



The carousel



Cows Comfort Capacity

30
CARROUSEL%

Self-design carousel milks and feeds
160 cows an hour on the Westerstee farm in Holland

The carousel milking parlour that's right for every farmer

If the milking parlour you'd like to have isn't available, you build your own. Is that possible? It is, says dairy farmer Pieter Schouten from Rottum in Groningen firmly. He grasped the nettle and developed a 40 stall side-by-side internally operated parlour in 2009, in which he milked with full satisfaction from then on. This is milking as it should be, the dairy farmer says.

Schouten had been thinking about the ideal parlour for a long time and travelled half the globe for it. He has looked at parlours from Texas to New Zealand and has milked in them. In his assessment of all these stables the starting points have been: safety, animal visibility and capacity. With the knowledge he gathered, he laid the groundwork for his own forty stall carousel.

He's now milking 160 cows an hour in that very stable and the animals are individually fed concentrate during the milking process. The parlour is using an ingenious swivel mechanism for the feeding tubs and a precise timing of concentrate delivery. Because of this the cows can easily step onto the platform, despite the half turn. The milker has a good view of all the animals during the milking process and he'll reach a high capacity.

The right man in the right spot. That's how the follow-up to the quest for the perfect parlour can be described. When he was back home, dairy farmer Schouten met industrial designer Peter Zomerdijk in Middelstum, who knew the innovative engineer Tjark Hulst from Westeremden. The three of them laid the foundation for an entirely new way of milking and feeding. A milking parlour that forms a breakthrough in the milking parlour segment that's right for every farmer.



Text:

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Photography:

Richard Zomerdijk

The success of the new parlour hasn't gone unnoticed among fellow dairy farmers and among the agrarian press. The consequence of this has been the building of a second stable, this time counting 36 stalls, at:

- **Gerrit Klunder's dairy farm in Terwolde near Apeldoorn (NL)**

And there's a third stable featuring 40 stalls being built at:

- **dairy farmer Thomas de Boer in Nijelamer near Wolvega (NL)**

A fourth stable has already been sold, and there have been talks with even more candidates.



The cow's movement

The diagram illustrates the movement of cows in a circular milking parlor. The parlor is divided into segments numbered 1 to 40. A large black shaded area represents the milking stalls. Cows are shown in various positions, with arrows indicating their movement paths. A yellow box labeled 'propulsion unit' is shown at the entrance and exit of the stalls. A small table with a single row and five columns is located on the right side of the diagram.

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The two new users

Gerrit Klunder

36 stalls, completed in 2012

'I've picked this milking system, because I absolutely wanted a carousel and preferred to connect between the two hind-legs of the cows. The good view of the cows in the seven meter wide room and the short walking distances were additional advantages. My expectation has been fully fulfilled: milking a lot of cows in a short time without losing control of the animals.

How I discovered Schouten's parlour? Because of a clip about the stall and the inventor I found on YouTube.'



Thomas de Boer

40 stalls, completed mid-2013

'I've had an internally operated parlour for a while; a Harkema design, but one needs an update after twenty years. A new Harkema would have been an option, but Schouten's new stable just is an improved version. Well focused on today's bigger cows and it has fewer gates and fences that can wear. Only the feeding tubs in the new stable are turning and that's it.

How did I discover the new carousel? Through the Westfalia people on my farm. They also delivered the milking machine equipment for Schouten's stable. Yes, I'm looking forward to milking in the new stable. I'll just have to make shift for a while.'

