

Syn-Trac systems tractor:

Welcome to Syn city

Small but dynamic Austrian company Syn-Trac has taken on a big job – producing its own systems tractor. On show at Agritechnica 2017, the newcomer brings some potentially revolutionary ideas. We take a short drive

As a breed, agricultural systems tractors have more or less disappeared since the demise of the MB-trac, Xylon and Systra. But the idea is just too good to let go, and now the Syn-Trac – a 400 plus horsepower, all-wheel steer

unit with the same name as the company that makes it – sets out to continue the line in fine style, adding among other things a novel way of coupling equipment from the cab. We visited Syn-Trac's base as the first prototype was getting ready for an outing. Things

were running a bit late as the unit's 400l diesel tank hadn't turned up on time, but that's the way things go. That tank delivers fuel to a 9.3-litre, six-cylinder C9.3B CAT motor knocking out a handsome 310kW/416hp. The motor nestles amidships between the axles,

below the cab and offset to the right; the transmission counter-balances it to the left. The latter is a special stepless unit developed with specialist VDS-Getriebe. It incorporates ranges shifted by dual clutches, and the standard 60km/hr top speed can be increased to 80km/hr by adding a separate high-low box.

Radiators with reversible hydraulic fans flank the powertrain. Siting the major masses low down makes for a compact and potentially very stable tractor, although the prototype's normal-operation, 430mm ground clearance on the standard 480/70 R 30 tyres isn't generous. However, this ground clearance can be varied from the cab – between 310mm (for coupling) and 635mm (short duration use).

spools at the back and six at the front, plus power beyond for each bank. Pto performance can be pretty spectacular, too – up to 3,000Nm and 1,000hp available through 1,000rpm shafts. From an engine delivering 1,900Nm at the crankshaft? Yes, because the Syn-Trac's coupling and through-shaft systems allow a second motor to be installed at the rear.

That's just for starters. The transmission's layout opens the option of adding a third axle or even fourth axle via the auto-coupling facility, driven through a dog clutch to produce a 6x6 or 8x8 tractor able to steer and drive all wheels. Suspension for each corner is already in place, handled hydraulically by a ram and accumulator.

What is Syn-Trac?

An offshoot of Synex Tech (a company focused on machines for special applications), Syn-Trac is based in Bad Goisern, 70km south east of Salzburg, Austria. Stefan Putz is the innovator and driving force behind both companies. The Syn-Trac operation currently employs 19 people and has many well-established contacts in the agricultural world.



Stefan Putz is the general manager of Syn-Trac, while his daughter Anna looks after marketing and innovation management.

More ideas

By working with other makers Syn-Trac can expand the tractor's use options. Ideas include a high-power snow blower, triple mowers, a second engine, a telescopic handler ... and more.



General manager Stefan Putz reckons the Syn-Trac can handle just about any application, a claim the machine's basic spec backs up. Check out the five output shafts, an oil delivery of 180l/min at 210 bar (which can be doubled by adding a second swash-plate pump), six double-acting

A real head-turner. The neatly finished Syn-Trac looks like a cross between a tractor and a pivot-steer loader – and it packs 416hp.



Although it's quite a climb up into the Syn-Trac's cab, once there the operator will find a comfortable environment with an excellent view. And there's plenty of room for two.

Better yet – at least as far as operators are concerned – is a docking system that couples implements automatically via matching vertical plates on the tractor and equipment. Initial alignment is taken care of by a pair of pins; then hydraulic hooks pull the tractor and implement together. Hydraulically

locked pins then anchor the joint against movement. And as the tractor's coupling plates are identical front and rear, the possibilities for front/rear operations open right up. Unsurprisingly, auto-coupling works best when machine and implement are on level ground. We found it useable but slow – the company aims for the whole operation to be

Here's the implement-side coupling plate, in this case carried by a swan-neck trailer. As its drawbar comfortably clears the Syn-Trac's small wheels, very tight turns are possible.



Data sheet

Syn-Trac systems tractor

Engine

CAT 9.3l C9.3B diesel, turbo-intercooled. Rated speed 2,200rpm, max outputs 310kW/417hp and 1,900Nm at 1,400rpm. Euro V compliant via DOC, SCR and DPF

Transmission, pto

Hydro-mechanical stepless transmission with three ranges shifted by dual clutch. Dry sump lubrication. Range 0-60km/hr; optional 80km/hr max speed. Pto 1,000rpm front and rear, max torque capacity 3,000Nm

Running gear

Tatra axles, 10t max capacity. Hydro-pneumatic independent suspension for each wheel, 325mm travel. Ground clearance 310-635mm, permanent 4WD, extendable to 6x6 or 8x8 by coupling axle modules. Wabco ABS brakes

Tyres

480/70 R30. Up to 540/65 R28 available

Hydraulics

180l/min standard, 360l/min option. Outlets – six d/a front, six d/a rear, both with Power Beyond. Up to 120l available externally

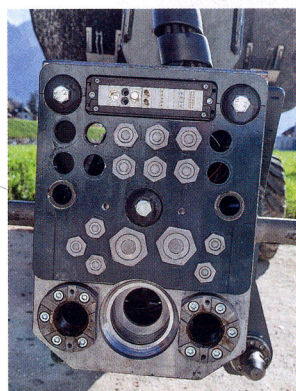
Size, weight

L/W/H 4.70m/2.55m/3.40m, wheelbase 3.30m, unladen weight 10.3t

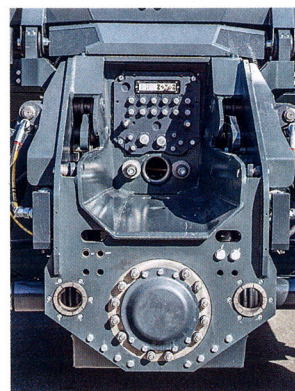
Base price before VAT

€333,000

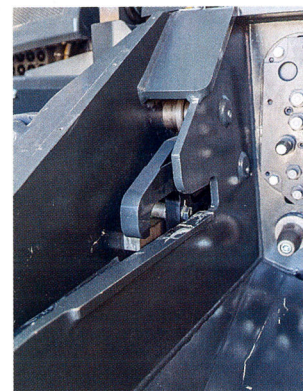
Manufacturer's data



Close-up of the trailer-side coupling plate. All electrical and hydraulic connections, plus spares for other applications, are catered for.



