

FOR SUCCESSFUL VINEYARD MANAGEMENT

TECHNOLOGY FOR ROW CULTURES



- VINE REMOVAL
- SUBSOILING
- PLANTING
- CULTIVATING
- WEED CONTROL
- FERTILIZING
- STEM CLEANING
- HEDGING
- DEFOLIATING
- PLANT PROTECTION
- PRE-PRUNING



A FRAME

1 FRAME AR1 / AR2



The A-Frame is a tool carrier frame with mechanical width adjustment to attach the CLEMENS RADIUS SL for working light soil, MULTI-CLEAN for weed control or the ROTARY BRUSH for cleaning out the suckers. The frame is mountable in front or rear. The frames are available in two different sizes (AR1 and AR2) for row working widths from 58" to 118".

Technical data

AR1

AR2

Weight in lbs(Frame only, without tools)

188 lbs

220 lbs

Dimensions L x W x H (Frame only)

30"x25"x23"

30"x39"x30"

For row working widths with Radius blade 14in/20in/24in

58"-86"/68"-97"/78"-106"

71"-99"/81"-115"/91"-118"



SB FRAME



2 SB 1 FRONT MOUNTING/REAR MOUNTING (PICTURE FRONTMOUNTING, REARMOUNTING ALSO AVAILABLE)



3 SB 2 FRONT MOUNTING/REAR MOUNTING (PICTURE REAR MOUNTING, FRONT MOUNTING ALSO AVAILABLE)



Light implement frames with hydraulic width adjustment for undervine cultivation for tractor mounting in front or rear. A pump tank hydraulic unit is available for smaller tractors. Ideal for mounting the modern undervine weeding system RADIUS SL or ROTARY BRUSH. SB1 and SB2 are available in two different widths for cultivating rows from 51 to 126 inches, width widening up to 140 inches - depending on the tools.

SB MONO the one hand sided solution for different row widths with hydraulic width adjustment of 20 inches (picture below).

Technical data (front and rear mounting):

SB 1

SB 2

| | | |
|---|-----------------------------|--------------------------------|
| Weight (lbs) (frame only) | 198 lbs | 375 lbs |
| Dimensions L x W x H (in) (frame only) | 22 x 24 x 24 | 24 x 40 x 29 |
| For row working widths with Radius blade 14in/20in/24in | 51"-67" / 61"-77" / 71"-87" | 68"-108" / 77"-117" / 87"-126" |



HEXAGON

4 EXTREMELY SOLID



The solid hexagonal sectional frame is suitable for the hardest operating conditions. High-quality spring steel gives enormous strength. The special wing-chisel share undercuts cover crop without destroying it.

5 UNIVERSAL



The mounted disc harrow with hydraulically adjustable units is outstandingly suitable for working in all kinds of cover crop.

Technical data:

Hexagonal base frame
with hydr. change in width
with chisel and wing share
with chisel and wing share

with Radius SL blade 14 in
with Radius SL blade 20 in
with Radius SL blade 24 in

Frame width
Frame width
Working width
Row width

Working width
Working width
Working width

HEXAGON 723

27 in
31-46 in
47-162 in
59-75 in

61-77 in
71-86 in
80-95 in

HEXAGON 729

32 in
36-57 in
52-73 in
63-85 in

67-88 in
76-97 in
85-106 in

HEXAGON 724

45 in
49-83 in
64-98 in
79-114 in

80-112 in
88-122 in
98-132 in

Widening possible in 16 in steps. Height 63 in, length 55 in, weight according to equipment

6 SERRATED DISC PLOUGHS



For rational ventilation in the sensitive undervine area with simultaneous weed control.

7 ENORMOUS EFFECTIVENESS



With CLEMENS RADIUS mounted on both sides, the row is cultivated completely in one run through.

8 IMPLEMENT CARRIER

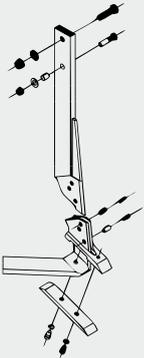


Front or rear mounted and also usable as a grubber. Implement carrier for the hydraulic Radius around-the-vine weeder or rotary brush.

9 DEEP FERTILIZATION



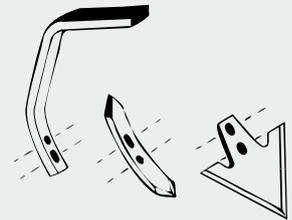
Through the well directed deposit of fertilizer in the root area, the nutrients are immediately available to the plants, even in longer periods of drought. The fine root formation is stimulated and provides for improved growth.



Tine made of spring steel
3" x 1" with share
Fastening adjustable
Removable wing share
Chisel can be used on both sides

TIP! MORE INFOS ONLINE
WWW.CLEMENS-ONLINE.COM

C tines 2" x 1"
Grubber share
Duck-foot share



10 CARRIER FOR BIO MULCH ROLLER



The ECO-ROLL knocks down the stalks, thereby producing a carpet of mulch that encourages good shaded composting.

11 LOOSENING + VENTILATING



C-tines made of spring steel for soil tilling with grubber or duck-foot share. Various combinations make soil cultivation possible all year round.

PR7 and PR9

12 PR7

13 PR9



TIP! MORE INFOS ONLINE
WWW.CLEMENS-ONLINE.COM



Narrow all-purpose plough with hydraulic width adjustment. It is particularly suitable for use in nurseries, in vineyards with narrow spacing between rows and for other row crops.

