EN

©plus

Mounted reversible ploughs

VOGEL NOOT
SOIL SOLUTIONS

Ploughs for successful crop cultivation

Ploughing today

The plough is the symbol of agriculture. Along with nurturing, fertilisation and crop protection, soil cultivation is crucial for successful crop production. Sustainability and efficiency are the decisive factors by which agricultural technology will be judged in the future.

Sustainable soil cultivation, increased productivity and a design conceived with a view to high profitability are all desired. In addition to conservational cultivation and alternative sowing methods, the use of modern ploughs remains of central importance for yield and therefore for successful soil cultivation. Vogel & Noot is among the leading suppliers in this field. As the largest manufacturer within the EU, we have played an active role in the development of modern ploughing technology. VN ploughs are characterised by robust technology, high quality of work, optimal adaptation to local requirements and the highest possible levels of cost-effectiveness.

The right method is crucial

It is not philosophy but the right choice of soil cultivation method that is critical to success. In spite of the efforts of some proponents of mulch and direct sowing, conventional sowing using a plough remains widespread and is the only successful method of sowing in many conditions. As a result of this and due to ever-changing parameters such as product prices, energy production, reduction of fallow vegetation, etc., many farms practice both conventional and mulch sowing methods in parallel. The yield-guaranteeing function of the plough is highly valued here.

An overview of the advantages of conventional soil cultivation that are relevant in practice:

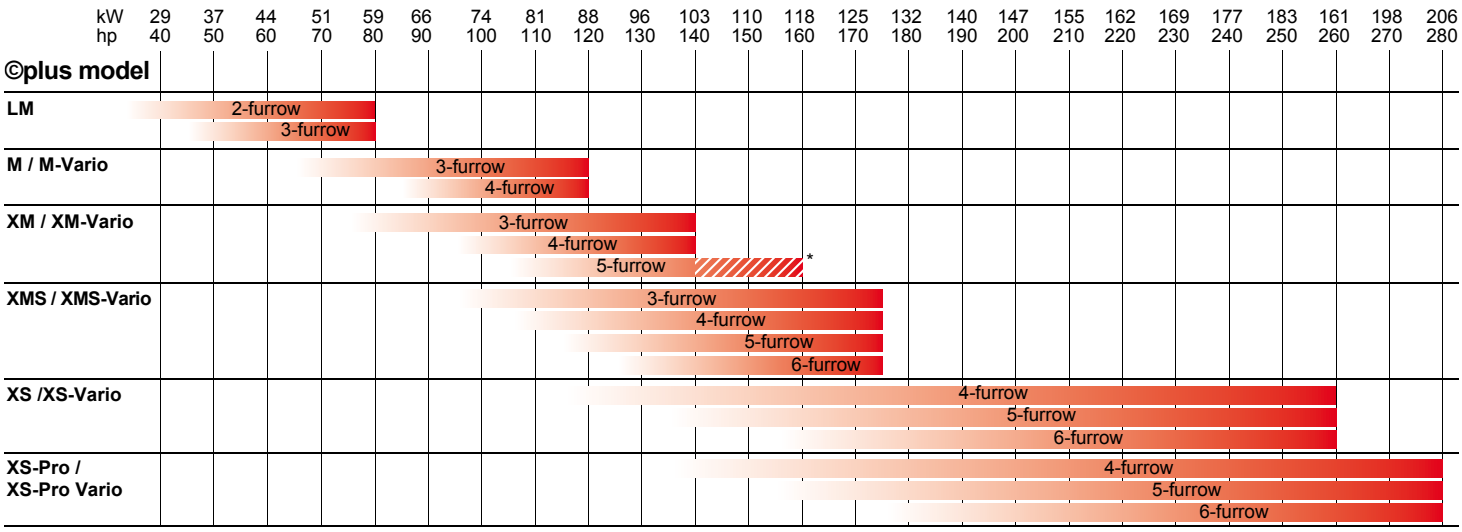
- Effective mechanical weed control by depriving them of light, effective control of weed growth at field margins (especially in small fields and areas exposed to the wind, since it is often not possible here to use -al herbicides at the right time)
- Soil warms up faster and is better aerated, giving higher yields of crops requiring warmth
- The only soil cultivation option in constantly wet conditions
- Reduced risk of infection of subsequent crops by fusaria, because the residue of the previous crop is entirely removed, leading to fewer mycotoxins in the harvest
- Soil is enriched with oxygen, speeding up reactions in the ground
- Mechanical control of soil pests sensitive to UV light
- Mechanical control of snails and mice by breaking up the "green bridge"

The ©plus plough range

©plus model	LM	M	XM	XMS	XS	XS-Pro
Tractor kW/hp max.	**59 / 80**	**88 / 120**	**103 / 140**	**128 / 175**	**191 / 260**	**205 / 280**
No. of furrows						
2-furrow	•					
3-furrow	•	•	•	•	•	•
4-furrow		•	•	•	•	•
5-furrow			(•)	•	•	•
6-furrow				(•)	•	•
Furrow width						
mechanical	•	•	•	•	•	•
hydraulic		•	•	•	•	•
Stump-jump system						
Shearbolt	•	•	•	•	•	•
Helical springs, semi-automatic	•	•	(•)	(•)		
Leaf springs, fully automatic	•	•	•			
Hydraulic, fully automatic	•	•	•	•	•	•
Headland plough attachment	•	(•)				
On-land model		(•)	(•)		(•)	(•)

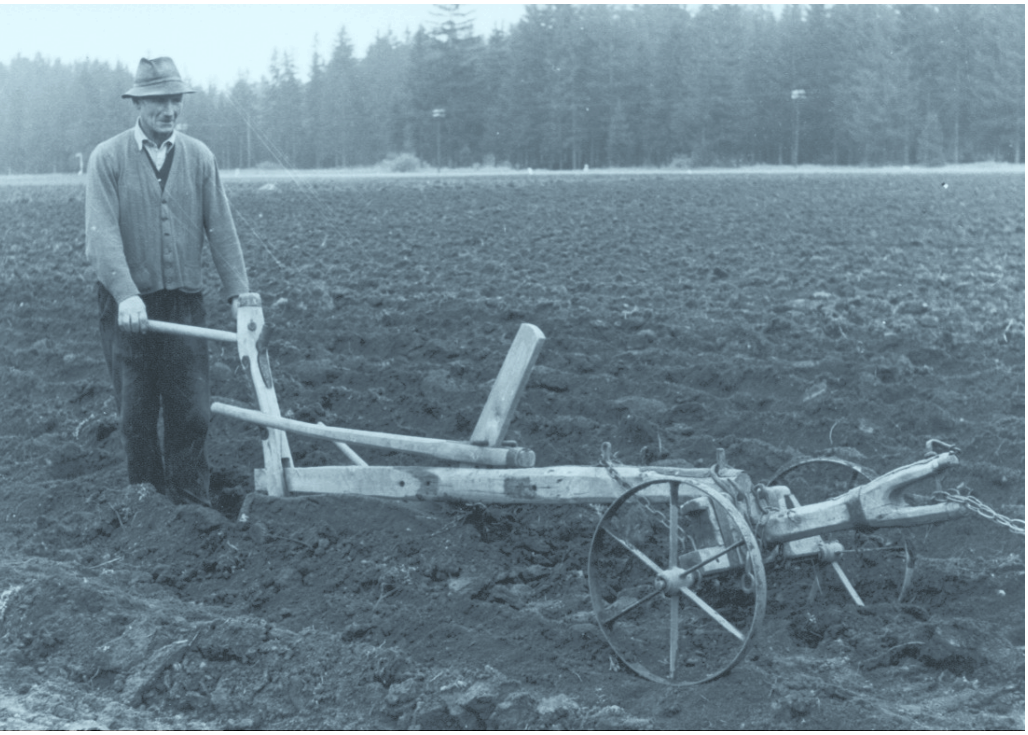
Information in brackets (•) applies but with restrictions. All specifications and figures are subject to change.

Which plough for which tractor?