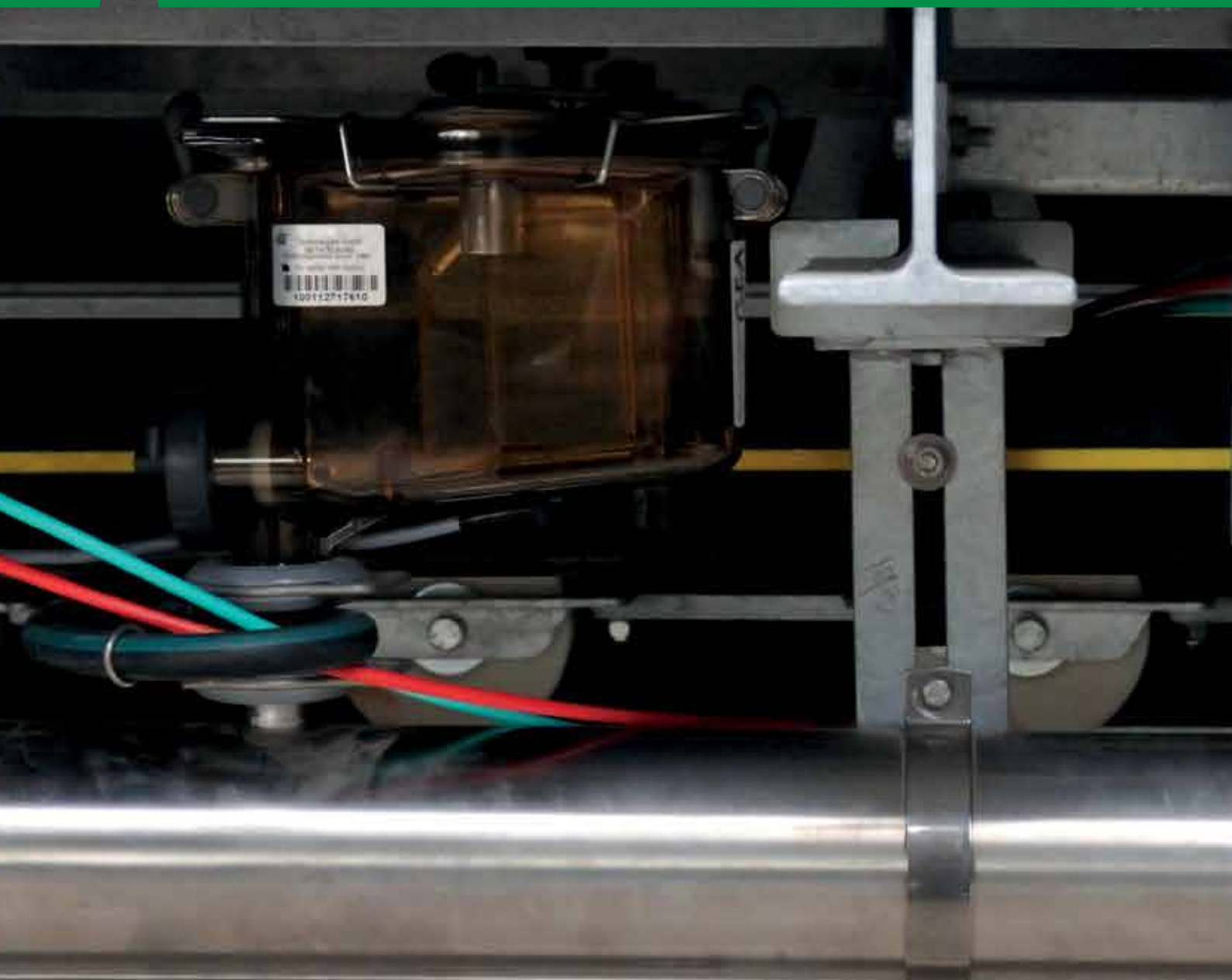
The new rotary milking parlour is a technological miracle and at the same time a prime example of simplicity. What can be done simply, is done simply, inventor Schouten explains. No futuristic control panels, but simple buttons that can't cause the milker to make a mistake. Its result being that anyone can milk in this parlour.

The 40 stall parlour's rotating platform has an outer diameter of 13,5 metres and an inner diameter of 8 metres. The distance to the cows is such that the milker can keep an eye on all the animals and he doesn't have to cover large distances, if there's a problem during the rotation.

As the cow steps onto the platform, she makes a quarter turn and walks past the first empty stall. She then makes another quarter turn and can easily go into the milking stall. That's the advantage of making two quarter turns. As soon as the animal is recognised, an individual portion of concentrate is put into the feeding tub.

The distribution of concentrate in an internally operated milking parlour is a new development, which caused the designer a lot of problems. It has eventually become an ingenious system of swiveling feeding tubs. A runner blocks the position of the feeding tub. Just before the cow leaves the platform, the tub folds back because of the sloping hinge and its own weight.

Technological...



