure must support at least the complete area of the bag and should be wider and longer than it is high.

Risk of slipping

Never place metal on metal when propping up loads!

- Place stones, branches or similar materials under the bag to improve adherence if used on slippery surfaces (ice, snow, mud, etc.).
- Avoid spot loads, e.g. building cramps, bolts.
- Never use bags on sharp edges or on very hot days. Use suitable liners and cover the complete surface of the bag.
- Lifting bags can be used without problems at temperatures of - 20°C (- 4°F) (max. - 40°C (- 40°F)) and temporarily up to + 115°C (+ 239°F).
- Protect bags against flying sparks during welding and cutting work.
- Do not place extra loads on bags, e.g. hydraulic props, winches, falling loads.

Warning

Never work under suspended loads, never reach under load. Keep your distance.

- Avoid shearing stresses by squeezing the bag when the load is lowered.

Warning

Never stand in front of the bag, always to one side when in use since it can be catapulted out from under the load.

Behaviour of the lifting power

The Vetter Mini-Lifting Bags 8 bar (116 psi) operate according to the physical principle of pressure x area = power

Since the effective contact area is reduced with an increasing lift due to the surface curvature, the lifting power also decreases with a higher lifting height.

If only an air pressure of below 8 bar (116 psi) is available, the lifting power can be roughly calculated as follows:

Lifting power from load path diagram[1] divided by 8 (bar), multiplied by air pressure (bar) available.

Lifting power divided by 8 bar x (y) bar.

Wherever possible you should determine the weight of the load and how far the load has to be moved (lifting height) before starting work.

[1] compare page 31

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The lifting power - load path diagram (cf. P. 31) facilitates the choice of the suitable bag size.

The curves shown refer to the complete lifting of the overall load at 8 bar (116 psi). If the weight is unknown or the bag is used in an emergency which calls for quick action the largest possible Mini-Lifting Bag which fits under the load should be used.

Levering requires less force than lifting!

In a number of cases the load can still be levered even though the lifting power of the lifting bag is not enough to lift the load.

Increasing the lifting power and lifting height

A maximum of two bags can be placed on top of one another in order to increase the lifting height. The lifting power of the smaller bag on top is hereby decisive for the overall lifting power. The lifting heights are added together correspondingly.

In order to increase the lifting power the bags have to placed along-side one another under the load.

If two or more bags are placed alongside one another the lifting powers are added together. The lifting height which can be achieved depends on the smallest bag used.

Vetter Mini-Lifting Bag 8 bar (116 psi) - Vetter System

With the Vetter system the arrangement of controller, inflation hose and bag is retained consistently throughout the whole range of Vetter products so that bags cannot be inflated with an excess operating pressure by bypassing the controller or even by directly connecting the pressure reducer to the bag. The controllers have safety valves and manometers matched to the respective pressure range which prevent overinflation of the bags.

There is a corresponding controller with matching coupling system for every pressure range in the Vetter system.

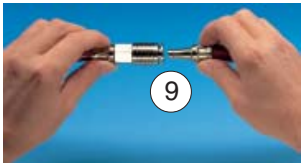
The green air supply hoses between the controller and air source have been standardised for all pressure ranges.

The inflation hoses in the 8 bar (116 psi) system are available in the colours yellow or red. The different colours avoid confusion when controlling the individual bags.

Yellow or red = inflation hose 8 bar (116 psi) from controller to Mini-Lifting Bag. (Different colours make for easier recognition when two bags are used).

The inflation hoses in the 8 bar (116 psi) system have twin-lock safety couplings.

To connect the hoses, push the hose stem (9) in until you hear and see it catch in place.



To release the hoses, push the hose stem into the coupling against the spring pressure. The connection is released by simultaneously pulling back the coupling ring. This system prevents accidental disconnection.