* Only for ST ploughs (NON-STOP stone protection)

©plus benefits to bring you success

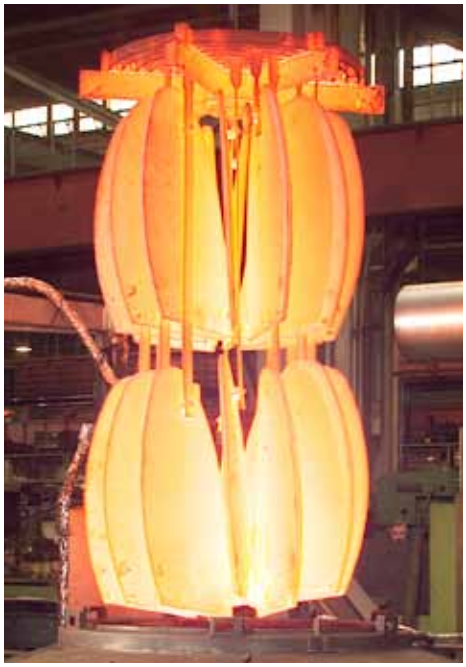


Years of experience in plough production and a global market presence

Since its foundation in 1872, Vogel & Noot has been manufacturing plough components. In 1922, Vogel & Noot became the first company to mass produce complete ploughs. This experience, which now -als more than 85 years, has culminated in today's ©plus plough range, one of the most modern and versatile plough ranges on the market. The global marketing of the ©plus ploughs demands constant development and adaptation to ever-changing requirements. Featuring the latest technology and high quality materials, the ©plus ploughs provide the basis for profitable crop cultivation.

Durable wearing parts

As manufacturers of wearing parts for the cultivation industry, Vogel & Noot can look back on a history spanning decades. Continual advances in materials and production technology as well as our expertise in heat treatment are the basis for achieving the highest possible quality in Vogel & Noot wearing parts for ploughs.

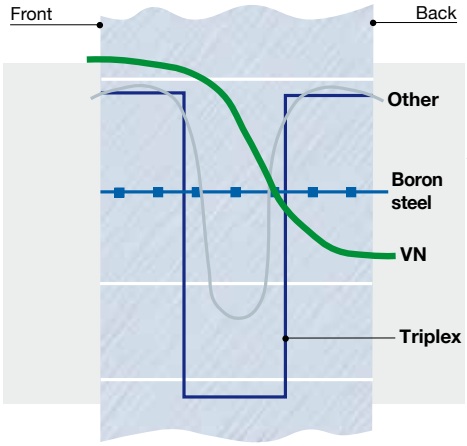


©plus hardening process

Carbon in its purest form, diamond, is the hardest naturally occurring substance. A hardening process involving the introduction of carbon into the steel is used to increase the hardness and durability of ©plus wearing parts. Vogel & Noot uses a unique hardening process to achieve a very high level of hardness on the front of components, such as the moulding board to produce the optimum resistance to wear. The back remains relatively soft but at the same time extremely tough and impact resistant.

This results in unique ©plus advantages:

- Longer service lives
- High impact resistance
- Less traction required
- Reduced fuel consumption
- Less sticking as a result of smoother surface



Diamond tungsten steel wearing parts

As a high-end solution for soils that are aggressive but not stony, Vogel & Noot can provide all essential wearing plough parts such as shares, chisels, landside and manure skimmer shares with a tungsten steel facing. A unique production process enables a high level of hardness to be achieved even with the base material. These diamond wearing parts therefore guarantee significantly increased service life, reduced expenditure on replacing parts and an overall reduction in costs due to wear. There are also functional advantages thanks to the significantly greater dimensional stability, e.g. of the shares or attachment, which in this case also means good pull-in and cornering stability.

Versatile modular construction

The clever arrangement of a large number of assemblies such as turning element and frame, leg elements or other equipment allows for a wide range of different plough versions.

Different underbeam and interbody clearances, up to four different systems for overload protection combined with stepped or hydraulic furrow widths that are continuously variable, enable the plough specification to be adapted to specific requirements precisely and without compromise.

Extensive range of plough bodies

The plough body is a central element of any plough and is mainly responsible for the quality of work and also for cost-effective use of the plough.
Efficient incorporation of harvest remains, especially under difficult conditions, such as maize straw, is one of the quality criteria. However, Vogel & Noot plough bodies also master other challenges brilliantly, such as working on slopes.

The basis for cost-efficient ploughing is of course having the lowest possible traction requirement and therefore reduced fuel consumption. In combination with the unique ©plus hardening process which gives very hard and smooth surfaces, the clever design guarantees the ease of pulling for which Vogel & Noot ploughs are renowned.
For more details on plough body designs, see page 19.

Quality is our philosophy

At Vogel & Noot, quality always comes first. This means choosing the best materials and ensuring optimal preparation for and implementation of manufacturing processes.

Comprehensive quality control for safety parts (cross-shaft, turning axis) and important components (leg, bracket, etc.) during production
➔ Every part is individually checked, guaranteeing the highest quality right down to the smallest detail

Metal-cutting via computer-controlled processing centres after hardening means that there are no delays caused by subsequent hardening
➔ Highest possible precision for all parts, long service life and accurate ploughing

Significantly fewer welded joints, use of hot-pressed parts
➔ Improved strength, long service life, lightweight, more visually appealing

Individual parts primed before assembly, basecoat also applied between flanges
➔ Optimal rust protection - high resale value

©plus LM

©plus LM 950 3-furrow

Easy for new users

The features:

- 2 or 3-furrow
- For tractors up to 60 kW/80 hp
- Turning axis with 75 mm diameter and low-maintenance needle bearing
- High-tensile frame tube, 120 x 80 x 7.1 mm
- Standard furrow width adjustment (4 levels)
- Stump-jump system with shearbolt, optionally also semi-automatic system with helical spring or automatic NON-STOP stump-jump system with leaf spring or hydraulic system
- Choice of 3 interbody clearances
- 2 optional underbeam clearances
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line)

Lightweight but robust, the ploughs in the LM range are the ideal ploughs for universal use on smaller mixed-purpose farms. The ©plus LM can easily deal with any requirements, whether for turning grassland or silage maize, or for traditional cereal cultivation or even for use with maize grains.

Overview of ©plus LM models:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus LM with shearbolt protection or semi-automatic system	2	85/95/102	67/72/78	28/32/36/40	---
	3	85/95/102	67/72/78	28/32/36/40	---
©plus LM-ST with automatic NON-STOP stump-jump system	2	85/95/102	67/72/78	28/32/36/40	---
	3	85	67/72/78	28/32/36/40	---

©plus M

©plus M 950 4-furrow

The universal medium class

The features:

- 2, 3 or 4-furrow
- For tractors up to 80 kW/120 hp
- Turning axis with 80 mm diameter (optionally 90 mm for selected models) and adjustable tapered roller bearing
- High-tensile frame tube, 120 x 100 x 8 mm, optionally (depending on model) also with expandable frame system (e.g. 3+1)
- Standard furrow width adjustment (4 levels), can also optionally be smoothly adjusted hydraulically
- Stump-jump system with shearbolt, optionally also semi-automatic system with helical spring or automatic NON-STOP stump-jump system with leaf spring or hydraulic system
- Choice of 3 interbody clearances
- 2 optional underbeam clearances
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line), if desired, also with automatic in-swing mechanism (memory cylinder)

The ©plus M is a universal plough for tractors up to 80 kW/120 hp. With a convenient setting centre and many different equipment options, it is suitable for all medium-sized farms.

Overview of ©plus M models:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus M with shearbolt protection or semi-automatic system	3	85/95/102	72/78	36/40/44/48 2)	32 - 52
	4	85/95/102	72/78	36/40/44/48 2)	32 - 52
©plus M-ST with automatic NON-STOP stump-jump system	2	85/95/102	72/78	36/40/44/48 2)	32 - 52
	3	85/95/102 1)	72/78	36/40/44/48 2)	32 - 52
	4	85/95 1)	72/78	36/40/44/48 2)	32 - 52

1) Not for Vario plough

2) With interbody clearance of 85 cm Furrow width 32/36/40/44 cm

©plus XM

©plus XM 1050 Vario 4-furrow

The medium-duty all-rounder

The features:

- 3, 4 or 5-furrow (depending on model)
- For tractors up to 103 kW/140 hp
- Turning axis with 90 mm (100 mm in 5-furrow version) diameter and adjustable tapered roller bearing
- High-tensile frame tube 150 x 100 x 8 mm, optionally (depending on model) also with expandable frame system (e.g. 3+1)
- Standard furrow width adjustment (4 levels), can also optionally be smoothly adjusted hydraulically
- Stump-jump system with shearbolt, optionally also semi-automatic system with helical spring or automatic NON-STOP stump-jump system with leaf spring or hydraulic system
- Choice of 3 interbody clearances (depending on model)
- 3 optional underbeam clearances (depending on model)
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line), if desired, also with automatic in-swing mechanism (memory cylinder)

With correspondingly dimensioned turning element and frame, the ©plus XM is a real all-rounder for tractors up to 103 kW/140 hp. With underbeam clearances of up to 82 cm and an interbody clearance of up to 105 cm, it can also deal comfortably with very large amounts of crop remains.

