



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Volkswirtschafts-
departement EVD
Forschungsanstalt
Agroscope Reckenholz-Tänikon ART

Report No. D-10.08



KWF-Index-No. 3436



Test Report

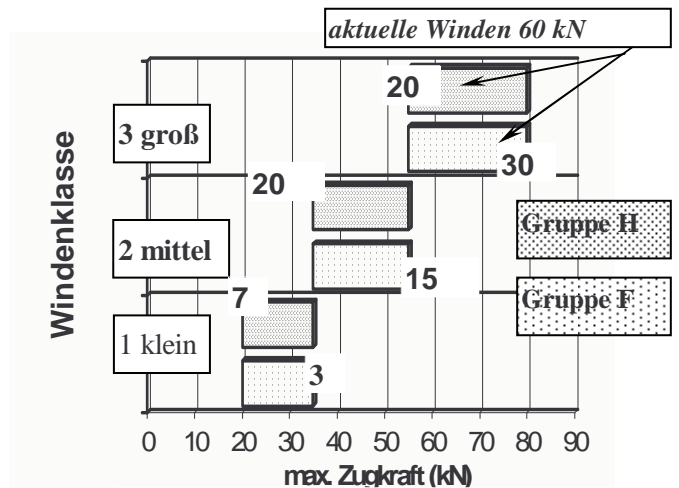


Figure: number of mounted winches tested to date
Group H = lever/line controlled
Group F = remote controlled
Dated: November 2007

PFANZELT Mounted Cable Winches

Types 106, 206 and 256

(Single drum-winch for 3-point attachment)

Manufacturer and applicant:
PFANZELT Maschinenbau GmbH
Frankau 37
D-87675 Rettenbach/Allgäu

Telephone 08860 / 9217-0
Fax 08860 / 9217-17
Email: info@pfanzelt-maschinenbau.de

1. Evaluation - Review



FAT TÄNIKON



PFANZELT Types 106, 206 and 256 mounted cable winches with independent hydr. system

<i>Test item</i>	<i>Test result</i>	<i>Evaluation</i>
Winch class* <small>See short explanation on page 3</small>	Line pull >55 kN <small>*see test basis page 8</small>	
Application field	Single drum linkage mounted cable winch for yarding and skidding of medium thick to thick long wood in easy terrain, as well as assisting felling work; suitable for farmer foresters and sideline forestry. The mounted winch is available with remote control or manual lever control. Yarding without remote control is more time consuming and causes more damage to the stand.	
Line pull	Depending on rope layer on drum, from 42 kN to 60 kN	
Tractor	An agricultural 4WD tractor with more than 70 kW engine power is recommended.	
Reliability		good
	No damage during the test	+
Handling		good
Operation	simple	0
Physical strain	Actuation force for <ul style="list-style-type: none"> • Pulling out the cable approx. 30 N, • Winching and brake release manual lever operation 15 N push button operation – very low 	+ + ++
Piling	Poor body posture when using the stacking shield	-
Assembly / Maintenance		gut
Assembly time	Attachment and removal in less than 15 minutes	0
Maintenance effort	low	+
Work safety	Confirmed by GS-Test (DPLF)	

Evaluation range: ++ / + / 0 / - / -- (0 = Standard)

2. Short description

- Hydraulically or electro-hydraulically operated single drum winches for 3-point attachment, category 1 and 2 as well as category 2 and 3 (ISO 730), powered by tractor PTO-shaft;

max. line pull	Type / version	Control		Operation	Winch class (basis for test)
60 kN	106 = Standard drum, width=133mm	Proportional a) hydraulic or b) electro-hydraulic	Independent hydr. system	a) manual lever or b) Proportional cable or radio remote control	a) 3DHh b) 3DFehy
	256 = wide drum, width=196mm				
	206 = very wide drum, width=314mm				

(Technical data see page 5)..

3. Test results

Application field / required tractor

The winch is primarily suited for yarding and skidding thicker long wood in easy terrain and as an aid in felling operations.

The mounted winch is also suitable for use in farmer forestry and for sideline forest work.

It is recommended to mount the winch on a 4WD agricultural tractor weighing at least 4800 kg and with an engine power in excess of approx.60 kW.

The relatively small winch does not noticeably affect the manoeuvrability of the tractor. The winch can also be attached to a 3 point quick-hitch.

Load collecting, anchoring, rope speed

The load is collected by hauling-in individual stems while winch is firmly anchored to the ground.

Yarding without remote control causes more damage to the stand and is more time consuming.

The stacking shield provides adequate support.

The line-in speed can be varied as required by controlling the PTO shaft speed, up to 1000 rpm (see page 5).

The drum capacity perm its hauling-in stems from the following distances:

Type 106 up to 60 m, Type 256 up to 90 m, Type 206 up to 150 m for extreme applications,

Transport

The load is transported suspended from the ropes.

Piling

Stems can only be piled by pushing them together using the stacking shield.

Availability, reliability, durability

The mounted winches are reliable. Spooling quality is good, even for the wider drums, due to the presence of a spooling device. No defects occurred during the test.

Winch construction is robust and durable: No defects occurred during the test.

The durability of the surface coating is good.

Ergonomics (operation – physical effort)

The operation of the winch is simple. The actuating forces required for hauling-in the rope with the push-button operated electro-hydraulic winch are very low and low for the hydraulic winch with a manual lever.

The effort required for uncoiling the rope from the drums is low (approx. 30 N).

The body posture assumed by the operator during piling is unfavourable.

Assembly time and maintenance

The mounted winch can be attached to or removed from the tractor in less than 15 min.