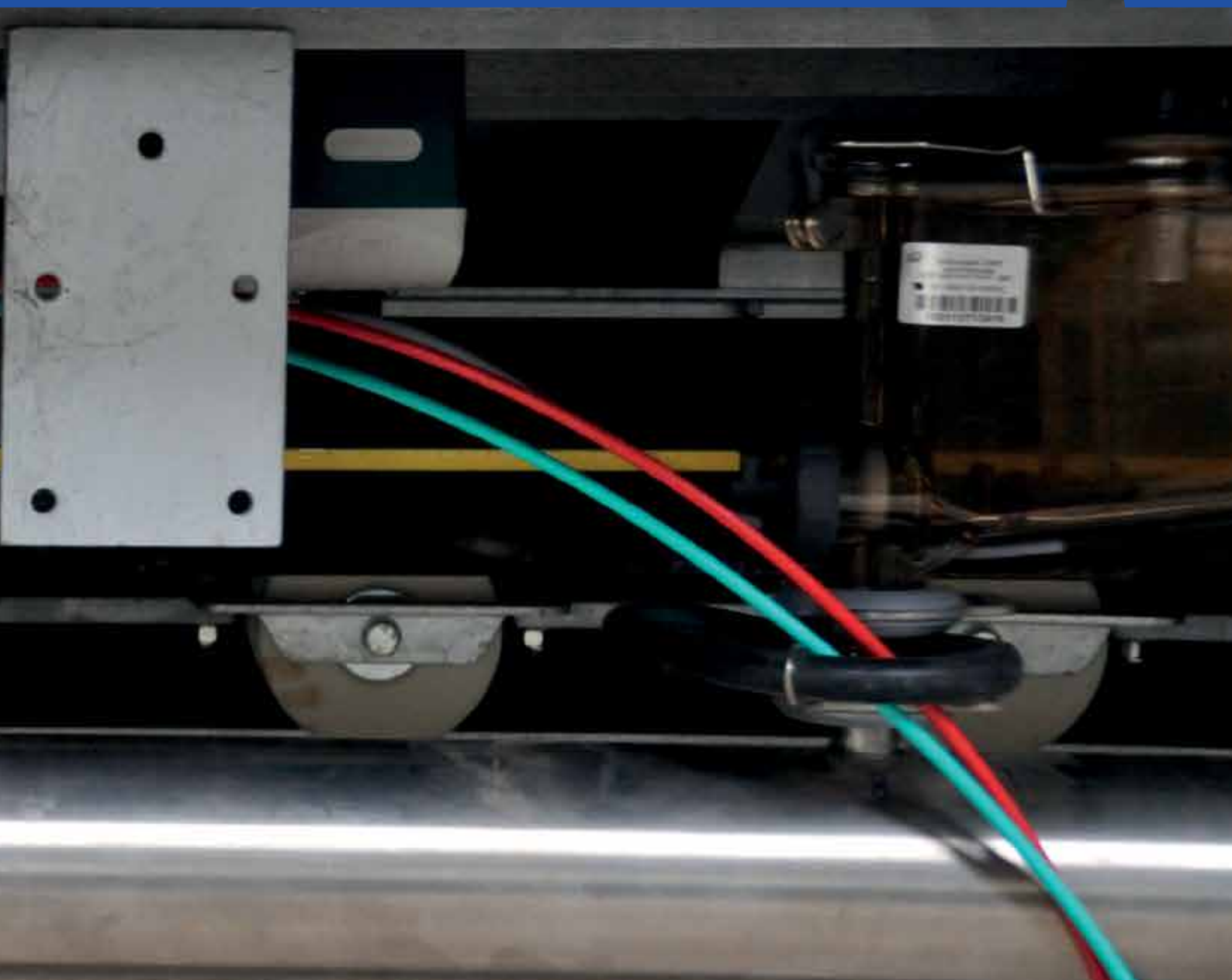
This way the feeding tub is locked into place in the interja-cent stall along with the tub from the entrance, so there's ample space for the cow to leave the platform. As soon as another cow enters, a plastic leaf spring pushes the feeding tub back into its position, upon which the runner secures the tub. Since the stalls have been made 20 centimetres longer, there's extra space and time to get off the platform.

The carousel round takes twelve minutes. The forty stalls are then filled up and the next round starts. This results in 160 cows per hour. The tempo is slowed down when the

carousel has to be stopped because a milking cluster was kicked off, because a cow needs an additional check, or because there's a short delay in leaving the platform.