Overview of ©plus XM models:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus XM with shearbolt protection or semi-automatic system	3	85/95/105	72/78/82	36/40/44/48 1)	32 - 52
	4	85/95/105	72/78/82	36/40/44/48 1)	32 - 52
	5	90/100	72/78/82	36/40/44/48	32 - 52
©plus XM-ST with automatic NON-STOP stump-jump system	3	85/95/105	72/78	36/40/44/48 1)	32 - 52
	4	85/95/105	72/78	36/40/44/48 1)	32 - 52
	5	90/100	72/78	36/40/44/48	32 - 52

1) With interbody clearance of 85 cm, furrow width 32/36/40/44 cm

©plus XMS

©plus XMS 950 ST Vario 5-furrow

The premium model in the upper medium class

The features:

- 3, 4, 5 or 6-furrow (depending on model)
- For tractors up to 128 kW/175 hp
- Turning axis with 100 mm diameter and adjustable tapered roller bearing
- High-tensile frame tube, 150 x 100 x 8 mm (12 mm wall thickness for 5-furrow version or higher), optionally (depending on model) also with expandable frame system (e.g. 4+1)
- Standard furrow width adjustment (4 levels), can also optionally be smoothly adjusted hydraulically
- Stump-jump system with shearbolt, optionally also semi-automatic system with helical spring or automatic hydraulic NON-STOP stump-jump system
- Choice of 3 interbody clearances (depending on model)
- 3 optional underbeam clearances (depending on model)
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line), if desired, also with automatic in-swing mechanism (memory cylinder)

A particularly intelligent turning element design with extremely easy adjustment and an outstanding range of equipment options makes the ©plus XMS a versatile universal plough. With a robust frame and legs, it is designed for tractors up to 128 kW/175 hp.

Overview of features of the ©plus XMS:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus XMS With shearbolt protection or semi-automatic system	3	85/95/105	72/78 [1] /82 [1]	36/40/44/48 [2]	32 - 52
	4	85/95/105	72/78 [1] /82 [1]	36/40/44/48 [2]	32 - 52
	5	85/95/105	72/78 [1] /82 [1]	36/40/44/48 [2]	32 - 52
	6 [1]	85/95	72/78/82	36/40/44/48 [2]	---
©plus XMS-ST With automatic NON-STOP stump-jump system	3	85/95/105	72/78/82	36/40/44/48 [2]	32 - 52
	4	85/95/105	72/78/82	36/40/44/48 [2]	32 - 52
	5	85/95	72/78/82	36/40/44/48 [2]	32 - 52

1) Not possible in combination with semi-automatic stump-jump system 2) With interbody clearance of 85 cm, furrow width 32/36/40/44 cm

©plus XS

©plus XS 950 Vario 6-furrow

The robust upper class:

The features:

- 3, 4, 5 or 6-furrow (depending on model)
- For tractors up to 191 kW/260 hp
- Turning axis with 120 mm diameter and adjustable tapered roller bearing
- High-tensile frame tube, 150 x 150 x 8.8 mm (12 mm wall thickness from 5-furrow version) optionally (depending on model) also with expandable frame system (e.g. 4+1)
- Standard furrow width adjustment (4 levels), can also optionally be smoothly adjusted hydraulically
- Stump-jump system with shearbolt or automatic hydraulic NON-STOP stump-jump system
- Choice of 4 interbody clearances (depending on model)
- 3 optional underbeam clearances (depending on model)
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line), if desired, also with automatic in-swing mechanism (memory cylinder)

Up to 6 furrows, the ©plus XS has impressively high coverage and an extremely efficient and robust design. Suitable for tractors up to 191 kW/260 hp, the ©plus XS is the right implement for large farms which want efficient and cost-effective ploughing.

Overview of features of the ©plus XS:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus XS with shearbolt protection or semi-automatic system	3	115	76/82/90	40/44/48	32 – 55
	4	85/95/105/115	76/82/90	36/40/44/48 [1)]	32 – 55
	5	85/95/105/115	76/82/90	36/40/44/48 [1)]	32 – 55
	6	85/95/105	76/82/90	36/40/44/48 [1)]	32 – 55
©plus XS-ST with automatic NON-STOP stump-jump system	3	115	72/78/82	40/44/48	32 – 55
	4	85/95/105/115	72/78/82	36/40/44/48 [1)]	32 – 55
	5	85/95/105/115	72/78/82	36/40/44/48 [1)]	32 – 55
	6	85/95/105	72/78/82	36/40/44/48 [1)]	---

1) With interbody clearance of 85 cm, furrow width 32/36/40/44 cm

©plus XS-Pro

©plus XS-Pro 1050 Vario 5-furrow

The most powerful mounted plough for large tractors

The features:

- 2, 3, 4, 5 or 6-furrow (depending on model)
- For tractors up to 206 kW/280 hp
- Turning axis with 120 mm diameter and adjustable tapered roller bearing
- High-tensile frame tube, 200 x 150 x 10 mm, optionally (depending on model) also with expandable frame system (e.g. 5+1)
- Standard furrow width adjustment (4 levels), can also optionally be smoothly adjusted hydraulically
- Stump-jump system with shearbolt or automatic hydraulic NON-STOP stump-jump system
- Choice of 4 interbody clearances (depending on model)
- 3 optional underbeam clearances (depending on model)
- Double-action automatic turning cylinder as standard (can be operated with single-action control valve and return line), if desired, also with automatic in-swing mechanism (memory cylinder)

Extremely robust design of turning element, frame and legs make the ©plus XS-Pro a high-performance plough for large farms, contractors and industry-wide use. Interbody clearances of up to115 cm and underbeam clearances of up to 90 cm make the ©plus XS-Pro unbeatable when it comes to dealing with large amounts of crop remains.

Overview of features of the ©plus XS-Pro:

	No. of furrows	Interbody clearance (cm)	Underbeam clearance (cm)	Furrow width (cm)	
				mechanical	hydraulic
©plus XS-Pro with shearbolt protection or semi-automatic system	2	115	76/82/90	---	32 – 55
	3	115	76/82/90	40/44/48	32 – 55
	4	85 [1] /95/105/115	76/82/90	36/40/44/48 [2]	32 – 55
	5	85 [1] /95/105/115	76/82/90	36/40/44/48 [2]	32 – 55
	6	85 [1] /95/105	76/82/90	36/40/44/48 [2]	32 – 55
©plus XS-Pro-ST with automatic NON-STOP stump-jump system	3	115	72/78/82	40/44/48	32 – 55
	4	85 [1] /95/105/115	72/78/82	36/40/44/48 [2]	32 – 55
	5	85 [1] /95/105/115	72/78/82	36/40/44/48 [2]	32 – 55
	6	85 [1] /95/105 [1]	72/78/82	36/40/44/48 [2]	32 – 55

1) Not available for version with smooth furrow width adjustment (Vario) 2) With interbody clearance of 85 cm, furrow width 32/36/40/44 cm

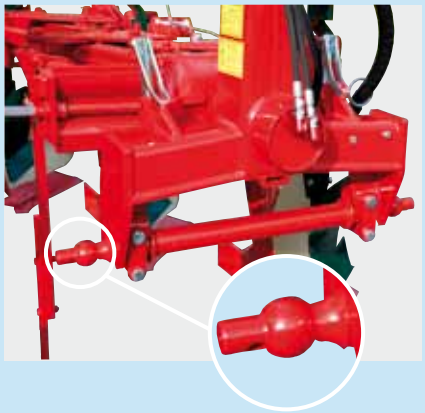
Turning elements

The "head piece" of any plough is the headstock together with the turning equipment and setting centre. Vogel & Noot turning elements are characterised by a range of functional advantages.

Elastic cross-shaft

The continuous cross-shaft is especially elastic and provides the optimum absorption of vibrations generated during ploughing and especially during transport. Furthermore, the cross-shaft can be coupled quickly and without using any tools, which facilitates easy attachment of the plough to the tractor.

The cross-shafts are equipped as standard with an integrated ball for quick-release lower connecting rods (optionally cat. II or III). The larger minimum diameter allows for greater strength and safety during transport.



Optimal ground adjustment

All headstocks have oblong holes for attaching the upper connecting rods. If these rods are positioned in an oblong hole, the plough-tractor assembly is able to adapt optimally to uneven ground and thus maintain the desired working depth.
With 2 oblong holes (or even 3 holes with the XMS turning element or larger) at different heights, optimal lifting is also guaranteed independent of the tractor.

