TRIOMATIC

Automatic
feeding system
T10 - T20 - T30 - T40

TRIOLIET
FEEDING TECHNOLOGY

Trioliet. Invents for you.

Trioliet feeding technology | since 1950

Feeding with complete precision

Trioliet was founded in 1950 by the three Liet brothers. The family company is specialised in the development, production and supply of tailor-made mechanised and automated solutions for feeding cattle. Sustainability and efficiency are important focuses for modern and professional farmers. When developing machines, we use the newest technological innovations. The machines are not just developed for the farmers, but with their cooperation as well. The desires of the user are considered in detail. Trioliet holds various patents, ensuring that the machines are unique, extremely efficient and user-friendly. Feeding with complete precision is a starting point that we stand for, and this is consistent with the desires and requirements of modern cattle breeders.

www.trioliet.com

TRIOLIET
FEEDING TECHNOLOGY

Perfect accuracy is or starting point

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Feeding just as nature intended

A cow or goat grazes in the pasture as required, and the animal eats what it needs. If an adult cow is in the stable, it will only receive fresh food once or twice per day rather than when the cow needs it, as is the case in nature. By giving your cow smaller, precisely measured out quantities of food several times per day, you will be doing so in a manner which comes closest to replicating the natural circumstances of the cattle. This is better for the well-being of the animal and leads to healthier livestock.

