# R 70

## Technical Data.

**LPG Forklift Trucks**
**Models R 70-20 T/R 70-25 T/R 70-30 T.**

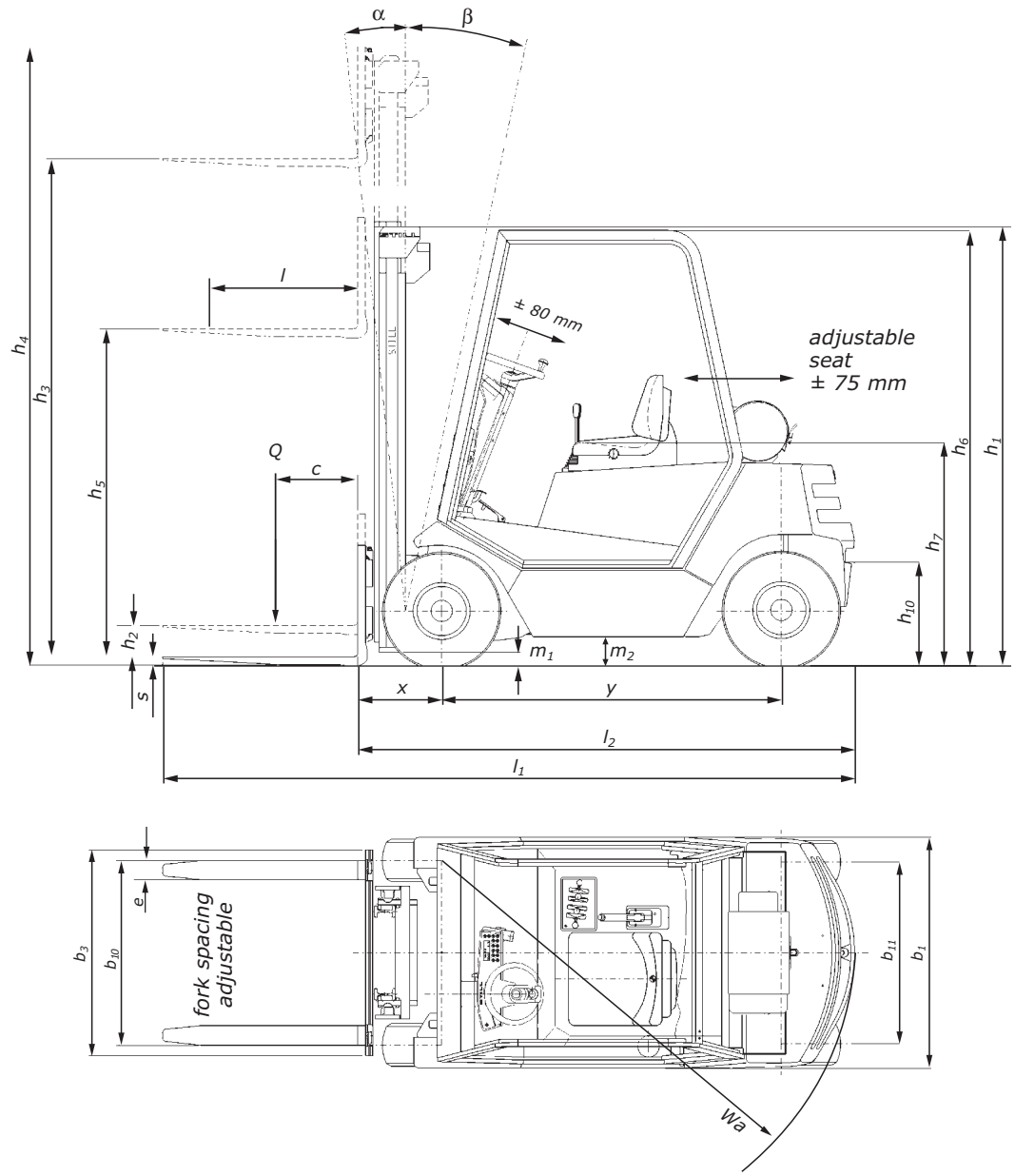

STILL
Making the right moves.

# R 70 LPG Forklift Trucks.

In accordance with VDI guidelines 2198, this specification applies to the standard model only.
Alternative tyres, mast types, ancillary equipment, etc. could result in different values.