- robust frame construction
- hydraulic width adjustment
- optional supporting roller
- little power required
- mounting bars at the sides, e.g. for all-around weeders

Technical data:

| | PR7 | PR9 |
|--|-----------|--------------|
| Machine width, in: | 32 | 61 |
| Machine length, in: | 59 | 59 |
| Machine height, in: | 27 | 27 |
| Weight, lbs: | 441 | 551 |
| Frame adjustment, in: | 32 - 53* | 61 - 67* |
| Working width, Radius external, in: | 65 - 87** | 79 - 100** |
| Working width, Radius internal, in: | 54 - 75** | not possible |
| *measured from the outer edges of the bar ** with mounted Radius units with size 14" shares | | |



14 FOR ACTIVE SOILS



TIP! MORE INFOS ONLINE
WWW.CLEMENS-ONLINE.COM

Extremely solid cultivator for soil cultivation in difficult soil conditions. The special kinematics of the mechanical NON-STOP overload protection works actively and loosens the soil. Thanks to the special share form, the tools retract quickly. Existing organic mass can be worked in effectively and mixed intensively. Options for the device are a hydraulic steep-lift of 75° as well as widening in 20" grids and RADIUS.

Technical data:

Weight (lbs) (without accessories): app. 573
approx. dimensions LxWxH (in): 91 x 42 x 43
(width outside par edges, retracted state)

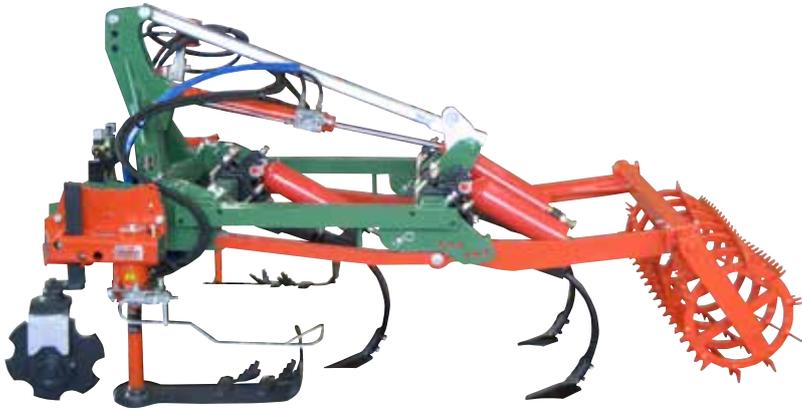
Working width with Radius SL blade 14 in: 71 to 91 in
Working width with Radius SL blade 20 in: 83 to 102 in
Working width with Radius SL blade 24 in: 91 to 110 in

Overload protection: non-stop
Oil pressure (psi): 2538
Steep-lift: 75°



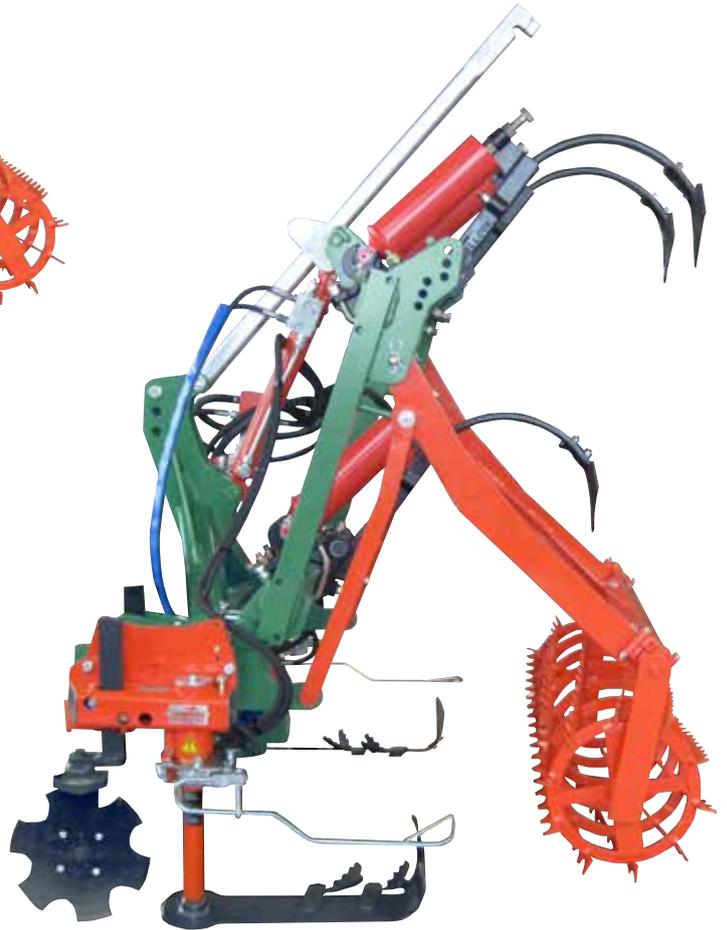
TERACTIV DUO

15 ONE FRAME - TWO SOLUTIONS



The difference between the Teractiv DUO and the Teractiv is that you can work along a grass track between the vines without cultivating. To make this possible, the frame with its flexible tines lifts up at an angle of 75 degrees and the roller folds under. This stabilizes the frame when working in the area between vines, as it rests on the grass track. This allows it to move smoothly and maintains a consistent working depth in the area around the vines.

