

**Vetter Mini Lifting Bags** apply the greatest power with millimetre precision on flat, uneven or sloping surfaces. They lift, push, press, prise and support the heaviest of loads. They are robust and powerful tools, ideal in countless applications. They act as lifesavers in accidents and natural catastrophes. They lift and adjust heavy-duty machines. They can be put to work in quarries, economically.

# VETTER

## Mini Lifting Bags 8 bar (116 psi)

### APPLICATIONS:

Only 25 mm (less than an inch) high, small, strong, fast and usable on any slope.

#### Ideal for:

Freeing people from under loads  
Rescue and recovery work after earthquakes

Forcing window bars apart

Opening lift doors

Installing machines

Maintaining pipelines

Lifting round tanks

Jacking construction cranes

Quarrying-out marble or rock

Jacking-up houses

Repairing heavy construction machinery

Tyre change on low-loaders, buses and trucks

Tilting truck loads

Relocating machines

Re-railing mine locomotives

Relocating railway bridges

### MECHANICAL ENGINEERING:

– Closing moulds (polyurethane foam)

– Pressure and closing elements in machines

Maintenance-free, long life, small, handy, lightweight and economical

Freeing people trapped after accidents with industrial and farm equipment

Lifting loads underwater (with water filling)

Sizes from 14 x 13 to 95 x 95 cm (5.5 x 5.1 to 37.4 x 37.4 in.) for compressed air (8 bar (116 psi) operating pressure) and also water (up to 16 bar (232 psi) operating pressure)

### SIZES:

12 sizes with lifting capacities from 9,600 to 67,700 kg (21,158 to 49,210 lbs)

### LIFTING HEIGHTS:

Up to 52 cm (20.5 in.), or up to a max. 104 cm (41 in.) with 2 bags stacked





### ADVANTAGES:

- Powerful lifters
- Standard height only 25 mm (0.98 in.) (including the nipple connector)
- Very small and handy
- Fast lifters (10,000 kg/22,040 lbs in 4 seconds)
- Inflation speed of a V 18 in 6.96 sec with Fitting controller, 19.76 sec with deadman lever
- Lift on any slope
- Continuous, noiseless and jolt-free lifting
- Anti-slip profiled surface frictional coefficient on moist asphalt 0.6 - 0.65  $\mu^{02}$ , dry asphalt 0.8 - 0.9  $\mu^{02}$ )
- The surface profiling also allows the bags to be pushed easily under loads on grass and similar ground.
- The technical data is vulcanized in relief lettering on yellow ground into the bag surface
- Self-extinguishing material, permissible in the mining industry
- Maintenance-free
- Minimum 10-year life span, given normal usage and correct storage
- Controller in impact-proof housing with carrying handles
- Separate pressure regulator 200/300 bar (3,000/4,500 psi) fits all Vetter compressed-air systems

- Pressure regulator with fingertight connector
- Very high bursting pressure of 32.5 to 74.3 bar (47 to 1,075 psi) for steelcord and aramide-reinforced bags (= safety factor up to 9.3 times the operating pressure)
- The most extensively and rigorously tested of Vetter Lifting Bags
- 36 months guarantee on all Vetter Lifting Bags with steelcord reinforcement
- Vetter Lifting Bags offer the highest possible safety
- Operating instructions in 12 languages
- Made in Germany

### SAFETY:

- Type-tested by official safety inspectorate (TÜV Rheinland)
- Type certification
- GS „safety-tested“ emblem for Mini Lifting Bags with steelcord and aramide reinforcements
- Ongoing production control by external quality control inspector (TÜV Rheinland)
- The Mini Lifting Bags, safety controller and inflation hoses conform fully with the regulations governing pressure vessels

Artificial ageing with 1,250, 2,500, 5,000 hours at 80°C (176°F), e.g. V 31, and subsequently 34 (496 psi) bar bursting pressure.