Bearings, turning axis and turning body

All bearings are long-lasting and easy to maintain. The high-tensile turning axis is shrink-fitted precisely into the turning body.
Single-piece forged parts make the turning body extremely stable (only LM-XM welded forged parts). Processing after hardening guarantees perfect dimensional stability.

Convenient hydraulic turning system

All turning elements in ©plus ploughs use double-action cylinders with automatic switching. This enables the plough to turn in a smooth and jerk-free manner, which can also be controlled using a single-action control valve with a depressurised return line. Sophisticated hose guides prevent damage.

Turning cylinder with connected in-swing mechanism

Greater lifting height

To increase the lifting height of the plough, all cross-shafts can optionally be provided with an adaptor, which moves the cross-shaft into a lower position and thus increases ground clearance during lifting. The cross-shaft adaptor can be retrofitted at any time.

Turning element with rotation axle (optional)

For special applications or market requirements, all ©plus turning elements are also available with a rotatable cross-shaft. This special design enables the cross-shaft to oscillate around a central draft point. This device is automatically locked when the plough is lifted.

Headland plough attachment (optional)

The 2 and 3-furrow ploughs in the LM and M series can be equipped as an option with a headland plough attachment, which makes it possible to work beyond the tractor tracks. The slide block guide, which is very long for this purpose, can be adjusted mechanically or hydraulically.

Turning elements for on-land work

There is a special turning element for some plough models which enables "on-land" work, i.e. working with the tractor wheels outside of the furrow. On-land work has advantages with regard to soil compaction and enables the use of oversize tyres or even twin tyres.

The on-land turning elements have an extra-long slide block guide, with which the front plough body can be moved to the area of the outer edge of the tractor wheel, either mechanically using a spindle or hydraulically from inside the tractor.

The following implements are available as on-land ploughs (with stepped furrow width adjustment only – no Vario):

- ©plus M shearbolt protection system 3-furrow
- ©plus XM 3 and 4-furrow shearbolt and 3-furrow stump-jump system
- ©plus XMS 3, 4 and 5-furrow shearbolt and 3 and 4-furrow stump-jump system
- ©plus XS 3, 4 and 5-furrow shearbolt and 3 and 4-furrow stump-jump system

Simple turning using memory cylinder

To increase ground clearance when the plough is turning and make the turning smoother, all ploughs from series M onwards can be equipped with an in-swing mechanism. This automatically swings the plough frame towards the centre of the tractor before the turning starts and back into its original working position once the plough has finished turning. This shift in the centre of gravity also means that there is less strain on the tractor's lifting mechanism and reduces the risk of tipping while working on slopes.
In Vario ploughs, the swing-in cylinder is a pure memory cylinder with a floating piston for adjusting the working widths.

Overview of ©plus turning elements					
Turning element model	**LM**	**M**	**XM**	**XMS**	**XS**
Ø turning axis	75	80	90	100	120
Bearing	Needle bearing	Tapered roller	Tapered roller	Tapered roller	Tapered roller
Upper connecting rod positions	3 (2x oblong holes)	3 (2x oblong holes)	3 (2x oblong holes)	4 (3x oblong holes)	4 (3x oblong holes)
Attachment category	I or II	II or III N	II or III	II or III	III or IV N
For use with plough model	All LM models	All M models	All XM models up to 4-furrow version, optionally also for selected M-models	All XMS models up to XM 5-furrow version	All XS and XS-Pro models

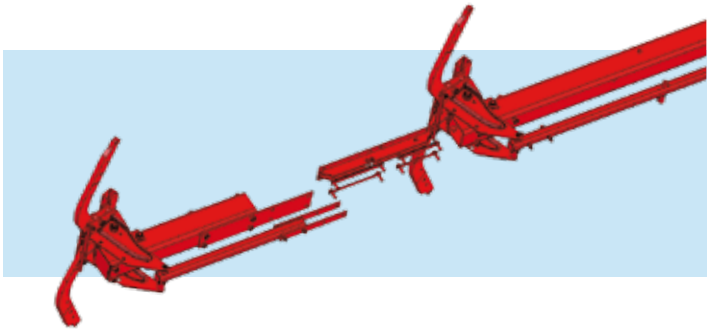
The frame as the backbone of the plough

All Vogel & Noot ploughs have frame tubes made from high-tensile special steel. The thick walls mean that not only is the entire frame stable, but also that all screw joints are extremely strong. The thick walls also prevent bearing stress and deformation of the beams around the screw joint. A further special feature of Vogel & Noot ploughs is that the frames are designed without any welded seams. Critical points are therefore avoided from the outset. An optimal connection to the turning element is guaranteed by a long, high-tensile hot-formed part. In ploughs from the upper series, a lateral support helps prevent excess tensioning and provides even better stability.

All frame tubes are drilled on a specially developed drilling system and all the holes are produced with a single clamp, which guarantees absolute precision for the finished product.

Expandable frame system

In order to further increase the flexibility of the ©plus ploughs, the implements in the top performance classes can be supplied on request with an expandable frame system (e.g. 4+1).
This is a screw-on system that is very easy to fit. Even in the expandable version the frame does not have any welded seams, which is one of the benefits of all ©plus ploughs.



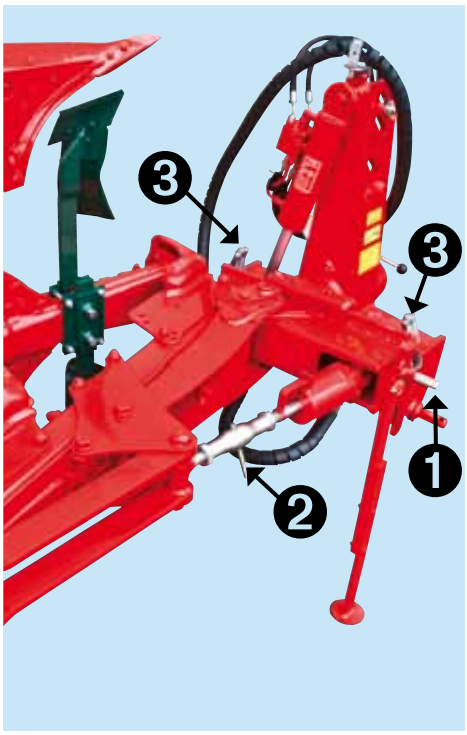
Logical plough adjustment

The basis for perfect plough adjustment is an adjustment system that is logical and easy to understand. Correct plough adjustment quite simply means that operating costs will be reduced, as perfect adjustment has a very positive effect on wear and fuel consumption. The tried and tested carriage design is particularly well-suited for this purpose. **Plough adjustment is divided into 3 steps:**

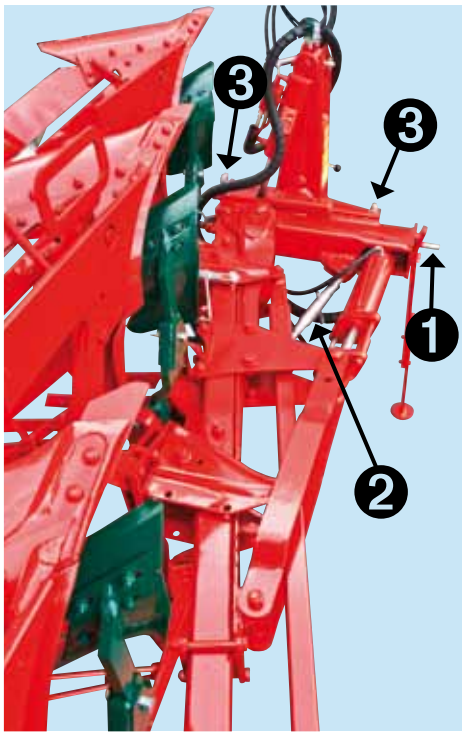
1. **First body furrow width** (adaptation to tractor tracks) via the slide block guide
2. **Traction point adjustment** smooth adjustment using spindle
3. **Wheel camber adjustment** right/left separately using spindle

Hydraulic carriage adjustment:
The first body furrow width can optionally be adapted directly from inside the tractor using double-action hydraulic cylinders. This is very practical when working on slopes with highly variable ground.