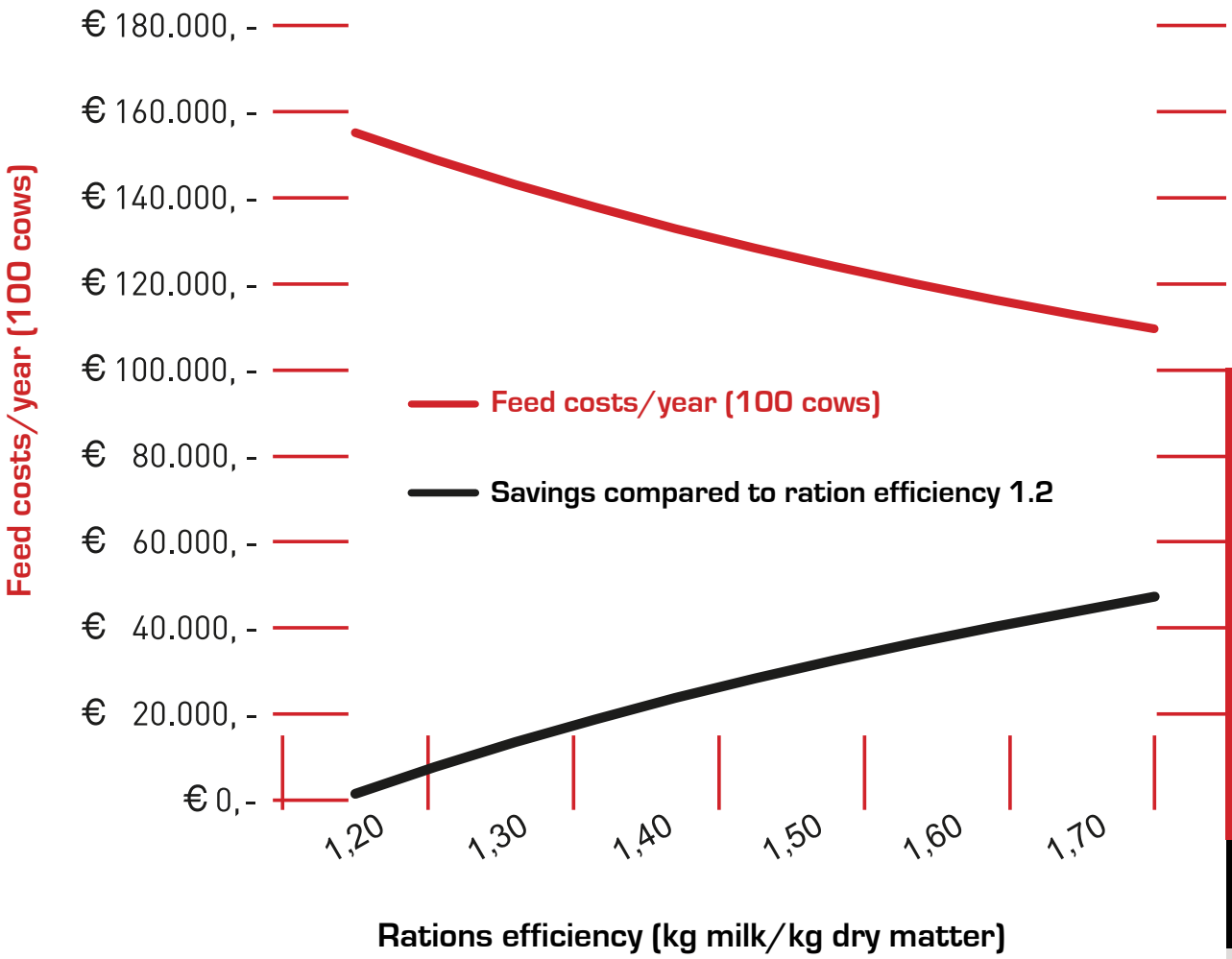
Feeding of the future

It has been proven that feeding animals more regularly results in higher feed intake, higher milk production, better health and higher fertility among the livestock. To be able to feed their cattle more frequently, modern farmers are increasingly turning to automatic feeding systems. Trioliet has developed the Triomatic automatic feeding system; simplicity is its key strength. The Triomatic does not contain huge amounts of electronics and is easy to set up and operate. The system requires little maintenance and can be utilised with as few as 50 to 60 cows. The complete system consists of two parts: the feed kitchen and the feeding robot. A process computer controls the whole system and provides you with all of the rations, feed frequencies and feeding times via a clear and uncomplicated computer programme. Fresh food can be provided up to 12 times per feed group per twenty-four hour period, as a result of which the cattle are constantly stimulated to ingest the food. In doing so, even the low-ranking animals receive the chance to continuously take in fresh food. An indefinite number of feed groups can be created in the system. As a result, it is possible to feed cows which are in different stages of lactation or in a dry period. It is also possible to feed cows different rations. The process computer ensures that the programmes are implemented and that the cattle receive the right mixture and amount of feed per group at the right times.

Triomatic

Saving time and optimum control

By feeding cattle automatically, you save an enormous amount of time. You can store the unprocessed feed in the feed kitchen for several days. Depending on the type of Triomatic being used, this feed is stored in the form of silage blocks or as a loose mix. You may decide when you load feed into the feed kitchen. This provides you with a lot of freedom in your daily life as a farmer. The animals receive their sustenance while you, for example, spend a day on the go with your family. The automatic system ensures that the feed is processed in a fully automatic manner. Processing includes preparing the mixture and mixing and distributing the feed. You can therefore control the feeding process as effectively as possible in less time, leaving you with more free time.



High efficiency and environmentally friendly

Automatic feeding has various efficiency-related advantages. Feed can be administered with the utmost accuracy using the Triomatic. You can specify precisely the right amount of feed and exactly the right mixture beforehand. Due to the fact that fresh feed is constantly offered according to the requirements of the animal, there is more activity in the barn. The animals are more active and, if in a barn with milking robots, run past the milking robots more frequently. It has been proven that automatic feeding increases milk production and that a ration efficiency of 1.7 kg of milk per kg of dry matter is certainly possible. There are also economic advantages in addition to these efficiency-related advantages. Annual costs are lower due to the reduced usage of manpower, and energy consumption also decreases. When constructing a new barn, a smaller feed alley can be taken into account. These advantages also have a positive effect on the environment.

Triomatic

T10

T20

T30

T40

The right Triomatic for every farmer

The Triomatic is available in four different models. The simplest system is the T10. The T10 purely consists of a feeding robot which can control the tower silos or other means of storage. The other models are the T20, T30 and T40. The T20 consists of a feeding robot with one or more stationary mixers, and the T30 has a feed kitchen comprising several feed bunkers in addition to the feeding robot. The T40 is the most comprehensive system, consisting of a feeding robot and a feed kitchen which is made of several feed floors connected to one another. The feed can be stored for several days, and the system can feed up to 1,000 cows per day. Feeding with complete precision is now easily available for every farmer thanks to the Triomatic by Trioliet. You are ready for the future.