The width of the stable frame can be adjusted from 43" to 63" (models that can extend to 83" are also available). The frame where the Radius is mounted has a hydraulic width adjustment. You have the option to mount 3, 5, 6 or 7 flexible tines to the frame, depending on the width of the frame and how loose you want the soil. For row widths: 71" - 91".



RADIUS SL



16 WITH ROTARY TILLER



TIP! MORE INFOS ONLINE
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17 WITH CLEARING SHARE



RADIUS round-the-vine weeder is the environmentally friendly alternative to chemical weed control. The weeds rot in a natural manner. Less dry stress through destruction of the capillaries. Soil activation and promotion of optimum soil condition. Sensitive sensor technology for clean work around the vine. Rear, mid- and front mounting possible, 1 or 2 sided versions. Versatility through different tools in front of the blade and additional devices.

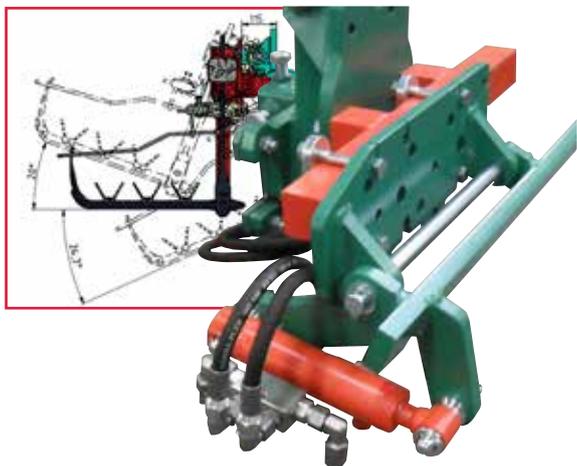
Technical data:

| | | |
|--|--------------------------|------------------------------|
| Oil quantity/device required: 1,6 - 2.6 gal/min | working depth: 2 - 4 in | blade length: 14 / 20/ 24 in |
| with rotary weed clearer/device: 5.5 - 6.6 gal/min | working speed: 3 - 6 mph | weight: approx. 72 lbs |
| universally mountable, also on already existing cultivators, flail mowers, hydraulic rotary harrow, etc. | | |



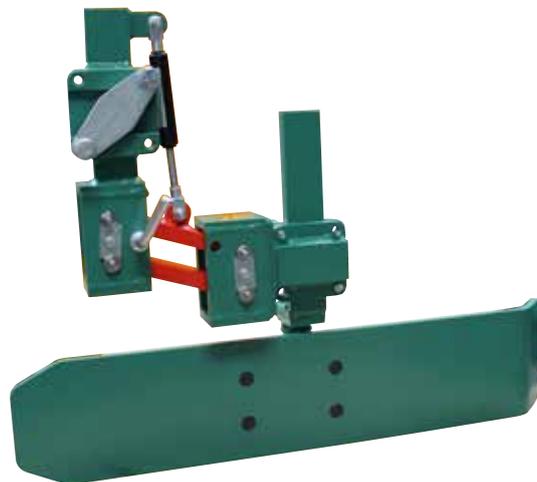
ACCESSORIES FOR RADIUS

18 SIDE SLOPE CORRECTION



With the side slope correction you can change the angle of the RADIUS to adapt the position perfect to the condition in slopes. You can choose between hydraulic or mechanical versions. This unit can be mounted on the tool carriers HEXAGON & SB Frames or also on the column lifters S-2 and S-5.

19 SOIL & STONE DEFLECTOR



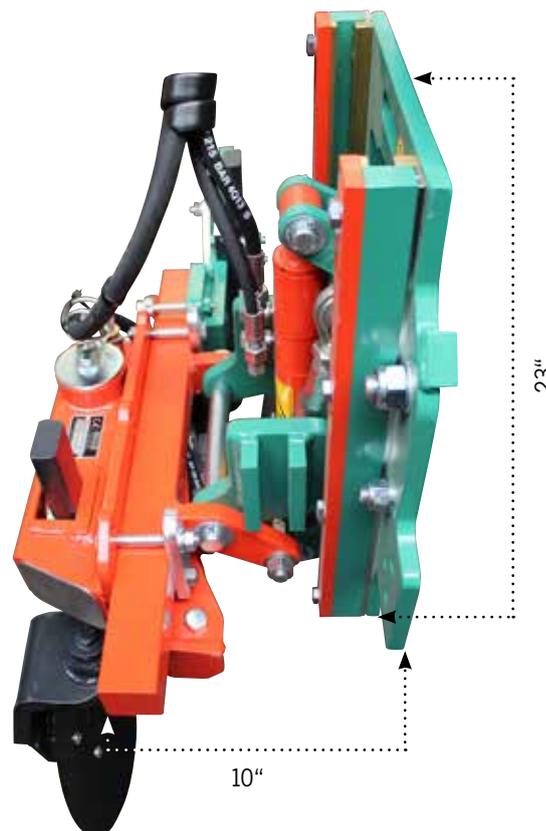
The soil & stone deflector will be mounted behind the RADIUS to keep the cover crop clean of soil and stones. It comes with a parallelogram for ground adaption. Different adjustment possibilities allows flexibility to achieve desired results.

20 COMBI-LIFTER



Compact lifter and side slope correction. You can choose between mechanical or hydraulic side slope adjustment. Mountable on HEXAGON and SB-FRAMES.

