TECHNICAL SPECIFICATION

TREPEL CONVENTIONAL AIRCRAFT TRACTOR

CHALLENGER 160
### Dimensions
- **Length**: 5,315 mm (209")
- **Width**: 2,300 mm (91")
- **Height**: 2,000 mm (79")
- **Wheelbase**: 2,460 mm (97")
- **Track of drive axles**: 1,930 mm (76")
- **Turning radius, 2-wheel steering (outer contour)**: 7,350 mm (289")
- **Turning radius, 4-wheel steering (outer contour)**: 4,900 mm (193")
- **Weight (without ballast)**: 12,800 kg (28,218 lb.)
- **Weight (ballasted)**: up to 16,800 kg (37,026 lb.)

### Capacity
- **Towing / pushing capacity**: up to 180,000 kg (396,825 lb.)
- **Drawbar pull**: 142 kN (31,924 lbf)

(Calculated theoretical value, dependent on ballasted weight and adhesion factor)

### Performance data
- **Driving speed (depends on the ballasted weight)**: 30 km/h (19 mph)
- **Brake deceleration min.**: 35 %

### Power System
- **Diesel engine**: DEUTZ AG, TCD 2012 L4 2V
- **Liquid cooled, COM 3A / EPA – TIER 3/CARB**
- **96 KW (130 HP)**

- **Fuel tank capacity**: 125 L (33 US Gal.)

### Transmission
- **ZF-Power shift transmission**, converter gear, 6 speed forward, 3 speed reverse

### Axle
- Front axle with hydro pneumatic suspension
- Rear axle without suspension

### Tyres
- Front and rear axle: pneumatic tyre 9.00 R20

### General description
- Designed for push-back and towing of aircrafts up to 180,000 kg (A310 / B767-300)
- Single operator handling
- Four wheel drive
- Four wheel steering including crab steering
- Driver's cabin (not liftable), 2 seat
- Operation controls integrated in drivers cabin dashboard
- Lift able power-pack engine compartment for maintenance work

### Chassis / Drive system
- Mechanically drive system powered by L4 liquid cooled diesel engine with flanged ZF-Power shift transmission with cooling system
- Torque converter
- Direct powered engine cooling system
- Front and rear steering drive axle powered by Power shift transmission and cardan shaft
- Front axle with hydro pneumatic suspension, automatically lockable (depends on drive speed)
- Rear axle without suspension
Steering System
- Hydraulic power steering with emergency steering in case of engine failure
- Forward axle always operates by ORBITROL, backward axle electronically controlled. Changes automatically through selection of drive direction
- Both axles are equipped with redundant angle transmitters
- Steering modes available:
  - Front axle steering
  - Rear axle steering
  - Diagonal steering (crab steering)
  - Four wheel steering

Brake System
- Dual-circuit hydraulic brake system
- Disc brakes on each wheel
- Safety brake pressure accumulators for emergency braking in case of engine failure.
- Fail-safe emergency and parking brake on rear axle

Driver’s cabin
- Driver’s cabin, 2 seats
- Windshield heated
- Back window heated
- Roof window
- Rear view mirror’s electrical adjustable and heated
- Interphone connection from driver’s cabin to rear of chassis

Controls on Driver’s stand
- Steering wheel (left hand drive)

Dashboard
- Fuel gauge
- Working hour counter
- Tachometer
- Display
- Warning light switch
- Menu bottom display

Switches
- Ignition switch
- Parking/driving light
- Steering column switch
  - Horn
  - Windscreen wiper front
  - Windscreen washer front
  - Indicator
  - Main beam
- Air conditioning system (Option)
- Preselect Steering program
  - Forward axle steering
  - Backward axle steering
  - Diagonal steering
  - Circular steering
- Suspension front axle off
- Suspension front axle lift/lower
- Suspension front axle level
- Window heating front
- Window heating rear
- Windscreen wiper rear
- Windscreen washer rear
- Beacon light
- Working light rear

Switch/Controls on electric switchbox
- Key switch emergency operation on
Tow-bar coupling
  o Single stage coupling front and rear. For 3" drawbar eye. Designed for vehicle max. drawbar pull

Variable ballast system (Optional)
  o Removable ballast weights with forklift pockets

Hydraulic System
  o Variable Axial Piston Pump with pressure flow controller
  o Steering emergency pump driven from the axle.
  o Central located hydraulic control unit
  o All valves with manual emergency hand lever.
  o All fittings and tubes electro-galvanized
  o Manual emergency system with emergency power unit and hand pump for all functions.

Electric System
  o 24 V DC system
  o Two 12 V 150 Ah batteries
  o Voltage transformer 24V / 12V
  o Back-up horn

  Standard lighting
  o Tow headlights
    Park/driving/main light
    Indicator
  o Two backlights
  o Two backlights/indicator
  o Two backlights/brake light
  o Two backlights/reverse light
  o Two working lights rear

Safety Features
  o Steering unit with shock valve
  o Two-circuit brake system with pressure reservoirs for emergency braking
  o Spring-loaded parking brake automatically brakes the vehicle in case of loss of brake pressure
  o Emergency steering in case of engine failure for towing.
  o Steering emergency pump driven from the axle.

Paintwork and Labelling
  o Anti-corrosion primer and acrylic lacquer RAL 9010 / white
  o Joints, corners and hollow spaces are sealed with special filler
  o Hydraulic measure points are labelled in accordance with the hydraulic schema

Rules, Guidelines, Documentation
  o IATA AHM 910 / 913 / 955
  o EG Machines Directive
  o CEN Standards  EN 1915, Part 1, Part 2 / EN 12312-7

One complete set of technical documentation (Hard Copy) will be supplied with each unit in English language, respectively in customer's language along with a CD-ROM
  o Operation manual
  o Emergency manual
  o Transport instructions
  o Maintenance manual
  o Vehicle data sheet with adjustment protocol and brake test protocol
  o Hydraulic and brake schema, hydraulic hoses list
  o Electric diagrams
  o Illustrated parts list
Options

**Variable ballast system**
- Removable ballast weights with forklift pockets
  - 2 t
  - 4 t

**Chassis**
- Multi-stage coupling for bolt diameter 75 mm and 50 mm
- Mirror on front and rear towing coupling
- Mirror on front and rear towing coupling heated
- Central lubrication system

**Driver’s cabin**
- Air conditioning system
- Park heating system

**Back up camera**
- Monitor inside drivers cabin

**Electric**
- Remote control attachable to front or rear of vehicle for function: Drive forward/reverse and brake
- Working light on front and rear towing coupling
- External power socket
- Switchbox interior lighting
- Engine compartment lighting

**Winter kit**
- Heating fuel filter
- Battery recharger
- Engine cooling liquid heating
- Heating hydraulic oil

This technical specification describes the standard execution as well as major options.

Other specific equipment and / or special requirements on request

We reserve the right of technical alternations
All dimensions with tolerance of +/- 3%
AIRCRAFT COMPATIBLY GUIDELINE

ERJ 145 / CRJ 900
ERJ 190 / F 70 / F100
AVRO 100 (BAe 146) / ERJ 190
DC 9 / MD 80
B 717 / A 318 / B 737
A 319 / 320 / 321
B 757 / A 310
A 300-200 / B 767-300
A 300-600 / B 767-300ER
B 767-400 / A 330
B 787 / A 350
IL 76 / DC 10 / IL 96 / MD 11
A 340 / B 777
A 340-600
B 747-400
B 747-8
A 380
AN 224 / 225