T10: a ‘hanging’ feeding robot

The Triomatic T10 consists of a standalone feeding robot with a 3 m3 mixer and 2 vertical mixing augers. The feeding robot is hanging on a rail and moves through the barn via two trolley systems. One of the trolley systems is electrically powered. A second drive can be added if, for example, height differences inside or outside the barn need to be bridged. A major advantage of the hanging feeding robot is that it can be hoisted up if there are obstacles to be avoided in the barn. This feature means that it is also possible to feed cattle in several barns using the feeding robot even when there are height differences. The robot can be combined with tower silos or other means of storage provided by third parties.

Triomatic T10

Simplicity and safety come first

A rubber-coated drive wheel can be found on one side of the feeding robot's electrical drive unit; on the other side is a freely rotating wheel with two pulse counters for specifying the position of the robot in the stable. Energy is supplied by means of a permanent bus bar next to the steel track. This means that no batteries are used and that there is always sufficient energy available. The feeding robot is fitted with a belt conveyor for discharge on both the right and left-hand side. This can (as an option) be extended with a single track for the purpose of a 4 metre feed alley. The safety bumpers in front and back of the robot ensure that the robot will stop if it approaches an obstacle. In case of emergency the farmer will receive a text message, so that they may quickly react and ensure that the feeding process does not come to a complete standstill. Furthermore, if desired the feeding robot can push the feed via the feed pusher installed under the feeding robot during or after feeding.

Tried and tested feed mixing technology by Trioliet

The feeding robot's mixer cart utilises Trioliet's proven technology. The 2 unique twin-stream augers in the mixer cart have two symmetrical auger wings which ensure that the loose feed is discharged smoothly and equally. Even small mixtures are mixed quickly and accurately in this manner. The mixer cart is fitted with robust walls with high wear resistance. Asymmetrical triangles or inserts are placed on the inside of the feeding robot. The asymmetrically placed inserts force the feed to be mixed horizontally, also this horizontal flow quickly leads to an optimum, homogenously mixed ration and a quick and equal discharge.

Triomatic T20

The T20 feeding robot with stationary mixer(s)

The Triomatic T20 consists of the same feeding robot as the T10; however, the automatic feeding system also has one or more stationary mixers. The number of stationary mixers depends on the number of feed rations that need to be able to be made. The feed is mixed fluffy in the mixer. Other components such as concentrate can be added at a later stage in the feeding robot. The Triomatic T20 is predominantly suitable for farmers who want to dispense a single basic ration and potentially add various components per feed group, and for farmers who want to feed their livestock ample rations at a low investment.

This mixer is technically sound too

The T20 stationary mixer is electrically powered. Trioliet has various types of electric motor in case of limited electrical connections. Just like the feeding robot, the stationary mixers with two or three augers are also provided with the horizontal flow system with asymmetrical inserts. The patented design of the auger knives reduces resistance, thereby saving fuel. Furthermore, the blades are self-sharpening and therefore sustainable to use. The auger's slim body and large surface guarantee the best possible filling level, and ensure quick and homogenous mixing.

Triomatic T30

The T30 feeding robot with feed bunker(s)

The Triomatic T30 is a combination of a feeding robot with one or more feed bunkers. The number of bunkers depends on the number of unprocessed feed components. The feeding robot loads the feed per bunker. The feed amounts are programmed into the process computer beforehand. The bunkers are completely hydraulically powered and have a large capacity which is suitable for all feed types. Due to the special design with the horizontal loading section and large loading width, the bunker is easy to load using a tractor with front loader or a wheel loader. Thanks to the simple construction and sustainable materials, the maintenance costs are low, and reliability remains high.

Robust, stable and sustainable

The feed bunker is constructed from high-quality materials. This makes the bunker robust, stable and sustainable. The chain runs in a plastic guide rail in the wall, meaning that no feed comes into contact with the chain. This ensures a longer life, less wear and tear, and less failures in the system. The two dispenser rollers and steep discharge side provide accurate discharges. The discharge side is fitted with an anti-spill door; thanks to this, closed certainly means closed. The feed bunker is also equipped with a double bottom. As such, the feed cannot fall on the ground. This guarantees a safe, clean and hygienic feed kitchen.