Loading of 17 KN (37,468 lbs) with 11 steel pins (dia. 16 mm (0.62 in.)), punctiform load 3.85 N/mm<sup>2</sup>, only slight indentation of outer skin

Loading with a ball of 77 cm (30.3 in.), 155 kg (341.62 lbs) from a height of 7 m (22.96 ft.), no damage, merely pressure increase of 2.5 bar (36.25 psi)

Impulse loading with drop weights of 17 KN (37,468 lbs), pins 16 mm (0.62 in.), 50 mm (1.97 in.) long, from a height of up to 4 m (13.12 ft.), no damage

Dynamic fatigue loading on testing machine with 16-ton (17.64 US tons) slide, force 1,280 Nm, 0.4 m/sec, over 60,000 load changes; ongoing x-ray checks revealed, no change in steelcord reinforcement

No leaks after impact tests with nail-sharp cone-pointed drop weights of 50 N (11.02 lbs) (60°, 90°) from a height of 7 m (22.96 ft)

Very high bursting pressure of 32.5 up to 74.3 bar (470 to 1,075 psi = safety factor of 4 to 9.3 times the maximum operating pressure)

Steelcord-reinforced Lifting Bags and accessories are tested at twice the maximum allowable working pressure

Safety controller with deadman lever, with brief safety instructions and embossed symbols for lifting and lowering

Brief operating instructions in four languages on the bag surface

Large nipple aperture of approx. 7 mm (0.4 in.) for fast inflation without risk of icing

The size (not too large) of the nipple aperture is also designed to ensure a safe lowering speed (3.5 cm/sec - 1.4 in./sec) in the event of hose breakage

Nipple made of tough steel, with internal thread, to prevent abrasion damage

Special nipple-connector thread prevents attachment of ill-fitting accessories

Glued-in nipple to prevent loosening

Easily loosened hexagonal nut for quick exchange of nipple connectors

Double-locking, two-hand coupling (similar to that on artificial respirators or diving apparatus) to prevent accidental disconnection of the hose if jerked abruptly

Couplings with completely free, open through-flow prevent icing and allow fast lifts

Compressed-air hose system 8 bar (116 psi), colour-coded red and yellow, for easy recognition when using two bags

All hoses fastened with pinch-type collets for immense tear-out strength of 1,350 N (302 lbs) compared with only 910 N (203 lbs) for screw-type collets

Pinch-type collets protect hose binding against damage

Controller with pressure gauge and safety valve to prevent over-inflation

Hose couplings and nipple without non-return valve to guarantee free access to safety valve

The threads of the controllers are glued to prevent any inadvertent loosening

**ARAMIDE reinforcement:**

- Highly flexible
- Corrosion-resistant
- Lightweight
- Test pressure 12 bar (174 psi)
- Tear-out strength of nipple 5,950 N (1,311.38 lbs)
- Piercing strength as in DIN 53 373 (body 28.7 mm (11 in.)) of 17.7 KN (3,913 lbs) (body 6 mm (0.24 in.), tin 110 mm (4,3 in.)) 3,280 N (722.9 lbs)
- Extensively tested (Cf. „Safety tests“)

**STEELCORD reinforcement:**

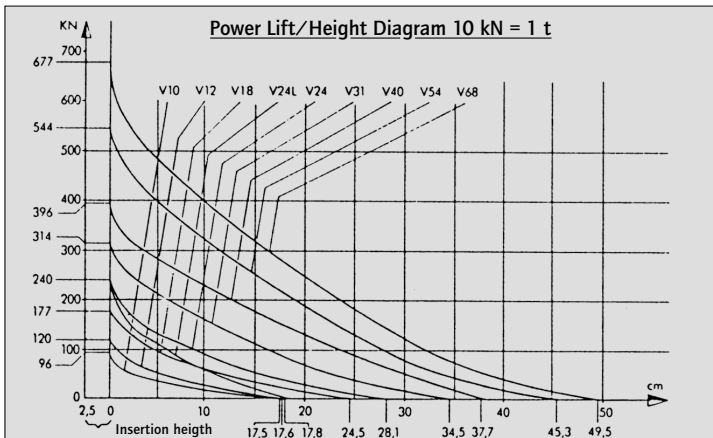
- High bending strength
- Good adhesion on rubber layers
- Highly flexible and no risk of breakages around the bag edges
- Test pressure 16 bar (232 psi)
- Long-proven in steel-cord tyres
- Piercing strength as in DIN 53 373 (body 28.7 mm [11 in.]) of 39 KN (8,596 lbs), (body 6 mm [0.24 in.], tin 110 mm [4.3 in.]) of 4,390 N (968 lbs)