Air supply

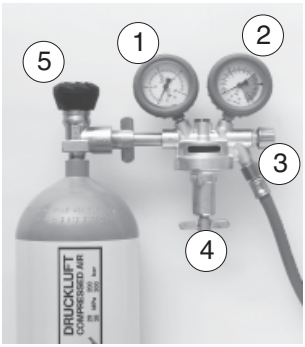
Any air supply up to a max. of 10 bar (146 psi) can be used to operate the Mini-Lifting Bags.

If the pressure is greater than 10 bar (146 psi) the Vetter pressure reducer (Art.-No. 160 21 000) has to be used.

If the compressed-air contains oil an soil separator should be used.

Operating with compressed-air cylinders 200 or 300 bar

Connect pressure reducer with T-screw to compressed-air cylinder.



Close the handwheel (3) on the pressure reducer. Open the cylinder valve (5): the manometer (1) shows the pressure in the cylinder.

Air reserve (l) = pressure (bar) x cylinder volume (l)

Set the back pressure to approx. 10 bar (146 psi) with the adjusting screw (4) (display on manometer (2)).

Connect pressure reducer's air hose to the controller's inlet coupling by pushing in the hose stem. Turn the coupling sleeve (double safety lock).

To release the connection, align the notch in the coupling sleeve with the locking screw. Pull back sleeve - the connection is released.

See also operating with other air supplies.

Connect inflation hoses (red or yellow) to the bags being used. Connect inflation hoses to the outlet coupling of the respective controllers.

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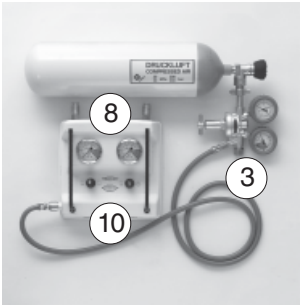
Operating with the dual controller and deadman control



The positioned Mini-Lifting Bags can be inflated after opening the handwheel on the pressure reducer (3).

Pull back the lever (10) on the controller to inflate the Mini-Lifting Bag.

Keep an eye on the manometer (8) and the load.

Once the desired lifting height or maximum working pressure of 8 bar (116 psi) is reached stop inflation by releasing the lever.

The lever automatically returns to the middle position = deadman position.

If the working pressure exceeds 8 bar (116 psi) the safety valve opens.

Push the lever forwards to lower the load or completely deflate the Mini-Lifting Bags.

Disconnect the completely deflated bags and inflation hoses at the end of the lifting procedure.

Close the air supply. Pull back the lever to depressurise the air hose of the pressure reducer or the air supply hose from the external air supply. Then push the lever forwards briefly so that the integrated return valve is depressurised.

Operating Mini-Lifting Bags 8 bar (116 psi) with controller, fitting construction

Connect bags and inflation hoses as described above.

Open the compressed-air supply.

Open the ball valve (6) to inflate the Mini Lifting Bag.

Keep an eye on the manometer and load.

Once the desired lifting height or maximum working pressure of 8 bar (116 psi) is reached stop inflation by closing the ball valve.

If the working pressure exceeds 8 bar (116 psi) the safety valve opens.

To lower the load or completely deflate the Mini-Lifting Bags, open the discharge device on the head of the safety valve by turning anti-clockwise.

On completion of the lifting procedure, disconnect the completely deflated lifting bags and inflation hoses.

Close the air supply. Open the ball valve briefly to depressurise the pressure reducer's air hose or air supply hose from the external air supply.

Safety against exceeding the maximum working pressure of 8 bar (116 psi)

The maximum working pressure could be exceeded y an excessively high inlet pressure or an increase in the load, e.g. through a slippage of the load.

However, to prevent the maximum working pressure of 8 bar (116 psi) being exceeded, the homologated proportional safety valves blow off in a differential range of ± 10%.

Operating Super Mini-Lifting Bags 8 bar (116 psi)

Version with compressed-air cylinder 1l / 200 bar

Connect pressure reducer with T-screw to compressed-air cylinder.

The pressure reducer is pre-set to 10 bar (146 psi).

Close the discharge device on the head of the safety valve by turning clockwise.

Connect inflation fittings to the Super Mini-Lifting Bag with the 5 m, yellow inflation hose.