Triomatic T40

The T40: the most advanced automatic feeding system

The most well-known and advanced automatic feeding system by Trioliet is the Triomatic T40. The system has feed floors for storing feed in the form of silage blocks or bales. The number of feed components determines the number of Triomatic feed floors. Of course, other products and components from other storage containers can be added to the feeding robot for the T40. The Triomatic T40 provides the farmer optimum flexibility in their labour and private life. Different feed rations can be fed to the livestock, and the farmer can compile the rations very accurately. Silage blocks and large bales are used to maintain the feed quality.

Flexible and precise

The Triomatic T40's feed kitchen is made of several feed floors connected to one another for storing different feed components. The number of feed floors depends on the number of feed components. Feed can be stored in the feed floors for several days in the form of silage blocks or bales which are still tied. As such, a lot of feed can be stored in a small area, and the farmer can store the feed 2 to 5 days. The feed floor is completely electrically powered. An advanced cutting system can be found on the front of the feed floors; this cutting system cuts off exactly the required quantity per feed type.

Triomatic T40

Cutting the feed

The large silage cutter ensures that it can be loaded very quickly – up to 1.5-2.5 tonnes per block. The bottom chain with slats can be reversed. The advantage of this is that the feed floors can be filled despite not yet being empty. The silage block loaded on the supply container first is fed to the cattle first (first in - first out). The cutting surface of the silage cutter is smooth, meaning that there is less chance of heating up when cutting the silage. The cutting system has two blades that move in opposite directions to each other. The feed is being cutted out in an angle, so that the block can be cut without falling over. The feed is cut off without damaging the block and without spoiling the fibres of the feed. The feed remains in the best possible condition. The desired thickness of the slices can be configured per feed type. The feed is transported to the feeding robot via the cross chain conveyor. The cross chain conveyor is equipped with a weighing system that guarantees highly precise feed accuracy. Furthermore, the cross chain conveyor is robust and wide, and can therefore function as a temporary buffer. Feed may even be cut while the feeding robot is still feeding the livestock in the barn.

The intelligent process computer

The strength of the intelligent process computer lies in its simplicity. The computer is easy to operate via a touchscreen, and it is simple to input information. The process computer with touchscreen is located on the feeding robot for the Triomatic T10 T20 and T30 and on the central control cabinet for the T40. The process computer is also accessible via all mobile devices such as tablets, laptops, smartphones and personal computers. The process computer's software is compatible with other software systems, such as management software or software for milking (robot) systems. Feed, ration and feed group information can be exchanged using this software. The system is also self-regulating. This means that the computer is ready to solve problems itself in order to prevent any failures. Failure reports can be sent to the user via text message.

Management

Accurate reports and supply management

All information is configured beforehand via the simple menu system on the main screen. Using the touchscreen, you can input the feed types, rations, feed groups and feeding times. Furthermore, you can configure the settings for the feed floors, feed bunkers, any other storage containers, concentrate silos and the feeding robot. The system is subsequently responsible for the entire feed process. In addition, the system provides accurate reports and stock management. An exact account of the information is made available per feed group, and an accurate record of feed supplies can be kept. Moreover, you can naturally easily adjust the system to optimise the feed process.

Service and support

The Triomatic system meets the highest quality and safety requirements. Among other advantages, the high quality of the materials used ensures a long life. Furthermore, the newest technology is utilised to guarantee safety. The process computer ensures that problems are solved before they arise. The system is self-regulating, so that failures rarely occur. Nevertheless, if you require support in any way, you can contact Trioliet 24/7 for online service and support.