**MATERIAL:**

- Proven steelcord or aramide reinforcements, widely overlapping on all sides of the bag
- Multi-layer construction
- Abrasion DIN 53516/ISO 4649 112 mm<sup>3</sup> (0,007 cu.ft.)
- Safety controller in impact-proof housing

Hose bending radius of 35 mm (1.37 in.) at 20°C (68°F), bursting pressure 50 bar (729.93 psi) at 20°C (68°F)  
Materials list (See pp 72/73)



Measured lifting capacity in relation to lifting height at 8 bar (116 psi)



Our tests, experience and high quality standards allow us to extend a **3-year warranty** on production and material defects of Mini Lifting bags.

## TECHNICAL DATA:

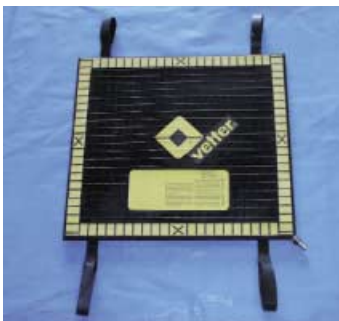
with ARAMIDE reinforcement:		V10 (VSK 10)	V12 (VSK 13)	V18 (VSK 19)	V24 (VSK 26)	V24L (VSK 26L)	V31 (VSK 34)	V40 (VSK 43)	V54 (VSK 59)	V68 (VSK 74)
Type		V10 (VSK 10)	V12 (VSK 13)	V18 (VSK 19)	V24 (VSK 26)	V24L (VSK 26L)	V31 (VSK 34)	V40 (VSK 43)	V54 (VSK 59)	V68 (VSK 74)
Art.-No.		131 41 000	131 42 000	131 43 000	131 44 000	131 45 000	131 46 000	131 47 000	131 48 000	131 49 000
Lifting power max.	kg	9,600	12,000	17,700	24,000	24,000	31,400	39,600	54,400	67,700
	US tons	10.58	13.2	19.51	26.46	26.46	34.61	43.65	59.97	74.63
Lifting height max.	cm	20.3	20.0	27.0	30.6	20.1	37.0	40.2	47.8	52.0
	in.	8	7.9	10.6	12	7.9	14.6	15.8	18.8	20.5
Size	cm	37 x 37	32 x 52	47 x 52	52 x 62	31 x 102	65 x 69	78 x 69	86 x 86	95 x 95
	in.	15 x 15	15 x 20	19 x 20	20 x 24	12 x 40	26 x 27	31 x 27	34 x 34	37 x 37
Insertion height	cm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	in.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Nominal content	l	9.2	10.7	21.7	32.9	23.5	57.5	75.0	124.2	161.9
	cu. ft.	0.3	0.4	0.7	1.2	0.8	2.0	2.6	4.3	5.7
Air requirement at 8 bar	l	82.8	96.3	195.3	296.1	211.5	517.5	675.0	1,117.8	1,457.1
	cu. ft.	2.9	3.4	6.9	10.4	7.5	18	23.6	39.5	51.4
Working pressure max.	bar	8	8	8	8	8	8	8	8	8
	psi	116	116	116	116	116	116	116	116	116
Test pressure*	bar	12	12	12	12	12	12	12	12	12
	psi	174	174	174	174	174	174	174	174	174
Bursting pressure*	bar	73.0	73.0	62.5	55.5	73.0	38.0	38.0	36.0	32.5
	psi	1,058	1,058	906	805	1,058	551	551	552	471
Weight	kg	3.25	4.0	5.8	7.3	7.8	9.5	11.8	17.2	21.9
	lbs	7.0	9	13	16	17	20	25	38	48