- Angle adjustment 22°/28°
- Lifting height 12"



S-5

COLUMN LIFTER

21



- S5-Column lifter
- Compact and robust construction
For various tools
- Available in single and double acting
(we recommend to use the S5 with a single acting cylinder with support wheel for depth control. S5 with double acting cylinder only for hard soils)
- Integrated height adjustment with wheel or bolt
- Available in right or left hand side versions
- 2-sided lifter can be mounted on a hydraulically adjustable frame mid mounted (the chassis must be adapted to the respective tractor)
- Adjustment of the frame width: 21" + optional 8" mechanical



with Hexagon for micro terraces

Technical data:

| | | |
|--|--------|---------|
| Weight - without tools | lbs | 110 |
| Dimensions (in) length x width x height: | inches | 27x8x39 |
| Stroke (maximum): | inches | 20 |

3-POINT + S2

22 S-2 WITH 3 POINT LINKAGE

Front mount with 3 point linkage. The compact solution for multiple CLEMENS products like the ECO-ROLL, BIO-MULCHER, SB1, SB2, SB MONO, TRIMMER and LEAF REMOVER, etc... Allows easy attachment of the tools. Easy way to upgrade your tractor with a 3-point linkage.



Technical data:

| | |
|--|--------------|
| Weight without tools: | 176 lbs |
| Dimensions (in) : Length x Width x Height: | 12x23x31 |
| Stroke of S2: | 19 in. (max) |



23 LIFT POLE

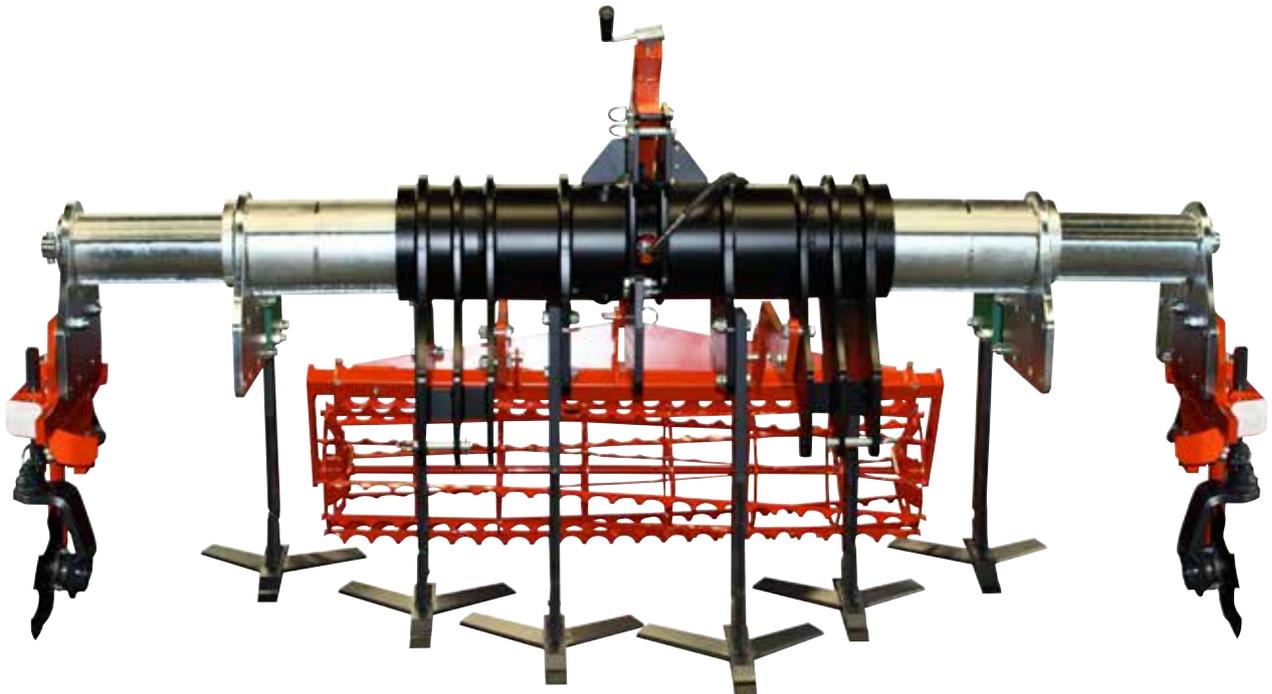
- Stroke: 37 in.
- Inclination: 26/18°
- Option: hydraulic width adjustment 16 in.



HERCULES

24 CULTIVATOR

Versatile capabilities and ruggedness are the main points of the HERCULES. The frame is double extendable and covers a wide working width of 57" to 106" (without the CLEMENS RADIUS). It can be used as the HEXAGON like an equipment rack or like a cultivator with a variety of tools. Due to the special shape, this frame is ready to work in the toughest conditions.



POWER harrow

25 WITH CAGE ROLLER AND SOWING MACHINE



26 WITH PACKING ROLLER



Technical data:

| | TK100 | TK130 | TK150 | TK175 | | TK100 | TK130 | TK150 | TK175 | |
|--------------------|-------|-------|-------|-------|----------------------------------|-------|-------|-------|-------|----------------------------|
| Total width, in: | 43 | 53 | 62 | 73 | Weight, lbs with cage roller: | 979 | 1116 | 1294 | 1358 | Input speed, rpm: 540 |
| Working width, in: | 43 | 52 | 61 | 72 | Weight, lbs with packing roller: | - | 1254 | 1455 | 1554 | Power requir. HP/kW: 40/30 |

SUBSOILER

27 TLK 883 1-SHANK



28 TRACTOR TRACKS



Technical data:

| | | | |
|-----------------------------------|----|--------------|-------|
| Working depth max. in: | 24 | Power HP/kW: | 40/30 |
| Width of the vibrating share, in: | 14 | Weight, lbs: | 573 |

Very good for breaking-up vehicles tracks, especially in the case of green areas. Subsoiling shares for optimal subsoil loosening.