TRIOMATIC T10 | Automatic feeding system with stand alone feeding robot

Standard features

- Feeding robot 3 m3 / 110 cu ft.
- 2 vertical augers (stainless steel)
- Discharge belt for discharge on both sides
- Sliding power take off system
- Full electric drive
- Safety bumper
- Double positioning system by pedometer and encoder
- 8" Display and terminal for hand-control displaying weight and machine-status
- Infinitely speed control on discharge belt and mixing augers

Options: Feed push unit two-sided, extended discharge belt, 2nd drive for rising sections, winch system

Technical specifications feeding robot

Capacity	3,00	m3	110	cu.ft
Number of augers	2			
Length	3,27	m	129	Inch
Width	1,35	m	53	Inch
Minimum width feed alley (single side feeding)*	2,10	m	83	Inch
Minimum width feed alley (double side feeding)*	2,35	m	93	Inch
Recommended width of feed alley (for standard robot)*	2,70	m	106	Inch
Required manoeuvre space in corners	2,70	m	106	Inch
Center distance trolleys	1,40	m	55	Inch
Weight	1.500	kg	3,968	Lbs
Maximum load	1.250	kg	2,756	Lbs
Maximum total weight	2.750	kg	6,063	Lbs
Wall thickness	4	mm	0.16	Inch
Auger flighting thickness	8	mm	0.32	Inch
E-motor augers	11,00	kW		
E-motor cross conveyor	0,55	kW		
E-motor discharge door	0,25	kW		
E-motor drive system	1,50	kW		
Average power consumption while mixing/discharging	4,00	kW		
Average power consumption while driving	1,00	kW		
Required electric connection	3x35	A		
Required voltage	400	V~		

Technical specifications track (I-beam) and power rail

Required profile (I-beam)*	IPE 180-240			
Minimum radius curves of track*	1,00	m	39	Inch
Minimum height from feed alley to bottom side of track*	2,80	m	110	Inch
Center distance track and power rail	0,30	m	12	Inch
Maximum gradient of track*	2	%		

* Different dimensions on request

TRIOMATIC T20 | Automatic feeding system with feeding robot and stationary mixer

Standard features

- Feed kitchen with stationary mixer(s)
- Stationary mixers from 7 till 46 m3 / 250 up to 1,650 cu.ft available
- Feeding robot T10 controls the stationary mixer(s)
- Discharge chain conveyor with lenght 3.35 m / 11' mounted on stationary mixer
- Stationary mixer with E-drive
- 6-pole E-Motors or 4-/8-pole pole-switching E-Motors

Options: Feed push unit two-sided, extended discharge belt, 2nd drive for rising sections, winch system

→ The feeding robot is equal to the T10 (for description: see page 22)

Technical specifications Triomatic T20

Required electric connection	3x35 A
Required voltage	400,00 V~

Technical specification stationary mixer

Model	**700**	**1000**	**1200**	**1400**	**1200**	**1600**	**2000**	**2400**	**3200**	**4600**
Number of augers	1	1	1	1	2	2	2	2	2	3
Capacity m³/cu.ft	7/250	10/360	12/430	14/500	12/430	16/570	20/710	24/860	32/1,140	46/1,650
Length (excl. motor) m/Inch	3,22/127"	3,32/131"	3,43/135"	3,70/146"	4,55/179"	5,04/198"	5,29/208"	5,72/225"	6,56/258"	8,63/340"
Length (incl. motor) m/Inch	4,05/159"	4,22/166"	4,22/166"	4,33/170"	5,55/219"	6,20/244"	6,32/249"	6,60/260"	7,28/287"	9,27/365"
Width m/Inch	2,15/85"	2,29/90"	2,29/90"	2,44/96"	2,16/85"	2,28/90"	2,35/93"	2,44/96"	2,80/110"	2,97/117"
Height* m	2,08-2,38	2,45-2,75	2,65-2,95	2,70-3,00	2,55-2,85	2,85-3,15	2,85-3,15	2,77-3,07	2,75-3,05	2,88-3,18
Height* Inch	82"-94"	96"-108"	104"-116"	106"-118"	100"-112"	112"-124"	112"-124"	109"-121"	108"-120"	113"-125"
Underside of 3,35m/11' chain conveyor** m/Inch	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"	2,65/104"
Net weight*** kg/Lbs	2,300/5,070	3,500/7,716	3,900/8,598	4,000/1,818	3,700/8,157	4,500/9,921	5,200/11,464	6,250/13,779	9,100/20,062	11,700/25,794
Number of auger knife positions	8	8,00	8	12	7	8	8	9	12	12
Number of knives mounted per auger	5	5,00	5	9	4	5	5	6	9	9
Diameter of auger Ø m/Inch	2,00/97"	2,20/107"	2,20/107"	2,44/119"	1,80/87"	1,96/95"	1,96/95"	2,20/107"	2,66/130"	2,44/119"
Required electric installation					Frequency regulator					
Reduction planetary gearbox	43,9	44	43,9	49,6	43,8	43,9	43,9	46,94	49,6	49,6