\* Assessed in free, unrestrained

with STEELCORD reinforcement:		V10 (VS 10)	V12 (VS 13)	V18 (VS 19)	V24 (VS 26)	V24L (VS 26L)	V31 (VS 34)	V40 (VS 43)	V54 (VS 59)	V68 (VS 74)
Type		V10 (VS 10)	V12 (VS 13)	V18 (VS 19)	V24 (VS 26)	V24L (VS 26L)	V31 (VS 34)	V40 (VS 43)	V54 (VS 59)	V68 (VS 74)
Art.-No.		131 01 000	131 02 000	131 03 000	131 04 000	131 05 000	131 06 000	131 07 000	131 08 000	131 09 000
Lifting power max.	kg	9,600	12,000	17,700	24,000	24,000	31,400	39,600	54,400	67,700
	US tons	10.58	13.2	19.51	26.46	26.46	34.61	43.65	59.97	74.69
Lifting height max.	cm	20.3	20.0	27.0	30.6	20.1	37.0	40.2	47.8	52.0
	in.	8	7.9	10.6	12	7.9	14.6	15.8	18.8	20.5
Size	cm	37 x 37	32 x 52	47 x 52	52 x 62	31 x 102	65 x 69	78 x 69	86 x 86	95 x 95
	in.	15 x 15	15 x 20	19 x 20	20 x 24	12 x 40	25 x 27	31 x 27	34 x 34	37 x 37
Insertion height	cm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	in.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Nominal content	l	9.2	10.7	21.7	32.9	23.5	57.5	75.0	124.2	161.9
	cu. ft.	0.3	0.4	0.7	1.2	0.8	2.0	2.6	4.3	5.7
Air requirement at 8 bar	l	82.8	96.3	195.3	296.1	211.5	517.5	675.0	1,117.8	1,457.1
	cu. ft.	2.9	3.4	6.9	10.4	7.5	18	23.6	39.5	51.4
Working pressure max.	bar	8	8	8	8	8	8	8	8	8
	psi	116	116	116	116	116	116	116	116	116
Test pressure*	bar	16	16	16	16	16	16	16	16	16
	psi	232	232	232	232	232	232	232	232	232
Bursting pressure*	bar	48.3	71.3	54.7	65.0	74.3	44.0	35.0	35.5	34.7
	psi	700	1,034	793	942	1,077	638	507	515	500
Weight	kg	5.0	6.0	8.5	12.0	11.5	17.0	20.0	31.0	38.5
	lbs	11	13	19	26	25	37	44	56	85

\* Assessed in free, unrestrained

## MINI LIFTING BAGS, NO TÜV CERTIFICATION REQUIRED



The strongest of the Vetter mini lifting bags not requiring TÜV certification. So far the V18 with a max. lifting capacity of 17,700 kg (US tons 19.5) was the strongest bag in the TÜV-free sector, now the latest model, the V20, increases the lifting

capacity by 1.7 metric tons bringing the total up to 19,400 kg (US tons 21.4). With a nominal capacity of 24.9 l (cu. ft. 0.9) and a pressure litre product of 199.2 l (cu. ft. 7) it is less than one litre below the limit of 200 l (cu. ft. 7.1) at which the bags require TÜV certification. Vulcanized, made to measure strips, have been integrated into the bag and so allow the precise centering of the cushion under a load. This mini lifting bag has also been technically approved and is subject to internal, on-going TÜV production inspection. As the length is different to the width of the bag, this bag too provides two push-in widths for universal use.

### TECHNICAL DATA:

Type	V20 Aramid	
Art.-No.	131 64 000	
Max. lifting power	kg (US tons)	19,400 (21.4)
	metric tons	19.4
Max. lifting height	cm (in.)	28 (11.0)
Size	cm (in.)	48 x 58 (18.9 x 22.8)
Nominal content	l (cu. ft.)	24.9 (0.9)
Air requirement at 8 bar	l (cu. ft.)	224.1 (7.9)
Operating pressure, max.	bar (psi)	8 (116)
Test pressure	bar (psi)	12 (174)
Bursting pressure	bar (psi)	53.1 (775)
Weight	kg (lbs.)	6.0 (13.2)
Bursting pressure determined in free, not tensioned state		