©plus setting centre



©plus Vario setting centre

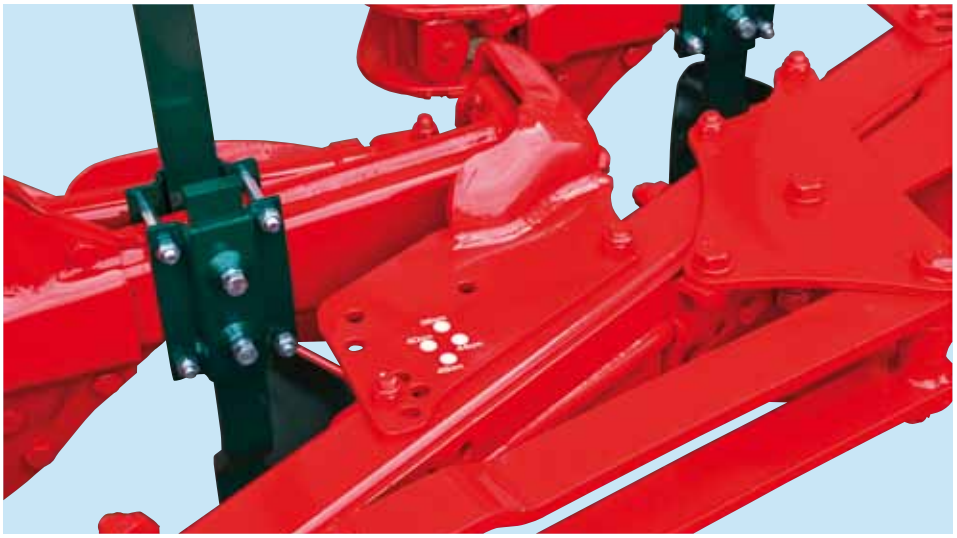


Furrow width adjustment

All ©plus ploughs feature mechanical furrow width adjustment as standard. In ©plus Vario implements, this can be smoothly adjusted hydraulically from inside the tractor.

Mechanical precision

The standard furrow width adjustment is done over 4 levels by manually pivoting the leg elements. In this way, the implement can easily be adapted to different conditions (soil conditions, tractor, etc.). When the furrow width is adjusted, all tools and depth wheels are also automatically adjusted. No additional correction is necessary.



Hydraulic convenience

The furrow width can be smoothly adjusted from the inside the tractor via the hydraulic system. The furrow width adjustment can be monitored at a glance via a large indicator.
Of course, our Vario system is skilfully designed so that the draft point and the furrow width of the first body are automatically corrected at the same time. All the tools and the depth wheel are also automatically adjusted.

The mounts for the plough body and accessories are positioned on the side, beyond the frame tube, so as not to weaken the frame with large holes. This lateral displacement also enlarges the pass above the plough body.

CONNEX bushings

The advantages of the ©plus Vario:

Available for all 4 overload systems
➔ Suitable VARIO ploughs for all soi conditions and tractor sizes

Easy adjustment, essentially the same as a standard plough, perfect adjustment of draft point and leading furrow when adjusting the furrow width
➔ No need to readjust draft point, leading furrow or accessories; low wear and hp requirement

Pivot points are minimised
➔ Minimal wear and maintenance

Each pivot point has CONNEX bushings. When worn, simply replace bushings
➔ Longer service life, low replacement costs

Leg bracket has pivot points beyond the frame tube
➔ No weakening of frame tube with additional holes

Optimal arrangement of levers on the system landside/pivot point/connecting rod - low adjusting force/strain on bearings
➔ Low wear, long service life for pivot points

Bearing pins lubricated from the inside out – no contamination in the bearings
➔ Minimal wear and maintenance

Main bearing pins adjusted using a castle nut and with stable torsion lock
➔ Long service life for bearings

Stump-jump systems –
the strength of steel versus the strength of stone

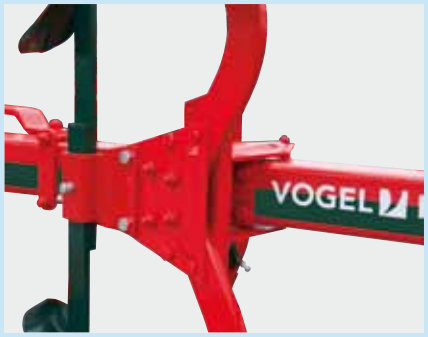
The ©plus has a choice of four stump-jump systems to overcome this issue. Due to the ingenious idea of mounting all components outside on the plough frame, you can choose between four different stump-jump systems for your ©plus.

1. Mechanical system

Shearbolts are the tried and tested standard solution for this system. When stressed, the shearbolts fracture at the break points and the plough body swings up and out of the way of the obstacle. The plough is then simply lifted, new shearbolts are inserted and ploughing can be continued.

Advantages:

- Double shearing, hardened flange plates
- High-quality shearbolts in 10.9 quality and with a special design
- The pivot point of the leg is very high and located towards the front - the plough does not lift when it is triggered



2. Semi-automatic system

In this system, the plough swings out of the way by overcoming the strong pressure exerted by two helical leaf springs. Of course, this solution is extremely practical because the plough body is immediately brought into realignment by lifting it out or briefly reversing the tractor. This system is an alternative to using shearbolts and NON-STOP protection systems when the soil is not excessively stony.

Advantages:

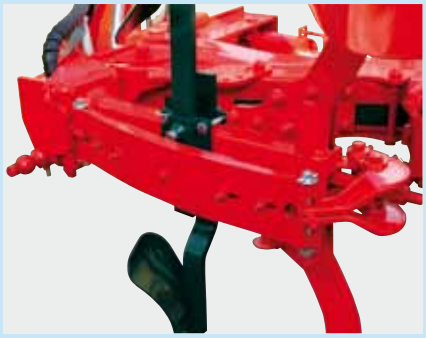
- Low extra weight compared to shearbolt protection systems
- Adjustable trigger force

3. Fully automatic mechanical system

In this system, the plough body is realigned automatically after passing the obstacle without any interruption to ploughing. This system is characterised by the fact that it swings out at a considerable height as well as to the side and can be adjusted to the desired triggering torque by the number of leaf springs fitted.

Advantages:

- Simple uncomplicated design
- Practical trigger characteristics
- Exchangeable ball joints
- Shearbolt as standard



4. Fully automatic hydraulic system

Instead of springs, the hydraulic solution uses a hydraulic cylinder which is connected to a nitrogen-filled piston accumulator. The hydraulic pressure can be smoothly adjusted which consistently guarantees optimum ploughing with the greatest possible ease. When triggered, the plough body pushes a piston into the accumulator via the hydraulic cylinder. The gas is compressed and automatically returns the body to its initial position after passing the obstacle. This fully automatic high-tech solution was developed by Vogel & Noot.

Advantages (in addition to leaf springs):

- Smooth action which protects the materials through gentle lifting and pull-in
- Simple adaptation of the trigger force for different soil conditions
- Increased lifting height for even better safety with large obstacles

The hydraulic stump-jump system is available in 2 versions:

Compact accumulator:

In this version, the piston accumulator is combined directly with the hydraulic cylinder to form a compact unit.

Additional advantages:

- The elements function completely independently of one another (no influence on trigger force)
- Elements can be precompressed independantly (e.g. first body)
- No hydraulic hoses or pipes on the plough frame

Compact accumulator with tubes:

By connecting the individual elements and one stop valve for each, all of the advantages of the compact accumulator can optionally be utilised. By opening the valve, the following further advantages can also be used:

Additional advantages:

- Adjustment of the trigger force for all elements in one single movement (even whilst driving)
- Similar pipe cross sections mean that the elements have only a slight influence on one another

Working tools

Manure skimmer

For universal use, from newly-broken soil in meadows to maize straw.

Skim coulter

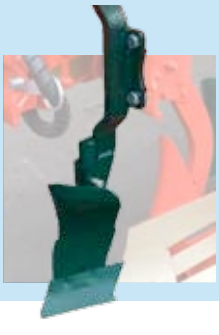
Especially for flat work when breaking soil.

Special skimmer

For optimum work with extensive crop remains.

All around adjustable
Beside the standard version with step less height adjustment the 3 above offered skimmers are optional also available with step less land grip- as well as three-step working angle adjustment.

These constructions are furthermore equipped with a comfortable height adjustment, an additional wearing part increase the product life of the skimmer board and reduces the wearing costs.



Trashboards

A good alternative for mixing crop remains. With additional support for leg as standard.

Deflector boards

When used with the manure skimmers, the deflector boards prevent straw (especially maize straw) from wrapping around the leg.

Knife coulter

More cost effective alternative to disc coulter, reduces wear on the plough body and also reduces lifting force requirement.

Disc coulters

The disc coulter also makes a considerable contribution to efficient ploughing. The disc coulter's precise cutting action helps achieve full turning and complete incorporation of crop remains as well as effective furrow clearance.

