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Stoll Robust FZ+ 40 front-end loader:

More power to the Stoll elbow



The Robust FZ+ 40 front-end loader from Stoll follows on from F 35 HDPM. In tests the new model produced similar results to its predecessor; in practice the operator gets a better view, and sundry details have been tidied up

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Practical test: Stoll Robust FZ+ 40 front-end loader

More power to the Stoll elbow

The Robust FZ+ 40 front-end loader from Stoll follows on from the F 35 HDPM. In tests the new model produced similar results to its predecessor; in practice the operator gets a better view, and sundry details have been tidied up

Is it possible to have too much of a good thing? After our front loader comparison (profi 1/09) and following an introduction to Stoll's FZ+ 40 in profi 09/08, this time we're running a much more detailed rule over a pre-production version of the FZ+ 40. It's in the middle of Stoll's Robust FZ range and should be a good match for UK mixed farms.

The FZ+ 40 came on stream this spring, suiting tractors from 90hp up to 140hp. For this test it's carried by a Claas Ares 557. We put it through the same mill as the seven units in last spring's multi-unit comparison, so the results can be stacked side-by-side. The newer unit has a little more lift capacity but physically the same spec as the F 35 HDPM featured in profi's

group test; that is, a block coupler for the hydraulic hoses, a joystick linked by cable to the spools, tractor brackets with rear axle support and bonnet guards.

Our first drive (profi 09/08) covered the FZ+ design in detail, highlighting the way the operator's forward view is improved by routing both the hydraulic lines and the first section of parallel lift linkage inside the arms. While we can't assess the materials used to make the FZ+ 40, its design and construction suggest a strong and potentially durable unit. Pivot pin diameters and lengths are generous, and the loader itself, without attachment, is weighty at 600kg – 100kg more than the F 35 HDPM, and 20kg more than Stoll claims for the basic unit. Further detail is listed in the Test Assessments panel.

Now for some figures. Maximum lift force at 30cm above ground level was measured at nearly 2,400daN – that's good. Continuous lift force came out at almost 2,100daN, which is excellent. These figures pretty much parallel the F 35 HDPM's results. Break-out force – the maximum available to crowd an attachment, and a measure of tilt/crowd ram capacity – needs to be more than 2,000daN for good loader performance. We measured almost 2,100daN (so no problem there), but this is substantially less than generated by the F 35 HDPM in the group test. Stoll says it deliberately limited the FZ+ 40's performance in this area to avoid overloading the tractor's tyres and front axle.

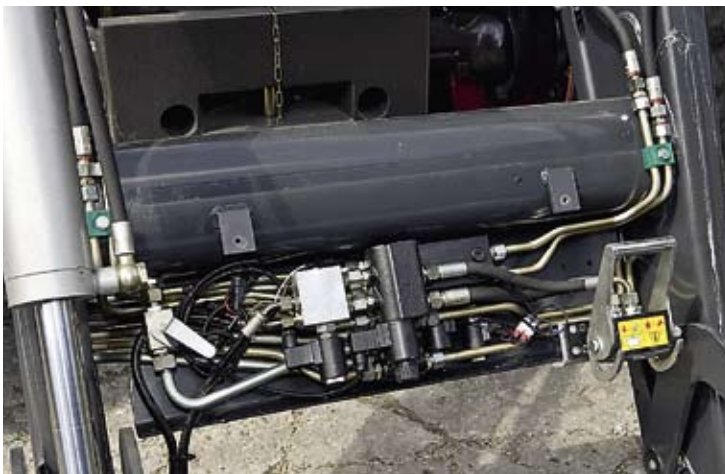
Maximum lift height (measured at the carriage pivot) is 4.10m, top-notch for this class of loader and 10cm higher than the F 35 HDPM managed. But the advantage is not carried through into its maximum reach over a trailer and maximum dump height; we found the FZ+ 40 could clear a 3.85m trailer and its bucket edge

The Robust FZ+ 40 is a modern loader. Hydraulic lines are largely protected, and Stoll's Z-kinematic set-up handles parallel lifting.
Photos: ST.





Attachment angle is shown by this telescopic rod, zeroed without having to resort to tools.