29 VARIABLE MULCHER



The mulcher works exceptionally well in Vegetation Management and is also suitable for the shredding of cut wood. Attachment to the carrying vehicle is performed by a stable category 1 three point attachment. Drive is provided by a power take-off shaft set to 540 rpm and a drive shaft with slip clutch that is supplied from the factory. A double-action control unit is necessary for the hydraulic width adjustment.

The two rotating blade holders that are both equipped with two freely movable blades guarantee a high speed of mulching at a very low level of power.

| Technica data: | width 45-61 | width 49-68 | width 55-74 | width 62-82 |
|--------------------|-------------|-------------|-------------|-------------|
| Weight, lbs | 1014 | 108 | 1146 | 1433 |
| Power Required, HP | 50-70 | 50-70 | 50-70 | 50-70 |
| Lenght inches. | 55 | 59 | 63 | 67 |



PLOUGH for vine remover

30 MODEL M1 AND G1

Technical data:

| | Typ M1 | Typ G1 |
|-------------------------|---------------|---------------|
| Pull power requirements | from 110 HP | from 136 HP |
| Weight: | app. 2205 lbs | app. 2535 lbs |
| Width of blade | app. 35/39 in | app. 47/51 in |
| Work speed | max 6.21 mph | max 6.21 mph |

The models M II and G II are available with a second spin roll. To work with these models a four-wheel drive tractor is required. Further sizes are possible.



NURSERIES technology

31 MODEL G1



Technical data:

| | |
|-------------------------|--|
| Pull power requirements | from 88 HP |
| Work speed: | 3.11 mph |
| Length of plant: | 35 in staggering up to +/-19 in |
| Capacity range: | single row max. 40,000 plants/h two rows max. 70,000 plants/h |



Harvesting of single and double rows. Oscillating conveying attachment. Hydraulic models with own oil supply system. Disc coulter in tight rows. Videoeye for the driver.

PLANTING machine

32 IPS DRIVE

Technical data:

| | |
|---------------------------|----------------------|
| Capacity range: | 1200 – 1800 plants/h |
| Power requirement, HP/kW: | over 80 / 60 |
| Weight, lbs: | 3530 |

The IPS-DRIVE is the result of an intelligent conjunction of the possibilities of satellite technology with a planting machine, and is usable for multiple tasks in any terrain.



33 UNIVERSAL VII



Technical data:

| | |
|--------------|--|
| L X W X H | 83 x 67 x 87 in |
| Work speed: | depends on conditions appr. 1.5 mph |
| Weight, lbs: | app. 840 |
| Oil: | 6.6 gal/min. Oil via a snap-in valve is required |

Light weight planting machine for replanting, planting in the vine nursery and planting with roots in vineyards. For narrow track tractors from 47 HP.

RECYCLE

33 GSG AN2

Saddle-mount fan with tanker lorry



ADVANTAGES

1.

The most important advantage is the recovery of the chemicals that did not stay on the vine. They are pumped back to the tank and are reused again. In springtime the savings in chemicals can be up to 70% while later during the vegetation period when the foliage is closed and dense the savings can still be up to 20%. So throughout the season a saving of approx. 40% is possible.

2.

Less drift factor up to 99% at the beginning of the season. With this machine offering better application, it is able to work longer before having to refill the tank.

3.

With a tunnel system you are able to work more independent from wind and weather. With more than 15 years experience in producing of spraying technologies, LIPCO is among the leaders in this technology

Technical data:

L x W x H: 138 x 91 x 83 in
Distance adjustment: 8 - 43 in

Row width: 67 to 94 in
Weight: 990 lbs

34 GSG N2

A new series in crop protection, equipped with hydraulically driven cross-flow blowers



Technical data:

L x W x H: 94 x 94 x 98 in
Distance adjustment: 8 - 43 in

Row width: 67 to 94 in
Weight: 3090 lbs

SPRAYING

35 **TSG -U1**



36 **TSG NV2**



Technical data:

Length of the tunnel wall: 49 in
Max. row height: 87 in
Tunnel width adjustment: 8 to 43 in
Min. row width: Width of the tractor / trailer / saddle-mount
+ 32 in for the treatment of one row
+ 47 in for the treatment of two rows

Technical data:

Tunnel-lengths : 49 in
Max. row height : 87 in
Tunnel width adjustment : 8 to 43 in
Row width : 71 to 94 in
Weight : 1940 lbs



TECHNOLOGY FOR

37 SHOOT BINDER

Through the three-dimensional adjustment means the shoot binder can be tailored to the various varieties and design of your vineyard with simple adjustment.



Technical data:

Oil flow: 2.6 - 5.3 gal/min Weight: approx. 137 lbs
Hydraulic pressure: 2250 psi Work speed: up to 4.3 mph

38 TRIMMER

Clemens Trimmers offer an impressive range of standard features and options from the single inverted L shape right through to the Dual mast Dual over row designs shown below.