The time required for maintenance is low.

Stability

A stabilizer provides safe support for the mounted winch on hard ground.

Work safety

The mounted PFANZELT winch types have been tested for work safety at the Deutsche Prüfstelle für Land- und Forsttechnik (DPLF) (GS-test).

Operators manual and spare parts list

The operators manual and spare parts list are comprehensive and clear.

Survey results

The test results are confirmed by a survey among owners of type-identical mounted winches..

4. Description and technical data (measured values)

Construction	Double drum winches for 3-point attachment - category 1/ 2 and 2/3 (ISO 730); Welded frame with stacking shield; Drums are arranged horizontally, the shafts mounted at right angles to long axis of the vehicle; cable drums equipped with additional spooling device.				
Cable entry	top: via pivoted cable guide pulleys which align themselves independently with the pull direction; all bearings are roller bearings				
Brakes	Spring loaded, multi-plate, multiple disc brakes and an additional load release brake (manual release valve for precise release of brake under load).				
Cable brake	Disc brake on drum wall with manually adjustable spring pre-tensioning.				
Stacking blade	With removable trailer hitch and 4 notches for carrying choker chains				
Control	Proportional control; hydraulically with manual lever or electro-hydraulically using push-buttons with independent hydraulic system				
Operation	Levers or cable or radio remote control with continuous engine speed control				
Drive	PTO-shaft via spur gear and worm gear on the drum shafts; power transferred to cable drums by means of hydraulically operated multi-disc, multiple disc clutch; <u>Gear ratio</u> = 14.5 : 1; Maximum permitted drive speed 1000 rpm				
Average line speed	at PTO shaft speed 540 / 750 / 1000 rpm all types = 0.57 / 0.79 / 1.05 m/s; Layer dependant speed fluctuations = +/- 27 %,				
Line pull	Depending on rope layer: Bare drum all types Full drum all types	60 kN 42 kN			
Actuating forces	<u>Uncoiling rope adjustable</u> <u>Hauling-in / release brakes</u> using lever push-buttons	approx. 30 N approx 10 N - / -			
Dimensions and weights	Height with protective grid	2300 mm			
	Greatest width all types	1500, 1800, 2000 mm			
	Stacking blade, width all types	1500, 1800, 2000 mm			
	Thickness measured from attachment	520 mm			
	Drum: diameter inner all types outer all types width Types 106 / 256 / 206	220 mm 384 mm 133 / 196 / 314 mm			
	Rope: maximum length/diameter for Type 106, 256, 206	65, 95, 155 m / 12 mm			
	Height of rope entry above stand area	1240 mm			
	<u>Weight (kg), winch without rope</u>	Type	106	256	206
	Width of stacking blade 1500 mm		410	430	480
	Width of stacking blade 1800 mm		440	460	510
Width of stacking blade 2000 mm		490	520		
Steel cable, diameter 12mm = 0.764 kg/m					

Machine costs

Price without VAT (dated 11.2007)

Mounted winch (Type 106, 206, 256)	8.410,-- / 9.950,-- / 9.040,-- €
Joint shaft	included
Steel cable (up to 65 m, 155 m, 95 m in 12mm)	5,20 €/m
Choker hooks	22,-- €
Remote control	upon request

Additional equipment (not tested)

Rope guide pulley with hydraulic rope entry brake to prevent slackness.

5. 5. Test

Requirements: none

BFW-Test (Austria)

The PFANZELT Type 106, 206 and 256 mounted winches were tested and approved in a joint effort in accordance with an agreement between the KWF and the BFW.

FAT-Approval (Switzerland)

This test report is accepted by FAT in accordance with the ENTAM agreement.

Test centre

- Kuratorium für Waldarbeit und Forsttechnik (KWF), D-64823 Groß-Umstadt,

Field test

- Different forest entrepreneurs and private forest owners in Bavaria and Baden-Württemberg and Austria

Author

- Dipl.-Ing. E. Debnar, KWF-Zentralstelle, Groß-Umstadt,

FPA/DLG Test commission

KWF-test committee "Schlepper und Maschinen" (tractors and machines) (Chairman: FD H. Geske)

The applicant is entitled to display the test mark on machines of this type according to the test regulations and to use the certification for advertising purposes.

This publication

was supported by the Federal Ministry of Consumer Protection, Food and Agriculture and the State Forest Administrations

Kuratorium für Waldarbeit und Forsttechnik e.V. (KWF)
Forsttechnischer Prüfungsausschuss (FPA)
Spremlinger Straße 1
D-64823 Groß-Umstadt

Telephone: 06078 / 785-0
Fax: 06078 / 78550
eMail: fpa@kwf-online.de

Bundeforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft (BFW)
Fachbereich Forsttechnik
Johann Orth Allee 16
A-4810 Gmunden

Telephone: 0043 / 7612 64419-0
Fax: 0043 / 7612 64419-34
eMail: nikolaus.nemestothy@bfw.gv.at

Deutsche Landwirtschafts-Gesellschaft e.V.
Fachbereich Landtechnik – Prüfstelle für Landmaschinen –
Max-Eyth-Weg 1
D-64823 Groß-Umstadt

Telephone: 06078 / 785-0
Fax: 06078 / 9635-90
eMail: tech@dlq-frankfurt.de

Eidgenössische Forschungsanstalt für Agrarwirtschaft
und Landtechnik (FAT)
CH-8356 Tänikon

Telephone: +052 / 368 31 31
Fax: +052 / 365 11 90
eMail: Ulrich.Wolfensberger@fat.admin.ch