Where possible, oil lines are tucked under the arms. Valves are hidden under a cover (here removed), while the boom suspension cylinder is inside the oval-section cross-member.

Tip and crowd angles make or break a loader. On the whole, the FZ+ 40 does well here; at ground level the crowd angle was an excellent 53° so bucket filling is no problem, while tip angle at max lift was a good 51°. Since our test Stoll has introduced new attachments and now claims angles of 48.5° crowd and 55.5° dump. On top of this, pushing a joystick button brings in 'auto-curl', pulling in the rams more and crowding the attachment back by another 20° to maximise filling.

Stoll's Z-kinematic system aims to keep the loader attachment level during boom movement. Performance is OK; we reckon that the bucket crowded by +4° over the loader's full lift, which is not enough to spill grain. With pallet forks, the figure was +6°.

The other cornerstone of effective loader performance is a fast cycle time. The test

was 3.19m from the ground when tipped to 40°. These are good figures, but with the same bucket the previously tested F 35 HDPM provides 10cm more clearance and 2cm less dump height. The floor of the bucket we used measured 81cm from front to back, which is fairly long. Fit a shorter bucket to the F 35, and its dump height will go up in step.

A loader's tipping reach is the distance between the bucket lip and the front of the tractor, measured with the bucket tipped at 40°. It's down to boom length, attachment pivot position and lift height, and will determine how well the loader copes with large trailers - whether it can reach in in comfort. The minimum is reckoned to be 1m; we measured 1.08m on the test FZ+ 40. Digging depth with the bucket level came out at a healthy 23cm, a figure that's easily increased by tipping the attachment.

too, at 59°/s during crowd and 64°/s during dump; the latter is achieved by triggering the carriage to free-fall from a joystick button. If powered dump is used,

TEST ASSESSMENTS

How profi rates the Stoll Robust FZ+ 40

Forces	
Maximum lift force	+
Continuous lift capacity	++
Break-out force	+
Height and reach	
Lift height	++
Dump height	++
Dump reach	+
Digging depth	++
Angles and parallel lift	
Crowd angle	++
Dump angle	+
Parallel lift, bucket	+
Parallel lift, pallet fork	+
Working speeds	
Lift/drop speeds	++
Dump speed	+
Hydraulic system and ride comfort	
Vibration damping	++
Available oil, 3rd circuit	++
Loader attachment/removal	
Attachment locking system	0
Pipework coupling	+
Stands	+
Access room	-
Decals	+
Locking/removing attachments	
View to carriage	+
Hydraulic locking system	+
Control	
Joystick position	+
Sensitivity of operation	0
Other controls	0
Attachment tilt indicator	+
Overall visibility	++
Other	
Bonnet guard system	0
Build quality	++
Pipework	++
Component guards	++
Maintenance	+
User manual	G
Grading system:	
++ = very good; + = good;	
0 = average; - = below average;	
- - = poor;	
G = not available/not seen	

PLUS AND MINUS

- + The Hydro-Lock hose coupling is permanently pressurised and has a revised locking indicator
- + All pivots are replaceable, greaseable and pins are locked against turning
- + The new paint scheme looks good and is well-finished
- The loader's electrics are coupled separately with a seven-pin socket
- There is no indicator to show the tip angle required to access the Z-kinematic's inner joints
- Boom brackets can mark the tractor's mudguards

FZ+ 40's boom moves at a brisk 0.87m/s going up, and 1.21m/s coming down. Crowding and dumping are respectable

MEASUREMENTS

Stoll Robust FZ+ 40

Weights and dimensions

Unit weight	600kg
Lift ram diameter	40/70mm
Tip ram diameter	40/70mm
Height of pivot pin	1.81m
Distance between pin/front axle	0.51m
Boom length	2.65m
Space between arms	0.92m
Available oil, 3rd service	70l/min

Capacities ¹⁾

Max lift power (0.30m) ⁷⁾	2,380daN
Lifting power (0.90m) ⁷⁾	2,360daN
Lifting power (1.50m) ⁷⁾	2,330daN
Lifting power (2.10m) ⁷⁾	2,250daN
Lifting power (2.70m) ⁷⁾	2,160daN
Continuous lift capacity	2,060daN
Break-out force	2,060daN