| | | | | | | |
|---|---|---|---|---|---|---|
| Characteristics | 1.1 | Manufacturer | | STILL | STILL | STILL |
| | 1.2 | Manufacturer's model designation | | R 70-20T | R 70-25T | R 70-30T |
| | 1.3 | Power supply – electric, diesel, petrol, gas, mains electric | | gas | gas | dgas |
| | 1.4 | Type of control – hand, pedestrian, stand-on, rider seated | | rider seated | rider seated | rider seated |
| | 1.5 | Carrying capacity/load | $Q$ (kg) | 2000 | 2500 | 3000 |
| | 1.6 | Load centre | $c$ (mm) | 500 | 500 | 500 |
| | 1.8 | Load distance | $x$ (mm) | 437 | 437 | 457 |
| | 1.9 | Wheelbase | $y$ (mm) | 1740 | 1740 | 1740 |
| Weight | 2.1 | Weight | kg | 3331 | 3744 | 4261 |
| | 2.2 | Axle loadings laden front | kg | 4805 | 5590 | 6472 |
| | 2.2.1 | Axle loadings laden rear | kg | 526 | 654 | 789 |
| | 2.3 | Axle loadings unladen front | kg | 1724 | 1740 | 1814 |
| | 2.3.1 | Axle loadings unladen rear | kg | 1607 | 2004 | 2447 |
| Wheels, tyres | 3.1 | Tyres - rubber (V), superelastic (SE), pneumatic (L), polyurethane (PE) | | SE/L | SE/L | SE/L |
| | 3.2 | Tyre size – front | | 23 x 9-10/16 PR | 23 x 9-10/16 PR | 23 x 9-10/20 PR |
| | 3.3 | Tyre size – rear | | 23 x 9-10/16 PR | 23 x 9-10/16 PR | 23 x 9-10/16 PR |
| | 3.5 | Wheels – number front (x = drive wheel) | | 2x (4x) | 2x (4x) | 2x (4x) |
| | 3.5.1 | Wheels – number rear (x = drive wheel) | | 2 | 2 | 2 |
| | 3.6 | Track width – front | $b_{10}$ (mm) | 945 (1220) | 945 (1220) | 945 (1220) |
| | 3.7 | Track width – rear | $b_{11}$ (mm) | 932 | 932 | 932 |
| Dimensions | 4.1 | Tilt angle, mast/fork carriage forwards | degrees | 6 | 6 | 6 |
| | 4.1.1 | Tilt angle, mast/fork carriage backwards | degrees | 11 | 11 | 11 |
| | 4.2 | Closed height | $h_1$ (mm) | 2350 | 2350 | 2350 |
| | 4.3 | Free lift | $h_2$ (mm) | 160 | 160 | 160 |
| | 4.4 | Lift height | $h_3$ (mm) | 3320 | 3320 | 3320 |
| | 4.5 | Height, mast raised | $h_4$ (mm) | 3965 | 3965 | 4130 |
| | 4.7 | Height to top of overhead guard (cabin) | $h_6$ (mm) | 2230 | 2230 | 2230 |
| | 4.8 | Seat height | $h_7$ (mm) | 1158 | 1158 | 1158 |
| | 4.12 | Coupling height | $h_{10}$ (mm) | 544 | 544 | 544 |
| | 4.19 | Overall length | $l_1$ (mm) | 3552 | 3552 | 3687 |
| | 4.20 | Length to front face of forks | $l_2$ (mm) | 2552 | 2552 | 2687 |
| | 4.21 | Overall width | $b_1$ (mm) | 1180 (1722) | 1180 (1722) | 1180 (1722) |
| | 4.22 | Fork thickness | $s$ (mm) | 40 | 40 | 50 |
| | 4.22.1 | Fork width | $e$ (mm) | 100 | 100 | 100 |
| | 4.22.2 | Fork length | $l$ (mm) | 1000 | 1000 | 1000 |
| | 4.23 | Fork carriage to DIN 15173 – class / form A or B | | ISO II B | ISO II B | ISO III B |
| | 4.24 | Fork carriage width | $b_3$ (mm) | 1040 | 1040 | 1100 |
| | 4.31 | Ground clearance beneath mast, laden | $m_1$ (mm) | 130 | 130 | 130 |
| | 4.32 | Ground clearance at centre of wheelbase | $m_2$ (mm) | 150 | 150 | 150 |
| | 4.33 | Aisle width for pallets 1000 x 1200 wide | $A_{st}$ (mm) | 3875 | 3875 | 4001 |
| | 4.34 | Aisle width for pallets 800 x 1200 long | $A_{st}$ (mm) | 4075 | 4075 | 4201 |
| | 4.35 | Outer turning radius | $W_a$ (mm) | 2238 | 2238 | 2344 |
| | 4.36 | Inner turning radius | $b_{13}$ (mm) | | | |
| Performance | 5.1 | Speed laden | km/h | 24 | 24 | 24 |
| | 5.1.1 | Speed unladen | km/h | 24 | 24 | 24 |
| | 5.2 | Lift speed laden | m/s | 0.56 | 0.56 | 0.44 |
| | 5.2.1 | Lift speed unladen | m/s | 0.58 | 0.58 | 0.43 |
| | 5.3 | Lowering speed laden | m/s | 0.60 | 0.60 | 0.60 |
| | 5.3.1 | Lowering speed unladen | m/s | 0.54 | 0.54 | 0.45 |
| | 5.5 | Rated drawbar pull laden | N | 16570 | 16570 | 16570 |
| | 5.5.1 | Rated drawbar pull unladen | N | 10820 | 10920 | 11390 |
| | 5.7 | Gradeability laden | % | 30 | 26 | 22 |
| | 5.7.1 | Gradeability unladen | % | 32 | 28 | 26 |
| | 5.9 | Acceleration time laden | s | 5.8 / 5.3 | 6.0 / 5.5 | 6.0 / 5.8 |
| | 5.9.1 | Acceleration time unladen | s | 5.1 / 4.8 | 5.1 / 4.8 | 5.0 / 5.0 |
| | 5.10 | Brakes | | electr./hydr. | electr./hydr. | electr./hydr. |
| Engine | 7.1 | Engine manufacturer | | Volkswagen | Volkswagen | Volkswagen |
| | 7.1.1 | Type | | ADF | ADF | ADF |
| | 7.2 | Engine rated power to ISO 1585 | kW | 34 | 34 | 34 |
| | 7.3 | Rated rpm | 1/min | 2600 | 2600 | 2600 |
| | 7.4 | No. of cylinders | | 4 | 4 | 4 |
| | 7.4.1 | Displacement | $cm^3$ | 1800 | 1800 | 1800 |
| | 7.5 | Fuel consumption | l/h | | | |
| Other | 8.1 | Drive control | | Stilltronic | Stilltronic | Stilltronic |
| | 8.2 | Operating pressure for attachments | bar | 230 | 230 | 230 |
| | 8.3 | Oil flow for attachments | l/min | | | |
| | 8.4 | Average noise peak at operator's ears | dB (A) | 77 | 77 | 77 |
| | 8.5 | Trailer coupling, type/DIN | | pin | pin | pin |