For ©plus ploughs, notched disc coulters with a diameter of 500 or 600 mm are available. The depth of the coulters can be adjusted very finely using toothed discs, the robust tapered roller bearings are well-protected in their external position and are maintenance-free. Plough models from series M onwards can also optionally be fitted with disc coulters in front of each plough body.

Disc coulter on standard ploughs with shearbolt protection system

Vogel & Noot has developed a practical toggle-lever clamp for this version. This allows both sides to be adjusted at the same time. The system can also be adjusted in the direction of travel, which creates a unique free space between body and coulter (prevents blockages).

Disc coulter on ploughs with stump-jump systems (standard and Vario)

With these plough models, the disc coulter is mounted on the pivoting leg of the stump-jump system. When the stump-jump system is triggered, the coulter is also released and protected from damage. Land-hold adjustment for both sides is also performed simultaneously with the well-known clamp.

Disc coulter on Vario ploughs with shearbolt protection system

In Vario ploughs, the disc coulter is also longitudinally displaceable in the same unique way. This enables the major advantage of ©plus ploughs with large amounts of crop remains.

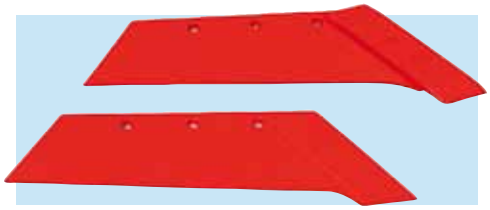
Of course, if the furrow width is adjusted, the disc coulter is also precisely adjusted at the same time.

Tools – plough body

The choice of a suitable plough body determines the quality of the ploughing to a large extent.

The ©plus shares

All ©plus bodies are fitted with specially designed shares. The special shape gives less resistance and smoother draft. The self-sharpening area has been made much thicker, thus considerably increasing the life of the ploughshare.

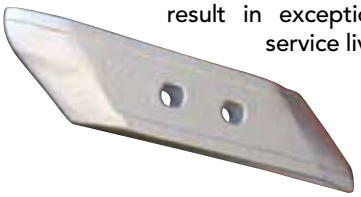


System with four times the use

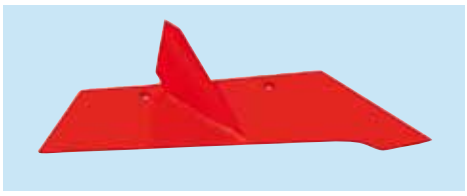
All ©plus ploughs have a system from which you get four times the use. The long length ensures optimal cornering stability, which reduces fuel consumption and ensures perfect ploughing

Points with special shape

The points in ©plus shares protect the share blade and thus lower wear costs. Its flat shape, the self-sharpening pull-in area which saves on traction and the 15-mm thick lateral reinforcements make the points extremely resilient in the wear zones through specially chosen materials and result in exceptionally long service lives.



Only available from Vogel & Noot - the optional cutting share:
A knife which is fitted splits the clods to facilitate finer crumbling and easier reworking. You save time and money with the VN cutting share.



The advantages of ©plus bodies

Complete and consistent incorporation of crop remains promotes fast and effective decomposition, encourages soil life and therefore also helps guarantee greater yields

An even surface with the finest possible crumbling makes subsequent work easier and saves seedbed preparation costs

Broad furrow clearance enables the use of wide tyres which has the extremely positive effect of less soil compaction. The incorporation of large amounts of crop remains is also promoted

A low traction requirement saves directly on fuel costs and therefore makes a considerable contribution to cost-effective use of the plough

Overview of ©plus plough bodies

The Vogel & Noot plough range contains a wide selection of ©plus plough bodies and therefore guarantees perfect work in your soil conditions.

WY400

Wound design, can be used anywhere in light to heavy soils, newly-broken soil in meadows and on sloping ground. It is particularly easy to pull and clears the furrow well. Working depth up to 30 cm

WL430

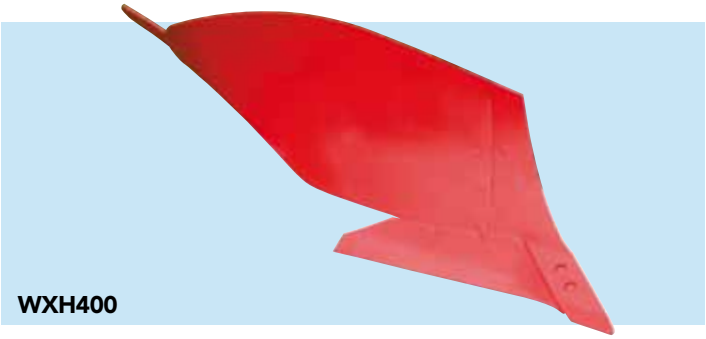
Strongly wound and very drawn-out, outstanding furrow clearance for wide tyres up to 710 mm, optimum turning in of crop remains. Excellent slope-working capability. Working depth up to 33 cm

WX400

Very flatly wound plough body for very heavy soils, very easily drawn for particularly heavy conditions, very good cleaning properties. Working depth up to 25 cm

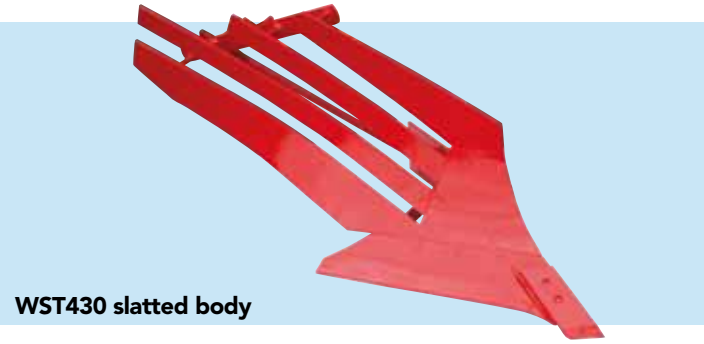
WXL430

Also for heavy soil conditions, very easy to pull due to its pointed shape. Good furrow clearance and incorporation of crop remains. Working depth up to 28 cm



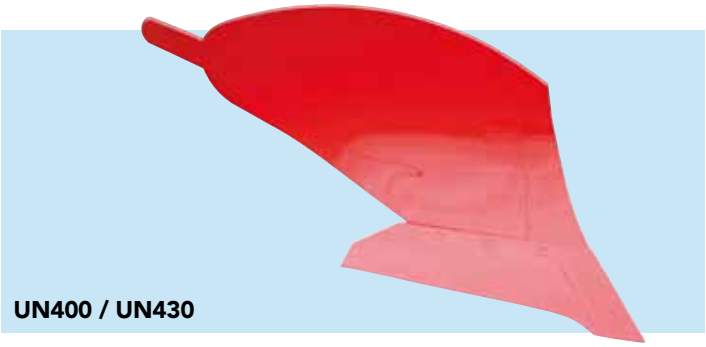
WXH400

Specially wound body which is particularly easy to pull with very good furrow clearance. Working depth up to 30 cm



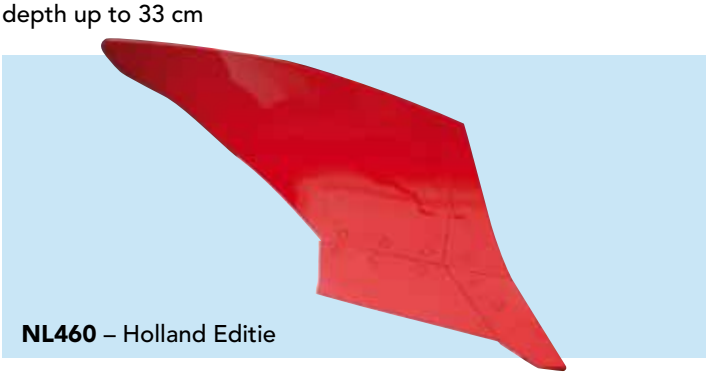
WST430 slatted body

Particularly good for sticky soils, good clod-breaking and furrow clearing properties — slats can be replaced individually. Very good turning in of crop remains, can be used anywhere. Working depth up to 33 cm



UN400 / UN430

Steep universal design in two different sizes for light to medium soils. Working depth up to 35 cm with UN400, up to 40 cm with UN430



NL460 – Holland Editie

Long drawn-out special body for heavy, damp, marshy soil. Working depth up to 30 cm

In addition to the models shown, there are a range of other body designs to meet the needs of special applications or areas.