* Supports are adjustable in height over 300mm/12"
** Height of supports 800mm/31", chain mounted under 45°
*** Net weight = excluding motorframe and electric motor = excl. motorframe and elektromotor

Capacity (Kg/Lbs)

Electromotor 6 pole, 400V	**A min.**	**700**	**1000**	**1200**	**1400**	**1200**	**1600**	**2000**	**2400**	**3200**	**4600**
22 kW	44 A	2,600	-	-	-	-	-	-	-	-	-
30 kW	58 A	3,500	3,800	3,800	3,500	-	-	-	-	-	-
37 kW	71 A	-	4,800	4,800	4,400	-	-	-	-	-	-
45 kW	88 A	-	-	-	-	5,500	5,300	5,300	-	-	-
55 kW	109 A	-	-	-	-	-	-	-	6,500	-	-
90 kW	175 A	-	-	-	-	-	-	-	-	7,000	-
											on demand

Electromotor 8/4 pole, 400V	**A min.**	**700**	**1000**	**1.200**	**1.400**	**1200**	**1600**	**2000**	**2400**	**3200**	**4600**
11/18 kW	35 A	1,500	-	-	-	-	-	-	-	-	-
17/27 kW	35 A	2,600	2,500	-	-	-	-	-	-	-	-
22/32 kW	50 A	3,400	3,200	3,200	-	3,500	-	-	-	-	-
26/37 kW	64 A	-	4,300	4,300	4,000	4,100	4,000	4,000	-	-	-
33/47 kW	87 A	-	5,700	5,700	5,000	5,500	5,300	5,300	5,100	-	-
38/56 kW	100 A	-	-	-	6,500	7,000	6,500	6,500	6,000	-	-
46/67 kW	120 A					-	-	-	6,800	-	-
56/83 kW	150 A					-	-	-	9,000	-	-
78/115 kW	180 A					-	-	-	-	12,000	-
											on demand

N.B. Capacities are based on a common ration of choped gras silage and about 50% cornsilage.
Capacities can decrease depending on the ration. Transformers, single phase motors etc. on request.

TRIOMATIC T30 | Automatic feeding system with feed bunkers

Standard features

- Feed kitchen with sturdy feed bunkers (capacity 18m³ / 650 cu.ft.) for storage of loose feed
- 2 dispenser rollers for accurate loading
- Pivoting door at discharge opening prevents spillage
- Stainless steel bunker bottom
- Bunkers discharge the feed directly into the feeding robot
- Double bunker bottom prevents spillage underneath the bunker
- 2 heavy duty bottom chains in plastic guide rail
- Reliable hydraulic drive

Options: Feed push unit two-sided, extended discharge belt, 2nd drive for rising sections, winch system

→ The feeding robot is equal to the T10 (for description: see page 22)

Technical specifications T30 feed bunker

Capacity	18	m³	650	cu.ft
Length	6,25	m	246	Inch
Width	3,02	m	119	Inch
Height	3,45	m	136	Inch
Height back wall (from floor)	1,49	m	58	Inch
Height side walls (from floor)	2,21	m	87	Inch
Required dept feed kitchen (building)	8,00	m	315	Inch
Minimum height feed kitchen (building)	3,70	m	146	Inch
Recommended height feed kitchen	4,00	m	157	Inch
Thickness side walls (steel, galvanized)	2	mm	0,08	Inch
Thickness bottom (stainless steel)	3	mm	0,12	Inch
Thickness double bottom, underneath returning chain (plastic)	12	mm	0,47	Inch
Conveyor chain	50x14	mm	2"x0,55	Inch
Slat size	60x30x4	mm	2,4"x1,2"x0,16	Inch
Maximum load	8.000	kg	17,637	Lbs
Maximum length feed	150	mm	6	Inch
Installed electrical power hydraulic unit	7,50	kW		
Average power consumption while discharging	4,00	kW		
Required electrical connection	3x16	A		
Required voltage	400,00	V~		