Height and reach ²⁾

Lift height	4.10m
Unloading height	3.85m
Dump height	3.19/3.07m
Dump reach	1.08m
Length of bucket base	81cm
Digging depth	23cm

Angles

Total tipping range	178°
Crowd angle on the ground ³⁾	53°
Dump angle at max lift ³⁾	51°

Parallel control

With pallet forks	+6°
With universal bucket	+4°

Lift/lower/tip rates ⁴⁾

Lift speed	0.87m/s
Drop speed	1.21m/s
Crowd speed	59°/s
Dump speed ⁵⁾	49°/s, 64°/s

Shock absorption ⁶⁾

Damped range without load	6cm
Damped range, 1,000kg load	6cm

Test notes: Front-end loader carried by Claas Ares 557 with 200 bar, 105l/min oil supply. Tyres 480/65 R28 (front, 2.0 bar), 600/65 R38 (rear, 1.6 bar) tyres. ¹⁾ Lifting power recorded 60cm along pallet forks; break-out force recorded 80cm along pallet fork (carriage angle set to bucket operation); ²⁾ Lift height measured on pivot pin, maximum loading height measured with horizontal bucket, dump height recorded with universal bucket dumped through 40°; ³⁾ now 48.5° crowd and 55.5° dump; ⁴⁾ at 1,500rpm engine speed; ⁵⁾ without/with using quick-drop facility; ⁶⁾ measured at pivot pin at 5km/hr, driving off a 10cm high, 15cm wide kerb; ⁷⁾ distance off ground when measurement recorded.

the rate is a more pedestrian but still satisfactory 49°/s.

When it comes to boom suspension, Stoll is navigating uncharted waters. Not for it the traditional nitrogen spheres; instead, a horizontal piston arrangement, much like a hydraulic ram, is concealed within the arms'



The multi-coupler unit for the standard third service has been moved for more convenient operation/better protection.



Instructions for loader attachment and removal are pretty clear.

lower cross-member. The Stoll claim is that the FZ set-up gives better cushioning of any light shocks while letting the suspension self-adjust to cope with heavier loads and bigger deflections. Suspension shut-off is manual with an electric option. So does the new Stoll approach work? Yes, on the whole, it does. Boom suspension is subjectively effective, both when travelling empty and with a considerable 1,000kg



The operator can see the carriage during attachment by looking alongside the arms. The best approach, though, is to tip the frame completely.

load on board, with movement at the carriage pivot pin a generous 6cm.

Summary: The Stoll Robust FZ+ 40 is a modern, potentially sturdy front loader with appealing design and largely excellent performance. Driver visibility over the booms is good, thanks in part to the Z-kinematic arrangement. Most components are out of sight and protected.

Drawbacks? There is really only one. Stoll sticks with the traditional hook-and-pin for coupling loader and tractor, which has long since been bypassed by the semi-automatic set-ups of other brands. List price of the Robust FZ+ 40 loader on this tractor, without attachments or VAT, is £7,600.

GE

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PROFI TEST

Front-end loaders from Hyster, JCB, New Holland, and more

Six key tests for seven competitors

Making an informed choice is no straightforward task. How do the different models stack up? And how effective is the parallel lift in the first place? In a new test, we take a look at the specifications and performance of seven different loaders, in part to see whether they are able to live with a complex, farming life.

The test conditions... and their specifications

The test conditions... and their specifications

Test 1: Lift and break-out

LOADING TEST RATINGS

Model	Max lift power (0.30m)	Lifting power (0.90m)	Lifting power (1.50m)	Lifting power (2.10m)	Lifting power (2.70m)	Continuous lift capacity	Break-out force
Hyster H450	2,380daN	2,360daN	2,330daN	2,250daN	2,160daN	2,060daN	2,060daN
JCB 940	2,380daN	2,360daN	2,330daN	2,250daN	2,160daN	2,060daN	2,060daN
New Holland CR10.90	2,380daN	2,360daN	2,330daN	2,250daN	2,160daN	2,060daN	2,060daN
Stoll Robust FZ+ 40	2,380daN	2,360daN	2,330daN	2,250daN	2,160daN	2,060daN	2,060daN

Our group loader test, which appeared earlier this year, featured the previous generation Stoll F 35 model, so the test here of the FZ+ brings us right up to date.