The platform with the cows on it weighs roughly sixty tonnes. This is in part due to the fact that the thickness of the concrete is 16 centimetres instead of the standard 8 centimetres. A frequency guided electric motor takes care of propulsion. This is also new and more energy efficient than the existing hydraulic propulsion.

...miracle



Parlour assembly at a glance

Installation of the 22 supports and centre on the 11th of June 2012; building of the carousel starts on the 9th of July 2012.

The Westerstee comfort rotary internally operated milking parlour has

many advantages:

Cow:

- Wide entrance and exit
- Reaches her milking position easily
- Can keep going straight ahead

Use:

- Good view of the milking process
- Safe working conditions
- Low workload
- Easy to use

Machine:

- Very sound construction
- Very heavy track rollers
- Energy efficient propulsion
- Developed based on practical experience



day 1 >

Placing lower ring of turntable.

day 2 >

Placing upper ring and wheels + securing dung drain and sealing. Placing propulsion units.

day 4

Putting up frames to turntable including inner and outer ring. Supporting joists of shuttering plywood.

< day 3

Installing and adjusting radius tubes.

day 5 >

Applying and sealing shuttering plywood, installing drive ring.

day 7

Welding and supporting rebar beam cages.

< day 6

Extra day.
Possibly pouring concrete at the end of the day.

day 8 >

Pouring concrete.

The parlour's ready for final assembly!

As far the designers are concerned, the new parlour is just the beginning of innovation in milking. The next step will be the development of a device to clean udders and nipples. That's still done manually, but according to engineer Hulst there are ways of automating it.

Take it one step further and robots will be connecting the milking clusters, the parlour builders from Groningen predict. They are working on an ingenious step forwards in this field, which will be the competitor for the current milking robot.

Looking towards the future

Team of specialists

This carousel has been invented by dairy farmer Pieter Schouten, designed by engineer and light architect Peter Zomerdijk and built by technician Tjark Hulst. Each one of them a specialist in his own field. This way an innovative high quality product could come to be.

All three are capable of working together well. Not just with each other, but also with other people who are involved in a project, such as construction companies and suppliers of milking systems. It's up to the individual dairy farmer to decide which milking system brand he'll be doing business with.

Tjark Hulst

www.hulstinnovatie.nl

'I don't know anything about milking, but I more than make up for that with my knowledge on technical innovation.

We really have a high quality product on our hands with this parlour, which will certainly delight dairy farmers. I've gathered my experience with rotary platforms in the offshore industry. It's great that we can now use this technology for dairy farming.

Our company (Hulst innovation, construction and repair company) started as a one-man business in 1994. At the moment we're operating from a farm located at 9 Vierburenweg in Westeremden. Through the years we've evolved to an innovative engineering and construction

company and we've been hired by a variety of other companies. It's Hulst Innovation's power to achieve a fully developed end result with only minimal data.

As for the heating systems, we're importing SBS Heizkessel heating boilers from Germany. These are very suitable for both companies and private persons, who have ample access to wood and are using at least 1.500 m³ of gas. This manufacturer also has several options for smaller consumers.

We can also supply a broad line of items on order, like parts for agricultural, forestry and garden machinery, or various kinds of tools.'



Pieter Schouten

'A high capacity carousel parlour has always been my dream. That wish has now come true. A side-by-side internally operated milking parlour is the best you can get. Not just because of the good view of the cows, but also

because they tend to kick off the milking cluster less often in this type of parlour and don't step on the retract cord or milk hose, like I've experienced in a herringbone setup.

Of course I've also considered an externally operated parlour, but I don't think that's the right system, because one doesn't have a good view of the cows and it requires two milkers.

Milking 200 cows with two people is less efficient than milking 130 on your own. That's also a point to consider, since it all comes down to the costs.