To inflate the Super Mini-Lifting Bag, slowly open the valve on the compressed-air cylinder by turning anti-clockwise.

Keep an eye on the manometer and load at all times.

Once the desired lifting height or maximum working pressure of 8 bar (116 psi) is reached, close the cylinder valve by turning clockwise.

To deflate the Super Mini-Lifting Bags and/or lower the load, open the discharge device on the head of the safety valve by turning anti-clockwise.

Warning

If two Super Mini – Lifting Bags have to be inflated simultaneously via the inflation distributor in an emergency, make sure that both bags behave as one during lifting, lowering or deflation of the bags.

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Vetter Super Mini-Lifting Bags 8 bar (116 psi)

Version with foot pump

The foot pump included with the bags is fitted with a safety valve and manometer as well as a 2 m (6.6 ft) inflation hose with Vetter safety couplings in the works.

The foot pump can be used either directly or with the 5 m (16.4 ft), yellow inflation hose.

In higher pressure ranges the actuating force at the foot pump can be reduced by opening the vent screw on the second cylinder. This halves the force needed, though it also halves the delivery of the pump.

Operation with other compressed-air sources

Vetter adaptor sets are available for other compressed-air sources.

- Compressed-air mains (15)
- Truck tyre inflator (16)

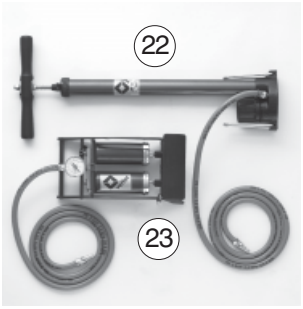
Warning

Tyre inflation connector must be protected by a safety valve.

- Truck air brake systems (17)

Warning

Seal off control line with the dummy coupling (18). Secure truck with wheel blocks.



- Truck tyre valve (19). For inflation with a normal hand or foot pump
- Truck tyre valve connector (20). To take air from the spare tyre.
- Building site compressor (21)
- Hand (22) or foot (23) pump with manometer

  2 m air supply hose for direct connection to the controller.

Reducing adaptors and air pumps are available from manufacturers.

If the maximum pressure from the compressed-air supply exceeds 10 bar (146 psi) a pressure reducer must be used and the pressure reduced to 10 bar (146 psi).

Practical tips

Examples of safe and efficient uses of the Vetter Mini Lifting Bag 8 bar (116 psi) and Super Mini-Lifting Bag 8 bar (116 psi).

- The space between the bag and the load to be lifted should be reduced wherever possible with a suitable substructure so that no lifting power and lifting height is lost. A substructure can, for example, be made using beams, though the surface should be at least as large as the bag.
- Mini-Lifting Bags should be positioned completely or at least with 75% of their surface are beneath the load to be lifted to ensure maximum possible contact between the bag and load and to prevent the bag from slipping.
- First inflate the lower bag as a foundation, then carefully inflate the upper bag. **Never start inflating the upper bag before the lower bag is fully inflated.** Lower in reverse order: first deflate the upper bag then the lower bag. **Never deflate the lower bag first or at the same time as the upper bag.**
- Try to avoid using the Mini-Lifting Bags on thin, unreinforced metal surfaces. These could buckle during inflation of the bag since 8 bar (116 psi) working pressure corresponds to a pressure of 8 kg per cm^2 (17.6 lbs per sq.ft) on the base and the load.

Lifting circular loads:

- Position two bags, preferably of the same size, on the sides of the load and slowly inflate.

Warning

The bags may slip out from beneath the load if this has a small diameter and thus a steep angle of incidence.

Changing wheels:

- Place bag in front of the flat tyre, drive wheel onto the centre of the bag. Secure vehicle against rolling away. Insert prop under axle after raising, though never work under a raised load, use rods if necessary.

Lifting rail vehicles:

- Insert bag below load, enlarge contact area if necessary (e.g. on the axles). Secure load against slipping . Slowly inflate bag.