Depth wheels

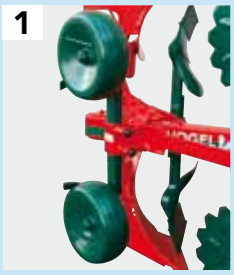
Perfect ploughing also depends not least on the plough having precise depth control. For this purpose, Vogel & Noot has a wide selection of wheel models and assembly options to meet all requirements.

Double depth wheels

- Can optionally be mounted at the front or back (better headland ploughing characteristics)
- Convenient spindle adjustment on right/left separately (from Ø 500 mm)
- Simple and completely reliable design

* **Adjustment (all without tools):** stepped with quick-release lock
** **Mounting position:** on the rear body, penultimate body or reversible

1



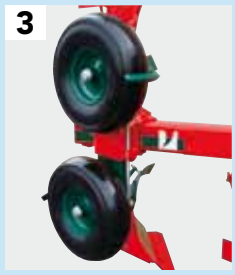
Wheel Ø 400 mm plate x 150 mm wide
Available for: LM ploughs

* / **

2

Wheel Ø 500 mm plate x 185 mm wide
Available for: M, XM and XMS ploughs. All underbeam clearances
**

3



Wheel Ø 550 mm pneumatic x 160 mm wide
Available for: M, XM and XMS ploughs. All underbeam clearances

4

Wheel Ø 600 mm pneumatic x 220 mm wide
Available for: XMS and XS ploughs with underbeam clearance of 82

Suspended depth wheels

- Hydraulic damping as standard with adjustable synchronisation cylinder ensures that the wheels turn gently, regardless of extreme changes in temperature.
- Smooth depth adjustment without tools, on right/left separately
- Suspended towards the rear, therefore works well on slopes (no "running ahead" when lowering the plough)

5

Wheel Ø 500 mm plate x 185 mm wide
Available for: all ploughs up to 4-furrow version and max. underbeam clearance of 78 cm

6

Wheel Ø 550 mm pneumatic x 160 mm wide
Available for: all ploughs up to 4-furrow version and max. underbeam clearance of 78 cm

7

Wheel Ø 600 mm pneumatic x 220 mm wide
Available for: all ploughs from series M onwards and up to an underbeam clearance of 82 cm

8

Wheel Ø 680 mm pneumatic x 250 mm wide
Available for: all ploughs from series M onwards

Combined transport/ suspended depth wheels

- Optional scrapers available for all combined transport/suspended depth wheels (see image 14)
- Optional pivot adaptors available for achieving the best headland ploughing characteristics at the final furrow (see image 16)

9

Wheel Ø 550 mm pneumatic x 160 mm wide
Available for: all ploughs up to 4-furrow version and max. underbeam clearance of 78 cm

10

WheelØ 600 mm pneumatic x 220 mm wide
Available for: M/XM/ XMS/XS (not for 6-furrow and 5-furrow ST and/or Vario ploughs)

11

Wheel Ø 680 mm pneumatic x 250 mm wide
Available for: XMS/ XS (not for 6-furrow and 5-furrow ST and/or Vario ploughs)

12

Wheel Ø 600 mm pneumatic x 220 mm wide – heavy-duty version (twin-arm)
Available for: all 6-furrow and 5-furrow ST and/or Vario ploughs

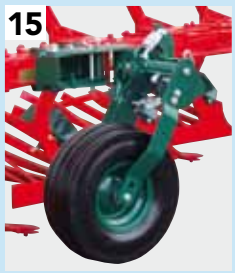
13

Wheel Ø 680 mm pneumatic x 250 mm wide – heavy-duty version (twin-arm)
Available for: all 6-furrow and 5-furrow ST and/or Vario ploughs

14

Wheel Ø 600 mm pneumatic x 220 mm wide - mounted at FRONT, heavy-duty version (twin-arm). **Available for:** all 5 and 6-furrow ploughs

15



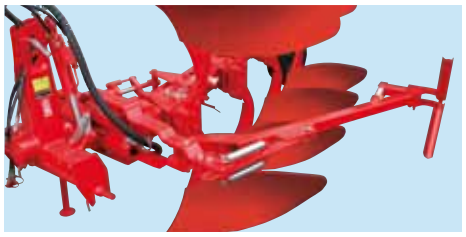
Wheel Ø 680 mm pneumatic x 250 mm wide - mounted at FRONT, heavy-duty version (twin-arm). **Available for:** all 5 and 6-furrow ploughs

16

Pivot adaptor

Accessories

Packer arms

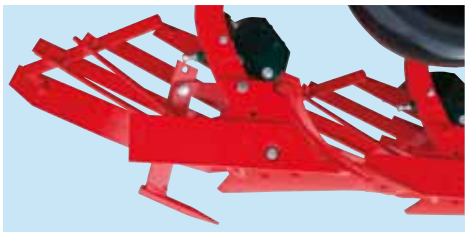


For combined use with plough turning packers, all ©plus ploughs can be fitted with a hydraulically unlockable packer arm.

Vogel & Noot packer arms are generally fastened directly to the turning element, with the significant advantage that the forces generated pass into the turning element directly from the packer and not via the frame.

In addition, all packer arms are equipped with a spring-loaded safety gear which attenuates the load peaks that occur when the packer is being attached and thus protect the implement and tractor.

Subsoiling spikes



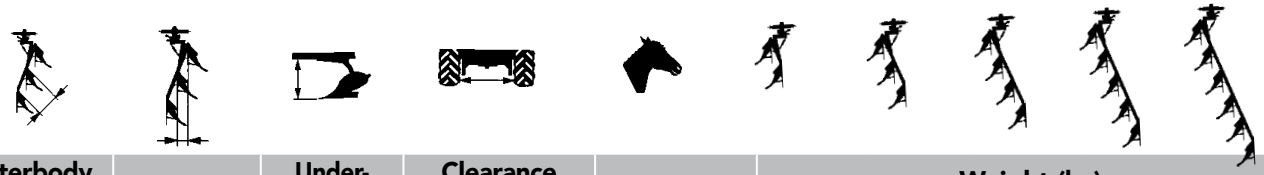
In line with the motto "Shallow ploughing and deep loosening", the subsoiling spike loosens the soil layers below the working depth of the plough. The height of the loosening spikes can be adjusted. The spikes are designed to be easily exchangeable so as to ensure low wear costs.

Lighting

All ©plus ploughs must also be fitted with a lighting system for road transport. Either pointing to the left (for transport with plough in working position) or double-sided for use with combined transport/depth wheels, these lighting systems ensure safety whilst driving on roads

The VN plough range contains much more than just the mounted reversible ploughs described here. In addition to a large selection of non-reversible ploughs, it also includes semi-mounted reversible ploughs, two series of 5 to 12-furrow ploughs for large professional farms and much more.

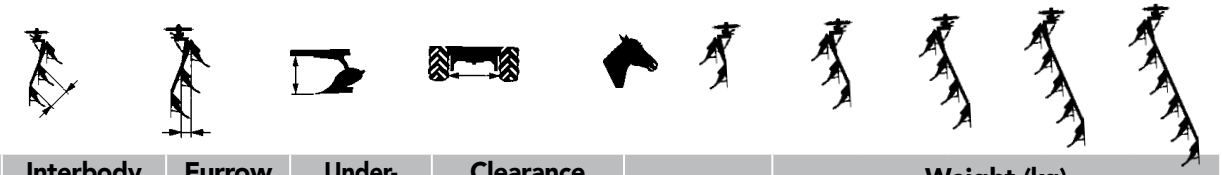
©plus ploughs – Technical specifications