Technical data:

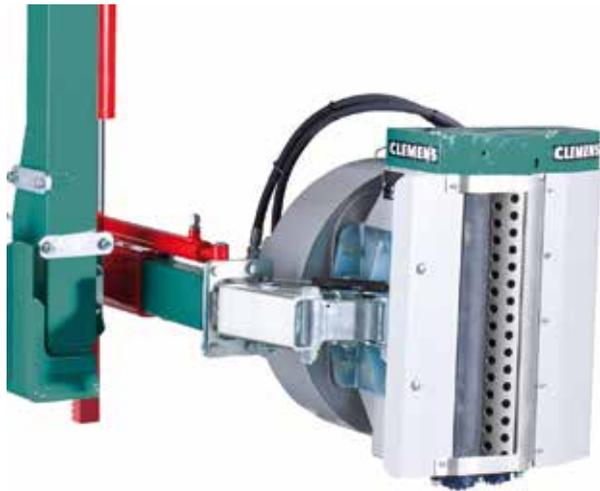
Oil flow: 2.6 gal/min Vertical cutters: from 49" to 75"
Weight: 86 lbs Horizontal cutters: from 12" to 26"



VINE CARE

39 LEAF REMOVER

Clemens Leafers can defoliate and blow clean the flower cluster at the same time with optional duo fan. This reduces the fungal infection not only in the grape zone but also in the grapes themselves.



Technical data:

Oil flow: 5.8 gal/min
Weight: EL50: 110 lbs

We offer different sizes:
EL 50=20 in

40 PRE PRUNER

The pruner can be ordered to suit your vineyard due to the modular design. It can be ordered or modified to suit exactly the conditions in your vineyard.



Technical data:

Oil flow: 5.8 - 6.6 gal/min
Cutting high: from 20" to a cordon cut (variable depending upon model selected)



STEM CLEANING

41 SPRAY CHAMBER



TIP! MORE INFOS ONLINE
WWW.CLEMENS-ONLINE.COM

Drift-free application of contact herbicides for the rational removal of suckers. Additional benefit: Application of soil and leaf herbicides for weed control in the plant strip

Technical data:

| | |
|---------------------------------|----------|
| Application quantity, gal/acre: | 26/741 |
| Area capacity/hour: | 2.5 acre |
| Weight, lbs: | 25 |

42 ROTARY BRUSH



Simple mounting on column lift, front mounted, over-the-row frame, cultivator or hexagon. Swivelling path and spring pressure adjustable. Options: Water injection against dust, wire lifting device

Technical data:

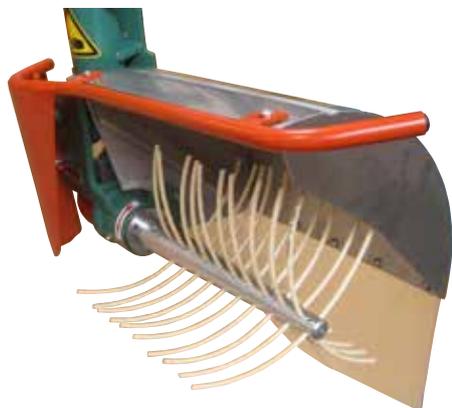
| | |
|---------------------------------------|-------|
| Working height (with 22.5° tilt), in: | 23 |
| Oil requirement, gal/acre: | 17-25 |
| Weight, lbs: | 86 |



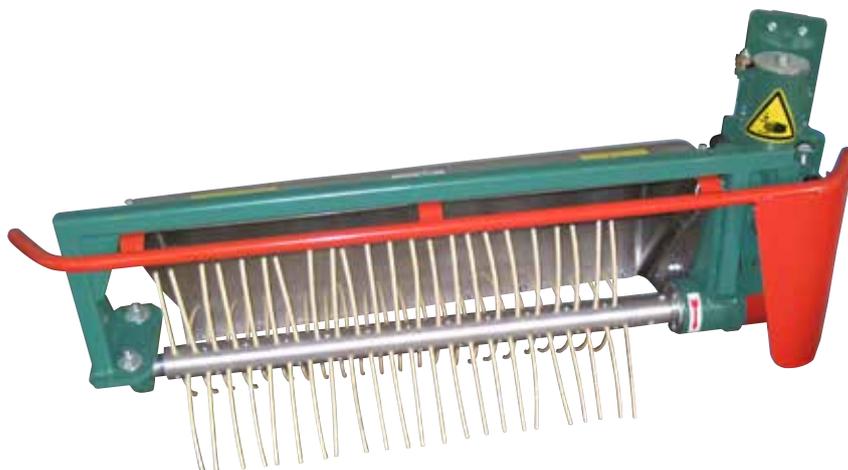
MULTI-CLEAN



43 MULTI-CLEAN



44 MULTI-CLEAN XL



The brush harvester has very strong and smooth cords that protect the vine. The conical aluminium shaft operates smoothly and with little vibration because of its special shape. It is therefore possible to carry out weeding effectively at 1100 rpm. With the MULTI-CLEAN you can remove both the vine buds and the weeds simultaneously with one machine.