Forcing window bars apart:

- To rescue trapped persons or to help the fire brigade gain entrance to fight fires. Insert bags between bars or between the bars and the wall and slowly inflate.

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Warning

Risk of injuries from broken metal parts and stones. The force of the bags may break the rods or tear the rod anchors out of the wall.

Opening jammed lift doors:

- Push the doors apart by approx. 3 cm (1.18 in.) using a crowbar and insert the bag in the gap, then inflate slowly.

Warning

The doors may spring open suddenly.

Maintenance and servicing

Check that the Mini-Lifting Bags and accessories are complete and in correct working order after every use or longer periods of storage. Carry out visual and functional inspections.

A detailed checklist for visual and functional checks is available from Manfred Vetter GmbH & Comp. on request.

Mini-Lifting Bags can be cleaned with soap and warm water. The lifting bags should then be dried at room temperature.

Hydrocarbons may not be used for cleaning.

Carefully inflate Mini-Lifting Bags after use or after longer periods of storage starting with 0.5 bar (7.25 psi) and check for damages. If no damages are found, e.g. punctures or cracks, increase the pressure to a maximum of 4 bar (58.39 psi).

If punctures or cracks appear which expose the steelcord or kevlar the bags are no longer suitable for use. They cannot be repaired for safety reasons.

Damages to the bag's nipple

If the nipple is damaged it can be replaced.

Heat the area around the nipple with a hair dryer to loosen the adhesive. Unscrew the nipple by applying a slight pressure whilst holding the thread tight in suitable spanners.

Life span

Mini-Lifting Bags are rubber products and are thus subject to natural aging processes. Even if the bags show no visible signs of wear or damage they should be replaced after 10 years since invisible ageing processes may have taken place in the composite material.

If bags which are older than 10 years old are nevertheless used, the tester decides on whether shorter maintenance intervals are necessary. A pressure test every 2 years is recommended.

Troubleshooting

Vetter Mini-Lifting Bags have no moving parts which can wear or have to be serviced.

Despite the greatest of care and quality control measures faults can occur during deflation of the bags.

Bag nipple iced over

Ice may form in the bag's nipple at temperatures below zero or in cold, moist air.

If this occurs use normal antifreeze spray or warm the nipple in your hands.

Foreign bodies in bag nipple

Use a blunt wire to clean the nipple.

Hoses and controllers should only be serviced by authorised dealers or the manufacturer whenever necessary.

Recurrent tests

See following pages for tables.

The operator is responsible for the correct performance of the recurrent tests in accordance with the Pressure Vessel Legislation. The TÜV authorities (TÜV Rheinland) are familiar with the special test requirements since they frequently carry out these tests. The statutory tests by TÜV safety experts are performed a number of times during the year on the premises of Manfred Vetter GmbH.

The Mini-Lifting Bags can be economically tested in collective tests.

The test pressure for recurrent pressure tests using water is 1.3 times the permissible working pressure.

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Table of recurrent tests

Time Interval	Type of test[1]	Tester	Documentation	Basis
Before initial commissioning	Acceptance inspection Within the scope of type certification	Safety expert or workstester	yes	DruckbehV § 9,5
After every use though at least once a year	Visual and functional inspection	Qualified tester	not necessary	Manufacturer's recommendation
Every 2 years	Visual and functional inspection	Qualified tester	yes	DruckbehV § 10
Every 5 years	internal test of types: V24, V31, V40, V54, V68	Safety expert	yes	DruckbehV § 10
	internal test of types: V1, V3, V6, V10, V12, V18, V24L	Qualified tester	yes	DruckbehV § 10
Every 10 years	Pressure test of types: V24, V31, V40, V54, V68	Safety expert	yes	DruckbehV § 10
	Pressure test of types: V1, V3, V6, V10, V12, V18, V24L	Qualified tester	yes	DruckbehV § 10
After major repairs or if safety in doubt	Test on special occasions	Safety expert or qualified tester	yes	DruckbehV § 11

[1] Proof of testing according to VBG8

Technical data with steelcord reinforcement (European versions)

