

Technical Specification

SCHOPF F 180 Aircraft Towing Tractor

DESCRIPTION

The SCHOPF F 180 is an aircraft towing tractor with 4-wheel drive and 4-wheel steering. It is available in the weight classes 20,000 / 24,000 / 28,000 kg.

STRUCTURE

This tractor consists of a sturdy and rigid frame of welded construction. The front axle is mounted to the frame by semi-elliptic laminated leaf springs. The rear axle is rigidly mounted.

Engine, full-power-shift transmission and hydraulic system as well as all other components are placed within the frame, easily accessible for repair and maintenance work. Engine and transmission can be removed as one unit.

The F 180 tractor can be supplied in a so-called "short" or "long" version. Besides an elevating cabin for driver and co-driver in front (short version), the tractor can be additionally equipped with a full-width platform or a fully functional one-man rear operator's station (either open stand or closed cab) with small platform.

The tractor weight is equally distributed on all four wheels.

Various types of tow couplings for connecting a tow bar can be mounted to each of the massive bumpers front and rear. In standard single-stage pin-type tow hitches, pin with 3" [75 mm] Ø, are fitted.

ENGINE / TRANSMISSION

ENGINE:

Make:	Deutz
Type:	BF6M 1013 EC, 6 cylinders, in-line, 4-stroke, turbo-charged diesel, integrated engine management system EMR
Cooling:	by water
Exhaust emission:	acc. to COM II (EC guidelines 97/68/EG STEP 2) / EPA II
Output:	157 kW (214 HP) at 2,300 rpm acc. to ISO 3046
Max. torque:	769 Nm at 1,450 rpm
Bore / stroke:	108 / 130 mm
Displacement:	7,146 cm ³

TRANSMISSION:

Make:	Funk
Type:	2233 full-power-shift transmission, integrated torque converter
Gear shift:	electro-hydraulic, 3 gears forward / 3 reverse

The transmission characteristics are especially adapted to the requirements of aircraft towing tractors. At the starting point (1st gear engaged with maximum engine speed) the maximum draw-bar pull is achieved.

Converter and transmission are fed from one common oil system. One division of the combined cooling unit cools the oil.

AXLES AND WHEELS

Front and rear axles, make Kessler, LT 71 PL 378 (disc-type brake) are driven by the full-power-shift transmission through joint shafts and reduction gears. Both axles are designed as steering axles with planetary drives in the wheel hubs.

The F 180 is equipped with 12.00 R 24 radial tyres.

HYDRAULIC SYSTEM

Brakes, steering system, cabin-lift and jacks (option) are operated hydraulically. Gear pumps being flange-mounted to the transmission PTO (power-take off) feed the hydraulic system.

STEERING SYSTEM

Steering is done hydraulically (Orbitrol). Four steering modes can be selected electrically through a push button:

- front-wheel steering
- rear-wheel steering
- 4-wheel steering
- crab steering (option)

An electrically driven "emergency steering pump" is connected to the steering circuit so that the vehicle can be steered temporarily for salvage purposes.

BRAKING SYSTEM

The tractor is equipped with a fully hydraulic 3-circuit safety disk brake system, consisting of 2-circuit service brake and 1-circuit failsafe parking brake. Emergency parking-brake release is done either by means of the emergency steering pump or mechanically; optionally a hydraulic hand pump is available.

JACKS

The F 180 can be optionally equipped with four integrated hydraulic jacks to lift each one of the axles. They are operated by means of push buttons in the cabin.

OPERATOR'S CABIN

The elevating cabin is of all-steel construction. The lockable doors are equipped with sliding windows. In standard there are 2 fully adjustable suspension seats for driver and one co-driver.

For additional safety and comfort the cabin is equipped as follows:

- 3 windscreen wipers for the largest wiped area possible
- windscreen washer
- cabin / front screen ventilation
- adjustable steering column
- 2 outside rear-view mirrors
- front tow-hitch mirror
- cabin lights

Furthermore a lot of special equipment is available optionally.

OPEN PLATFORM OR OPERATOR'S STATION AT THE REAR END

The F 180 "long version" (option) is fitted either with a full-width platform or a fully functional one-man rear operator's station (either open stand or closed cab) with small platform. The full-width platform is designed to either accommodate various GPU models and sizes or can be adapted to other requirements.

LIGHTING SYSTEM

Standard equipment:

- 2 headlights, low and high-beam
- 2 reversing lights
- 2 brake lights
- 2 directional indicator lights (front + rear)

Optional equipment:

- tow hitch lights
- spot lights
- beacon or anti-collision lights

others upon request

TECHNICAL DATA AND DIMENSIONS:

Operating weights	20,000 / 24,000 / 28,000 kg
Length without tow hitches	6,630 mm
Length with standard tow hitches (3" pin Ø)	7,150 mm
Height over body	1,650 mm
Height	- cabin lowered 1,650 mm
	- cabin raised 2,300 mm
Width	2,500 mm
Ground clearance	200 mm
Axle base	2,680 mm
Wheel track, front + rear	2,130 mm
Turning radius - inside (4-wheel steering), approx.	1,750 mm
Turning radius - outside (4-wheel steering), approx.	5,700 mm
Tyres, front + rear	12.00 R 24
Draw-bar pull installed with 20,000 kg	165 kN / 37,094 lbs
Draw-bar pull installed with 24,000 and 28,000 kg	205 kN / 46,086 lbs

The max. transferable draw-bar pull depends on the tractor weight and friction coefficient.

Travelling speeds -		
- forward / reverse	- 1 st gear	0 - 6.3 km/h
	- 2 nd gear	0 - 14.4 km/h
	- 3 rd gear	0 - 32.0 km/h

Electrical system 24 V

Fuel-tank capacity 270 l

Tolerance of mentioned data $\pm 3\%$
 Technical modifications reserved.

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