This also goes for automated feeding. On my farm the cows are outside 200 days a year. I could have put the feeding troughs inside the stable, but that would have required

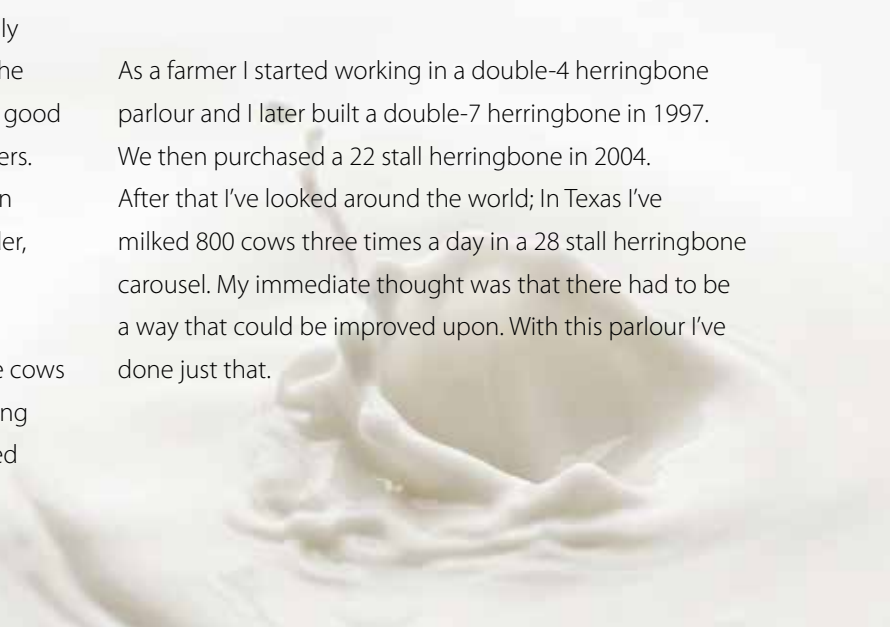
twenty of them. Let alone the chaos that could have caused. There's really just one way to feed and that's inside.

I didn't design my own parlour because I thought that would be cheaper than buying one of the parlours currently available. Not cheaper, but certainly better. The advantage of choosing this rotary parlour is being able to keep using the milking system brand you have the best experiences with.

As a farmer I started working in a double-4 herringbone parlour and I later built a double-7 herringbone in 1997.

We then purchased a 22 stall herringbone in 2004.

After that I've looked around the world; In Texas I've milked 800 cows three times a day in a 28 stall herringbone carousel. My immediate thought was that there had to be a way that could be improved upon. With this parlour I've done just that.



www.burozomerdijk.nl

Peter Zomerdijk

'I know Pieter Schouten because of the conservatory he wanted to add to his house. We started talking about his ideal

parlour; can we build it ourselves? My advice to him was to visit Tjark Hulst in Westeremden.

He wasn't really eager to do so, since Tjark was dealing in wood fueled heating boilers. He still went to see him and they really hit it off.

Buro Zomerdijk was founded in 1994 and is based in Middelstum. We're working on several large and small scale projects. Among other things, designs for interior spaces, renovations and new development, both for the business and the private market, are being drawn up and realised.

Building is a complex process. That's why we value a constructive and intensive dialogue with the client and other involved parties. From the first designs up to delivery we're

closely involved in the building process. We're constantly checking the progress, project demands, the client's vision, budget and the desired look against the given assignment.

The building process is often done in several phases, in which we offer any help needed:

1. The design phase.
2. The eventual design, followed by applying for a building permit, if needed.
3. Building preparations and any needed procurement
4. Doing the project.

We can also take care of the permits. We're offering our clients a guarantee of high quality work and affordability and we often go the extra mile. We view it as our job to break the mold and inform our clients about any possibilities hitherto not considered.'



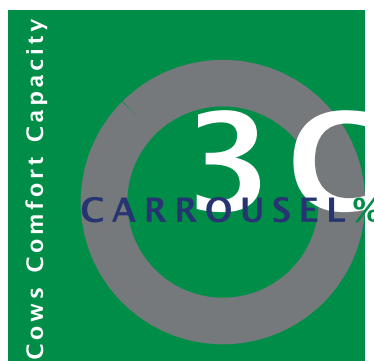


Manufacturer 3C carousel:

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The carousel milking parlour and the press

Boerderij (Farm):

The self-design rotary milking parlour by Pieter Schouten is working smoothly, just a bit differently than those of his colleagues.

Veldpost (Farmland mail):

Ingenious farmer from Rottum in Groningen develops side-by-side internally operated milking parlour with a capacity of 160 cows an hour.

Veehouderij Techniek (Cattle Farming Technology):

It's not easy feeding concentrate in an internally operated milking parlour; in the 3C-carousel by Pieter Schouten it is, however.



Safety · Overview · Capacity