Model	Interbody clearance (cm)	Furrow width (cm)	Under-beam clearance (cm)	Clearance between tyres (mm)	Max. kW (hp) range	Weight (kg)				
						2-furrow	3-furrow	4-furrow	5-furrow	6-furrow
LM 850	85	28/32/36/40	67/72/78	900 - 1450	59 (80)	480	625			
LM 850 ST	85	28/32/36/40	67/72/78	1100 - 1650	59 (80)	590	790			
LM 950	95	28/32/36/40	67/72/78	900 - 1450	59 (80)	485	630			
LM 950 ST	95	28/32/36/40	67/72/78	1100 - 1650	59 (80)	595				
LM 1020	102	28/32/36/40	67/72/78	900 - 1450	59 (80)	490	635			
LM 1020 ST	102	28/32/36/40	67/72/78	1100 - 1650	59 (80)	600				
M 850	85	32/36/40/44	72/78	950 - 1500	88 (120)		725	885		
M 850 ST	85	32/36/40/44	72/78	1150 - 1700	88 (120)	675	890	1105		
M 950	95	36/40/44/48	72/78	950 - 1500	88 (120)		730	890		
M 950 ST	95	36/40/44/48	72/78	1150 - 1700	88 (120)	680	895	1110		
M 1020	102	36/40/44/48	72/78	950 - 1500	88 (120)		735	895		
M 1020 ST	102	36/40/44/48	72/78	1150 - 1700	88 (120)	685	900			
XM 850	85	32/36/40/44	72/78	1050 - 1650	103 (140)		860	1005		
XM 850 ST	85	32/36/40/44	72/78	1250 - 1850	103 (140)		1025	1225		
XM 900	90	36/40/44/48	72/78	1250 - 1850	103 (140)				1250	
XM 900 ST	90	36/40/44/48	72/78	1250 - 1850	118 (160)				1510	
XM 950	95	36/40/44/48	72/78/82	1050 - 1650	103 (140)		865	1010		
XM 950 ST	95	36/40/44/48	72/78	1250 - 1850	103 (140)		1030	1230		
XM 1000	100	36/40/44/48	72/78/82	1250 - 1850	103 (140)				1265	
XM 1000 ST	100	36/40/44/48	72/78	1250 - 1850	118 (160)				1520	
XM 1050	105	36[1)]/40/44/48	72/78/82	1050 - 1650	103 (140)		870	1015		
XM 1050 ST	105	36/40/44/48	72/78	1250 - 1850	103 (140)		1035	1235		
XMS 850	85	32/36/40/44	72/78/82	1050 - 1650	128 (175)		975	1150	1345	1530
XMS 850 ST	85	32/36/40/44	72/78/82	1250 - 1850	128 (175)		1140	1370	1620	
XMS 950	95	36/40/44/48	72/78/82	1050 - 1650	128 (175)		980	1160	1360	1550
XMS 950 ST	95	36/40/44/48	72/78/82	1250 - 1850	128 (175)		1145	1380	1635	
XMS 1050	105	36[1)]/40/44/48	72/78/82	1050 - 1650	128 (175)		985	1170	1375	
XMS 1050 ST	105	36/40/44/48	72/78/82	1250 - 1850	128 (175)		1150	1390		
XS 850	85	32/36/40/44	76/82	1050 - 1850	191 (260)			1295	1510	1725
XS 850 ST	85	32/36/40/44	72/78/82	1250 - 2050	191 (260)			1550	1825	2100
XS 950	95	36/40/44/48	76/82/90	1050 - 1850	191 (260)			1310	1530	1745
XS 950 ST	95	36/40/44/48	72/78/82	1250 - 2050	191 (260)			1565	1845	2115
XS 1050	105	36[1)]/40/44/48	76/82/90	1050 - 1850	191 (260)			1325	1550	1765
XS 1050 ST	105	36/40/44/48	72/78/82	1250 - 2050	191 (260)			1580	1865	2130
XS 1150	115	40/44/48	76/82/90	1050 - 1850	191 (260)		1115	1340	1570	
XS 1150 ST	115	40/44/48	72/78/82	1250 - 2050	191 (260)		1310	1595	1880	
XS Pro 850	85	32/36/40/44	76/82	1050 - 1850	206 (280)			1345	1570	1795
XS Pro 850 ST	85	32/36/40/44	72/78/82	1250 - 2050	206 (280)			1600	1885	2170
XS Pro 950	95	36/40/44/48	76/82/90	1050 - 1850	206 (280)			1360	1590	1818
XS Pro 950 ST	95	36/40/44/48	72/78/82	1250 - 2050	206 (280)			1615	1905	2185
XS Pro 1050	105	36/40/44/48	76/82/90	1050 - 1850	206 (280)			1375	1610	1835
XS Pro 1050 ST	105	36/40/44/48	72/78/82	1250 - 2050	206 (280)			1630	1925	2200
XS Pro 1150	115	40/44/48	76/82/90	1050 - 1850	206 (280)		1135	1390	1630	
XS Pro 1150 ST	115	40/44/48	72/78/82	1250 - 2050	206 (280)		1350	1645	1940	

1) not possible in SS version (disc coulter in front of each body)

©plus Vario ploughs – Technical specifications



Model	Interbody clearance (cm)	Furrow width (cm)	Under-beam clear-ance (cm)	Clearance between tyres (mm)	Max. kW (hp) range	Weight (kg)				
						2-furrow	3-furrow	4-furrow	5-furrow	6-furrow
M 850 Vario	85	32 - 52	72/78	950 - 1500	88 (120)		795	970		
M 850 ST Vario	85	32 - 52	72/78	1150 - 1700	88 (120)	730	960	1190		
M 950 Vario	95	32 - 52	72/78	950 - 1500	88 (120)		800	975		
M 950 ST Vario	95	32 - 52	72/78	1150 - 1700	88 (120)	735	965			
M 1020 Vario	102	32 - 52	72/78	950 - 1500	88 (120)		805	980		
M 1020 ST Vario	102	32 - 52	72/78	1150 - 1700	88 (120)	740	970			
XM 850 Vario	85	32 - 52	72/78	1050 - 1650	103 (140)		945	1105		
XM 850 ST Vario	85	32 - 52	72/78	1250 - 1850	103 (140)		1110	1325		
XM 900 Vario	90	32 - 52	72/78	1050 - 1650	103 (140)				1370	
XM 900 ST Vario	90	32 - 52	72/78	1250 - 1850	118 (160)				1610	
XM 950 Vario	95	32 - 52	72/78/82	1050 - 1650	103 (140)		950	1110		
XM 950 ST Vario	95	32 - 52	72/78	1250 - 1850	103 (140)		1115	1330		
XM 1000 Vario	100	32 - 52	72/78/82	1050 - 1650	103 (140)				1380	
XM 1000 ST Vario	100	32 - 52	72/78	1250 - 1850	118 (160)				1625	
XM 1050 Vario	105	32 - 52	72/78/82	1050 - 1650	103 (140)		955	1115		
XM 1050 ST Vario	105	32 - 52	72/78	1250 - 1850	103 (140)		1120	1335		
XMS 850 Vario	85	32 - 52	72/78/82	1050 - 1650	128 (175)		985	1240	1515	
XMS 850 ST Vario	85	32 - 52	72/78/82	1150 - 1850	128 (175)		1270	1530	1810	
XMS 950 Vario	95	32 - 52	72/78/82	1050 - 1650	128 (175)		990	1250	1530	
XMS 950 ST Vario	95	32 - 52	72/78/82	1150 - 1850	128 (175)		1280	1540	1825	
XMS 1050 Vario	105	32 - 52	72/78/82	1050 - 1650	128 (175)		995	1260	1545	
XMS 1050 ST Vario	105	32 - 52	72/78/82	1150 - 1850	128 (175)		1290	1550		
XS 850 Vario	85	32 - 55	76/82	1050 - 1850	191 (260)			1370	1635	1855
XS 850 ST Vario	85	32 - 55	72/78/82	1150 - 2050	191 (260)			1625	1965	2305
XS 950 Vario	95	32 - 55	76/82/90	1050 - 1850	191 (260)			1380	1650	1905
XS 950 ST Vario	95	32 - 55	72/78/82	1150 - 2050	191 (260)			1635	1980	2325
XS 1050 Vario	105	32 - 55	76/82/90	1050 - 1850	191 (260)			1390	1665	1925
XS 1050 ST Vario	105	32 - 55	72/78/82	1150 - 2050	191 (260)			1645	1995	
XS 1150 Vario	115	32 - 55	76/82/90	1050 - 1850	191 (260)		1205	1400	1680	
XS 1150 ST Vario	115	32 - 55	72/78/82	1150 - 2050	191 (260)		1305	1655	2010	
XS Pro 950 Vario	95	32 - 55	76/82/90	1050 - 1850	206 (280)			1740	1940	2190
XS Pro 950 ST Vario	95	32 - 55	72/78/82	1150 - 2050	206 (280)			1890	2295	2695
XS Pro 1050 Vario	105	32 - 55	76/82/90	1050 - 1850	206 (280)			1755	1960	2215
XS Pro 1050 ST Vario	105	32 - 55	72/78/82	1150 - 2050	206 (280)			1905	2315	
XS Pro 1150 Vario	115	32 - 55	76/82/90	1050 - 1850	206 (280)	1350	1560	1770	1980	
XS Pro 1150 ST Vario	115	32 - 55	72/78/82	1150 - 2050	206 (280)		1505	1920	2335	

Extra weight for semi-automatic stump-jump system in comparison to shearbolt protection system: approx. 20 kg per pair of bodies, model ST – Specifications for leaf spring and hydraulic stump-jump system. Weights without tools. All specifications and figures are subject to change.

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