The tractor-side coupling has guide plates to take care of initial alignment. This one is on the front of the Syn-Trac; the rear coupling is identical.



A total of four hydraulically locked hooks and pins clamp the coupling plates together.



Coupling an attachment starts by lowering the Syn-Trac on its suspension. It's then backed under the implement-side coupler, raised so the two make contact and then the hydraulic clamping system is operated.

done in 60 seconds, which seems achievable. Less handy is the obvious need for anything to be used with the Syn-Trac to have its own docking plate, although that's always been the case with auto-hitch set-ups from the A-frame on. A specific docking unit is already offered to provide a 6.0t-capacity three-point linkage and a trailer hitch.

As both axles steer, the full range of steering modes is on tap – two-wheel, four-wheel and crab. Thanks to the newcomer's short 3.3m wheelbase, 4WS delivers a tight 9.0m turning circle. That's easily better than your average 1.0t double-cab pick-up can manage, and far tighter than conventional tractors.

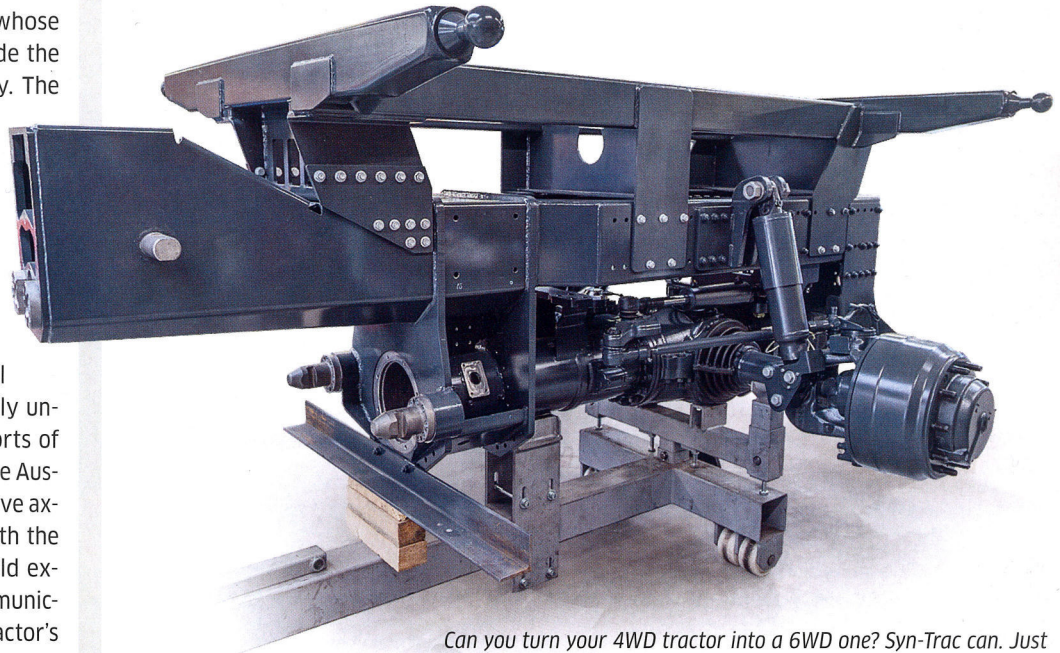
Driving the Syn-Trac is very simple. The cab is a long way off the ground so you need to swarm up five steps to reach it, but on arrival you find a decent environment, excellent views and comfortable room for two. Then

all you do to get underway is select a travel direction, step on the combined throttle/drive pedal and off you go. Suspension on the prototype needed some tuning, but then this really was a first drive; the maker says finding the right set-up should be straightforward. We used the tractor with a trailer whose matching coupler and swan neck made the most of the Syn-Trac's turning ability. The trailer pivots on a ball which is sealed against dirt and allows good three-dimensional movement.

So where will the Syn-Trac fit in farming? As things stand, it puts high horsepower, excellent manoeuvrability and automatic implement coupling in a compact package. But even on small wheels it weighs 11.0t, and is currently under-tyred for arable work. Various sorts of attachments were already evident at the Austrian headquarters, including a third drive axle and a logging trailer, while talks with the likes of Pöttinger and Palfinger should expand possibilities. Farming aside, the municipal market could certainly use the tractor's enviable versatility.

Summary: The Syn-Trac team is bursting with drive and ideas. Of course these are very early days, but it's taken just three years to produce a useable prototype – and that includes developing the automatic coupling system,

which itself opens up all sorts of avenues. Six prototypes should be at work through 2018, with production planned for 2019. Right now the order book is open, and the price tag starts from €333,000. **TB**



Can you turn your 4WD tractor into a 6WD one? Syn-Trac can. Just auto-couple this third axle module ... or two to make it an 8 x 8.