Technical data:

Multi-Clean

Multi-Clean XL

| | | |
|-----------------------|----------------------------------|------------------------------------|
| Weight, lbs.: | 88 | 115 kg |
| Rpm: | 1100 1/min | 1500 1/min |
| Cleaning height: | 3.3" (slope 37,5°) | 23" (slope 37,5°) |
| Slope: | 0 - 37,5° (in steps of 7,5°) | 0 - 37,5° (in steps of 7,5°) |
| Dimensions L x B x H: | 30"x15"x20" (without protection) | 41"x14"x20.6" (without protection) |
| Oil requirements | | |
| - single sided | 4.2 - 6.3 gal./min | 4.2 - 6.3 gal./min |
| -double sided | 4.2 - 6.3 gal./min - in line | Minimum 8 gal./min - two lines |



GSP DISC

45 GSP ø 450 mm



- simple operation for weeding under the vines
- can be adapted to any soil type
- high driving speed
- long-term weed control can be achieved by mulching
- even water consumption because the capillaries are broken
- reduces most if not all herbicide



KOBOLD

47 CANE PULLER

■ PREPARATION OF THE VINEYARD:

To ensure the function of the cane puller KOBOLD there are just two important preparations necessary:

1. The shoots have to be at least 14" higher than the highest wire.
2. The wire-frame has to be in a good condition and has to be as tight as possible.

■ FUNCTION

The KOBOLD which is installed in the front will be driven over the vine row. A pair of finger wheels will take the vine wood which was released at the elbow from the bending wire and put it into the KOBOLD. There the pair of finger wheels and a roller keep the capturing wire down. Two driven tires pull the vine wood carefully out of the wire frame. The brushing-wheels which are installed in front of the tires center the rods which makes a clean pulling in of the vines possible.

After this, the rods will be led to the middle of the row by the cover and put down. Optionally the cover has a chopper which will crush the pulled out vine wood before putting down.



● Without chopper



● With chopper



48 MECHANICAL THINNING

FLEXITREE, a design also known as „Baum“ or „The Bonner“ for mechanical crop load Regulation. Based on the development by Dr. Damerow and Dr. Blanke, protected by international patent, the FLEXITREE is now produced by CLEMENS in Germany.

In heavy flowering fruit trees, FLEXITREE can remove excessive undesired flowers in pome and stone tree using several Rotors with elastic strings. This application reduces the use of chemicals designated As (phyto-) Hormones. The objective is to remove individual flowers of the flower Cluster in Order to improve fruit quality (fruit size, fruit Color and sugar content). FLEXITREE offers A wide variety of options to adjust the device and its Rotor to different tree heights and shapes and is particularly suited for tall and slender spindles, central Leader and fruit Wall.

HYDRAULIC REQUIREMENTS

- 1 x d-e for lifting pole
- 1 x d-e for angle adjustment for Lift pole ATLAS
- 1 x d-e for hydraulically width adjustment (optional)
- 1 x s-a with pressure free Return line and oil flow divider

BENEFITS

- healthy fruit
- Fast and efficient flower thinning e.g. at the balloon stage
- improved fruit coloration
- low cost, long-term Investment
- combination with aero canopy Trimmer
- wide Range of three dimensional individual adjustments



● Action!



● Details



VINESCOUT

49 AUTOMATIC STEERING SYSTEM – EASY OPERATION CAN BE USED IN MANY DIFFERENT WAYS

The “VINESCOUT” system is an automatic steering system that can be adapted to all existing types of tractors with hydraulic steering, it can be used in viticulture and fruit-growing with a spacing of 60 in and 138 in between rows.

The plotting of the row takes place by means of a 3D camera system. The optimal track calculated is driven along by means of a separate steering valve with a potential of ± 1 in.

The greatest potentials of the fully automatic “VINESCOUT” tractor steering system lie in taking the strain of the actual steering process off the tractor driver thus allowing him to give his attention to stress-free operation of the multi-row cultivating appliances (foliage work, plant protection).

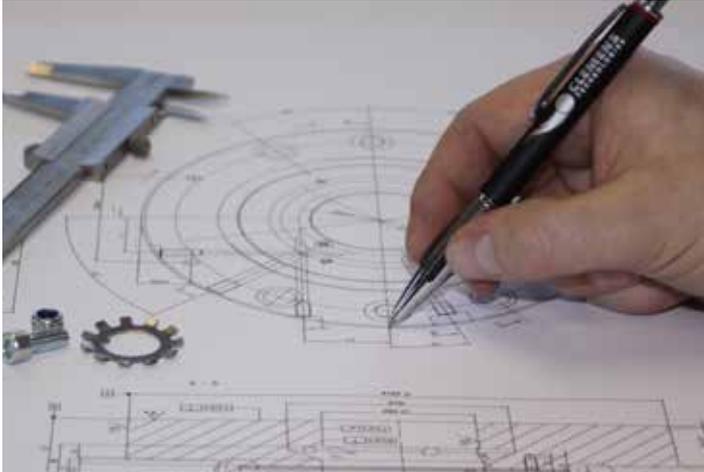


■ EFFICIENCY ON SITE

Our location in Wittlich (Germany), with more than 120 employees and more than 25 young people as apprentices, make it possible for us to produce unaffected from mass production and efficient as well as reacting quickly on the always changing market demands. With a permanent modernized plant, well trained employees and selected materials we are able to carry out a variety of jobs in highest quality including cutting, plasma burning, turning, milling, drilling, welding, painting as well as assembling of hydraulic, pneumatic and electronic controlling systems. All this know-how and qualified employees allow us the production of machines for viticulture with highest quality and reliability for more than 62 years.