TRIOMATIC T40 | Automatic feeding system with feed floors

Standard features

- Feed kitchen with sturdy feed floors (length 6m / 20 ft.) for storage of blocs and bales
- Cutting system with double knives and roller
- Cutting slice thickness control, adjustable from 5-35 cm / 2"-14"
- Knife-speed adjustable per feed station
- Wide cross- and elevating conveyor chain with weighing system
- Full electric drive
- Comprehensible touch screen process computer for entering feeding components, rations, feeding groups, machine settings, etc.

Options: Feed push unit two-sided, extended discharge belt, 2nd drive for rising sections, winch system

→ The feeding robot is equal to the T10 (for description: see page 22)

Technical specifications T40 feed floors

Max. number of feed floors	8	pieces	
Length of standard feed floor	6,00	m	20 Inch
Length of extended feed floor	7,35 / 8,68	m	24' or 29 Inch
Width of feed stations(between sidewalls)	1,96	m	77 Inch
Height top side of bottom chain feeding station	0,71	m	28 Inch
Net weight of standard T40 with 3 feed stations (lenght 6m /20')	15.000	kg	33,069 Lbs
Max. point load on bottom of feed kitchen (incl. load)	5.000	kg	11,023 Lbs
Storage capacity for grass silage (feed floor 6.0m / 20')	6.500	kg	14,330 Lbs
Storage capacity for corn silage (feed floor 6.0m / 20')	11.500	kg	25,353 Lbs
Storage capacity for grass silage (feed floor 7.3m / 24')	9.000	kg	19,841 Lbs
Storage capacity for corn silage (feed floor 7.3m / 24')	16.000	kg	35,274 Lbs
Storage capacity for grass silage (feed floor 8.7m / 29')	10.500	kg	23,148 Lbs
Storage capacity for corn silage (feed floor 8.7m / 29')	18.500	kg	40,785 Lbs
Max. bale or block height	1,80	m	6 Inch
Cutting slice thickness control per feed floor (adjustable per 2,5 cm/1")	5-35	cm	2"-14 Inch
Required loading clearance in feed kitchen	3,60	m	12 Inch
Required loading clearance in feed kitchen at the loading side of the feed station	4,00	m	13 Inch
Required depth of feed kitchen = lenght of the feed station +	2,65	m	9 Inch
Installed electrical capacity feed station	2,20	kW	
Installed electrical capacity conveyor chain	4,00	kW	
Installed electrical capacity cutting knives	7,50	kW	
Installed electrical capacity feed rate of cutting system	1,10	kW	
Installed electrical capacity roller on cutting frame	2,20	kW	
Installed electrical capacity displacement motor	0,37	kW	
Average power consumption while cutting	3,00	kW	
Required electrical connection	3x35	A	
Required electrical connection incl. feeding robot	3x50	A	
Required Voltage	400	V~	

* different sizes/specials on request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The Triomatic T10 feeding robot:

- → Fluffy mixing and no fibre damage
- → Homogenous mixing, even for small mixtures
- → Equal feed discharge
- → High level of safety
- → Multi-functional
- → Sustainable

The Triomatic T20 stationary mixer:

- → Suitable for each and every feed type
- → Optimum, homogenous mixing
- → Minimal investment

The Triomatic T30 feed bunker:

- → Accurate loading by the feeding robot
- → Easy to load
- → Large storage capacity
- → Clean and safe operation
- → Suitable for each and every feed type
- → Long life
- → Low investment

Triomatic T40 feed floors:

- → Storage possible for 3-5 days
- → Suitable for each and every feed type
- → First in – first out
- → Very high storage capacity
- → Preservation of structure
- → Maximum flexibility

Trioliet feeding technology | since 1950

Trioliet Mullos BV

Hinmanweg 19
7575 BE Oldenzaal

P.O. Box 134
7570 AC Oldenzaal
The Netherlands

T 0031 - 541 57 21 21
F 0031 - 541 57 21 25

info@trioliet.com
www.trioliet.com

WWW.TRIOLIET.COM

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