Type		V10	V12	V18	V24	V24L
Art.-No.		131 01 000	131 02 000	131 03 000	131 04 000	131 05 000
Lifting capacity max.	kN	96	120	177	240	240
	kg	9,600	12,000	17,700	24,000	24,000
Lifting height, max.	cm	20.3	20.0	27.0	30.6	20.1
Size	cm	37 x 37	32 x 52	47 x 52	52 x 62	31 x 102
Insertion height	cm	2.5	2.5	2.5	2.5	2.5
Nominal content	litre	9.2	10.7	21.7	32.9	23.5
Air requirement at 8 bar	litre	82.8	96.3	195.3	296.1	211.5
Working pressure max.	bar	8	8	8	8	8
Test pressure	bar	16	16	16	16	16
Bursting pressure	bar	48.3	71.3	54.7	65	74.3
Inflation time	sec.	3.8	4.8	9.0	13.8	9.9
Weight	kg	5.0	6.0	8.5	12.0	11.5

Type		V31	V40	V54	V68
Art.-No.		131 06 000	131 07 000	131 08 000	131 09 000
Lifting capacity max.	kN	314	396	544	677
	kg	31,400	39,600	54,400	67,700
Lifting height, max.	cm	37.0	40.2	47.8	52.0
Size	cm	65 x 69	78 x 69	86 x 86	95 x 95
Insertion height	cm	2.5	2.5	2.5	2.5
Nominal content	litre	57.5	75.0	124.2	161.9
Air requirement at 8 bar	litre	517.5	675.0	1,117.8	1,457.1
Working pressure max.	bar	8	8	8	8
Test pressure	bar	16	16	16	16
Bursting pressure	bar	44.0	35.0	35.5	34.7
Inflation time	sec.	23.7	31.1	51.9	66.3
Weight	kg	17.0	20.0	25.5	38.5

Vetter Mini-Lifting Bags 8 bar (116 psi)
Vetter Super Mini-Lifting Bags 8 bar (116 psi)

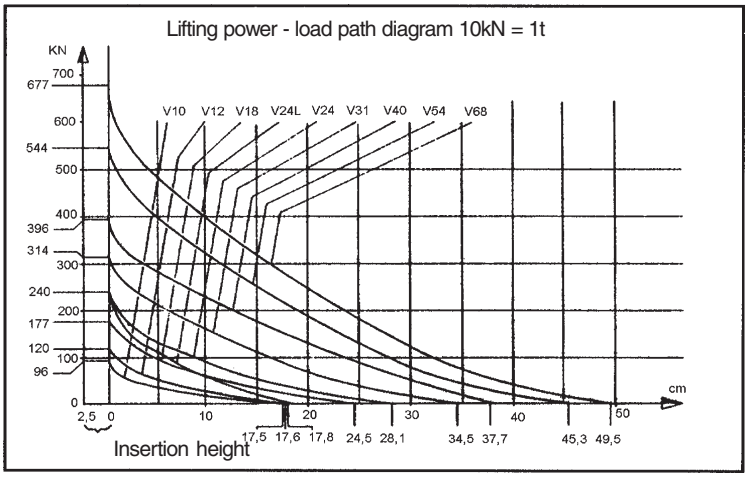
Technical data with aramide reinforcement (European versions)

Type		**V1**	**V3**	**V6**	**V10**	**V12**
Art.-No.		139 01 000	139 02 000	139 03 000	139 41 000	131 42 000
Lifting capacity max.	kN	10	32.9	63.6	96	120
	kg	1.000	3,290	6,360	9,600	12,000
Lifting height, max.	cm	7.5	12.0	16.5	20.3	20.0
Size	cm	14 x 13	25.5 x 20	30.5 x 30.5	37 x 37	32 x 52
Insertion height	cm	2.5	2.5	2.5	2.5	2.5
Nominal content	litre	0.3	1.75	4.4	9.2	10.7
Air requirement at 8 bar	litre	2.7	15.8	39.6	82.9	96.3
Working pressure max.	bar	8	8	8	8	8
Test pressure	bar	12	12	12	12	12
Bursting pressure	bar	56.3	49.9	38.7	73.0	73.0
Inflation time	sec.	0.5	1.0	1.4	3.8	4.8
Weight	kg	0.44	1.1	1.95	3.25	4.0