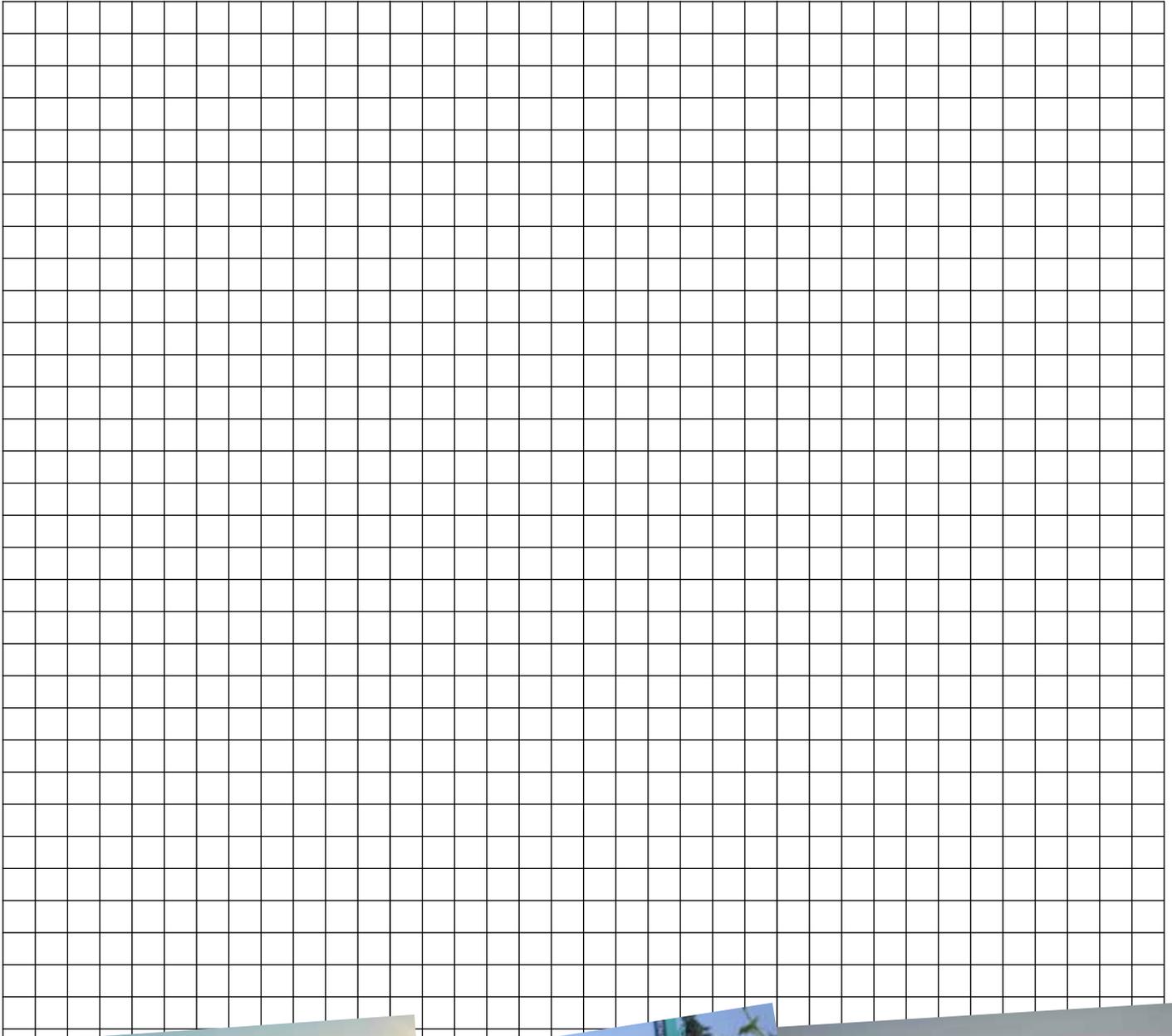
PRODUCTION



After the origin of machines for viticulture in mass production, CLEMENS distinguishes itself also in the field of design and construction of stainless steel tanks, custom-made installations of wine cellars and the conception and the construction of special machines for individual needs.



NOTES AND DRAWINGS



HISTORY

CLEMENS

■ Since its foundation in the year 1952 by Bernard and Mathias Clemens, the CLEMENS Company has been producing vineyard and agricultural machines with superior strength and durability. The company is family owned and is represented today by Thomas and Bernhard Clemens, both sons of Bernard. CLEMENS develops, manufactures and distributes high quality, unique and innovative products like the RADIUS an under vine de-weeder, HEXAGON, a strong utility frame for different cultivation tools, the „SPRAYING CHAMBER“ and „ROTARY BRUSH“ for sucker removal, and several more machines for various applications. CLEMENS machines are the key to successful Vineyard management. Besides special services for winery-technologies, we also supply special tank-designs with equipment and materials based on the customer's demand. Individual tasks are always taken care of with total dedication, to ensure our client's needs are fulfilled. More than 70% of all products are exported all over the world, which shows the strength and demand of our machines. Currently CLEMENS is represented in more than 35 countries.



CLEMENS VINEYARD EQUIPMENT - 224 N. EAST STREET - WOODLAND, CA 95776 - USA - PHONE: (+1) 530 406 0577 - MAIL: INFO@CLEMENS-AMERICA.COM

NON-BINDING INFORMATION - TECHNICAL CHANGES RESERVED - WOB - 10/14 - USA