Type		**V40**	**V54**	**V68**
Art.-No.		131 47 000	131 48 000	131 49 000
Lifting capacity max.	kN	396	544	677
	kg	39,600	54,400	67,700
Lifting height, max.	cm	40.2	47.8	52.0
Size	cm	78 x 69	86 x 86	95 x 95
Insertion height	cm	2.5	2.5	2.5
Nominal content	litre	75.0	124.2	161.9
Air requirement at 8 bar	litre	675.0	1,117.8	1,457.1
Working pressure max.	bar	8	8	8
Test pressure	bar	12	12	12
Bursting pressure	bar	38.0	36.0	32.5
Inflation time	sec.	31.1	51.9	66.3
Weight	kg	11.2	17.0	21.9

Type		V18	V24	V24L	V31
Art.-No.		131 43 000	131 44 000	131 45 000	131 46 000
Lifting height, max.	kN	177	240	240	314
	kg	17,700	24,000	24,000	31,400
Lifting height, max.	cm	27.0	30.6	20.1	37.0
Size	cm	47 x 52	52 x 62	31 x 102	65 x 69
Insertion height	cm	2.5	2.5	2.5	2.5
Nominal content	litre	21.7	32.9	23.5	57.5
Air requirement at 8 bar	litre	195.3	296.1	211.5	517.5
Working pressure max.	bar	8	8	8	8
Test pressure	bar	12	12	12	12
Bursting pressure	bar	62.5	55.5	73.0	38.0
Inflation time	sec.	9.0	13.8	9.9	23.7
Weight	kg	5.8	7.3	7.8	9.1

Lifting power - load path diagram



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Vetter Super Mini-Lifting Bags 8 bar (116 psi)

EC Declaration of Conformity in the intendment of EC Machine Directive 89/392/EEC

We,

Manfred Vetter GmbH & Comp.
Blatzheimer Straße 10-12
D-53909 Zülpich

hereby declare that the

Lifting Bags 8 bar / 116 psi (with aramide reinforcement)
V1, V3, V6, V10, V12, V18, V24, V24L, V31, V40, V54, V68

Lifting Bags 8 bar / 116 psi (with steel cord reinforcement)
V10, V12, V18, V24, V24L, V31, V40, V54, V68

to raise and lower loads

Serial no.: _____

Type: _____
(see ratings plate, to be entered by customer)

comply with the following regulations in their standard design:

Machine Directive 89/392/EEC as amended by Directives 91/368/EEC, 93/44/EEC, 94/68/EEC

Applicable harmonised standards:

EN 292 part ½
prEN 13731

Applicable national standards and technical specifications:

Pressure Vessel Legislation (DruckbehV)

The type was tested in accordance with § 3 Section 1 of the Device Safety Act (as amended on August 26, 1992) by:

Prüf- und Zertifizierungsstelle der Fachausschüsse “Eisen und Metall III” und “Hebezeuge”
Kreuzstraße 45
40201 Düsseldorf

The GS symbol has been issued for the type.

The delivered device complies with the design and type.

Zülpich, March 1, 2000

Technical data with steelcord reinforcement (US versions)

Type		VS10	VS13	VS19	VS26	VS26L
Art.-No.		131 01 000	131 02 000	131 03 000	131 04 000	131 05 000
Lifting capacity max.	US tons	10.58	13.2	19.51	26.46	26.46
Lifting height, max.	in.	8	7.9	10.6	12	7.9
Size	in.	15 x 15	15 x 20	19 x 20	20 x 24	12 x 40
Insertion height	in.	1.0	1.0	1.0	1.0	1.0
Nominal content	cu.ft.	0.3	0.4	0.7	1.2	0.8
Air requirement at 8 bar	cu.ft.	2.9	3.4	6.9	10.4	7.5
Working pressure max.	psi	116	116	116	116	116
Test pressure[1]	psi	232	232	232	232	232
Bursting pressure[1]	psi	700	1,034	793	942	1,077
Inflation time	sec.	3.8	4.8	9.0	13.8	9.9
Weight	lbs	11	13	19	26	25

Type		VS34	VS43	VS59	VS74
Art.-No.		131 06 000	131 07 000	131 08 000	131 09 000
Lifting capacity max.	US tons	34.61	43.65	59.97	74.69
Lifting height, max.	in.	14.6	15.8	18.8	20.5
Size	in.	25 x 27	31 x 27	34 x 34	37 x 37
Insertion height	in.	1.0	1.0	1.0	1.0
Nominal content	cu.ft.	2.0	2.6	4.3	5.7
Air requirement at 8 bar	cu.ft.	18	23.6	39.5	51.4
Working pressure max.	psi	116	116	116	116
Test pressure[1]	psi	232	232	232	232
Bursting pressure[1]	psi	638	507	515	500
Inflation time	sec.	23.7	31.1	51.9	66.3
Weight	lbs	37	44	56	85

[1] Assessed in free, unrestrained

Vetter Mini-Lifting Bags 8 bar (116 psi)
Vetter Super Mini-Lifting Bags 8 bar (116 psi)

Technical data with aramide reinforcement (US versions)

Type		VSK1	VSK3)	VSK6	VSK10	VSK13
Art.-No.		139 01 000	139 02 000	139 03 000	131 41 000	131 42 000
Lifting capacity max.	US tons	1.1	3.63	7.01	10.58	13.2
Lifting height, max.	in.	3.0	4.7	6.5	8	7.9
Size	cm	14 x 13	25.5 x 20	30.5 x 30,5	37 x 37	32 x 52
Insertion height	in.	1.0	1.0	1.0	1.0	1.0
Nominal content	cu.ft.	0.01	0.06	0.16	0.3	0.4
Air requirement at 8 bar	cu.ft.	0.1	0.56	1.4	2.9	3.4
Working pressure max.	psi	116	116	116	116	116
Test pressure[1]	psi	174	174	174	174	174
Bursting pressure[1]	psi	816	724	560	1,058	1,058
Inflation time	sec.	0.5	1.0	1.4	3.8	4.8
Weight	lbs	1	2.4	4.3	7.0	9

Type		VSK43	VSK59	VSK74
Art.-No.		131 47 000	131 48 000	131 49 000
Lifting capacity max.	US tons	43.65	59.97	74.63
Lifting height, max.	in.	15.8	18.8	20.5
Size	cm	78 x 69	86 x 86	95 x 95
Insertion height	in.	1.0	1.0	1.0
Nominal content	cu.ft.	2.6	4.3	5.7
Air requirement at 8 bar	cu.ft	23.6	39.5	51.4
Working pressure max.	psi	116	116	116
Test pressure[1]	psi	174	174	174
Bursting pressure[1]	psi	551	552	471
Inflation time	sec.	31.1	51.9	66.3
Weight	lbs	25	38	48

[1] Assessed in free, unrestrained

Type		VSK19	VSK26	VSK26L	VSK34
Art.-No.		131 43 000	131 44 000	131 45 000	131 46 000
Lifting height, max.	US tons	19.51	26.46	26.46	34.61
Lifting height, max.	in.	10.6	12	11.9	14.6
Size	cm	47 x 52	52 x 62	31 x 102	65 x 69
Insertion height	in.	1.0	1.0	1.0	1.0
Nominal content	cu.ft.	0.7	1.2	0.8	2.0
Air requirement at 8 bar	cu.ft	6.9	10.4	7.5	18
Working pressure max.	psi	116	116	116	116
Test pressure[1]	psi	174	174	174	174
Bursting pressure[1]	psi	906	805	1,058	551
Inflation time	sec.	9.0	13.8	9.9	23.7
Weight	lbs	13	16	17	20

[1] Assessed in free, unrestrained