( ) Twin tyres 23 x 9-10/16 PR







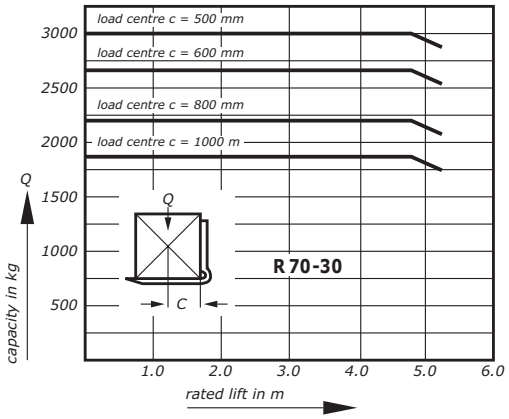
## Mast types in use with pneumatic or superelastic tyres.

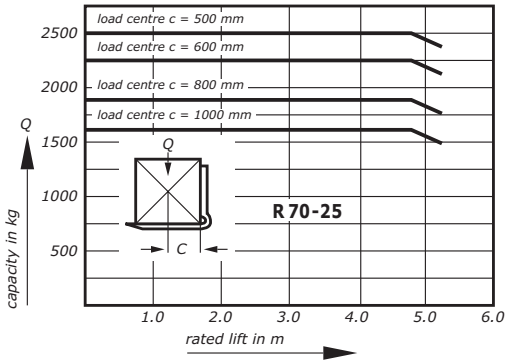
| | Mast | | Telescopic | | | | | | Full free lift (HiLo) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Width B (single front wheel) | $b_1$ mm | 1180 | | | | 1280 | | 1180 | | | | 1280 | |
| | Width (twin front wheels) | $b_1$ mm | 1722 | | | | | | 1722 | | | | | |
| | Tilt angle | $\alpha$ \| $\beta$ | 6 | 9 | 6 | 11 | 6 | 9 | 6 | 9 | 6 | 12 | 6 | 9 |
| R70-20/25 T | | | from | to | from | to | from | to | from | to | from | to | from | to |
| | Rated lift | $h_3$ mm | 2320 – 2820 | | 2920 – 4020 | | 4120 – 5120 | | 2500 – 3000 | | 3100 – 4200 | | 4300 – 5300* | |
| | Height, mast lowered | $h_1$ mm | 1850 – 2100 | | 2150 – 2700 | | 2750 – 3250 | | 1850 – 2100 | | 2150 – 2700 | | 2750 – 3250 | |
| | Height, mast raised | $h_4$ mm | 2965 – 3465 | | 3565 – 4665 | | 4765 – 5765 | | 3160 – 3660 | | 3760 – 4860 | | 4960 – 5960 | |
| | Free lift | $h_2/h_5$ mm | 160 | | | | | | 1220 – 1470 | | 1570 – 2070 | | 2120 – 2620 | |
| | Length | $l_2$ mm | 2552 | | | | | | 2552 | | | | | |
| | Load distance | $x$ mm | 437 | | | | | | 437 | | | | | |
| | Working aisle width Ast<br>Pallet 1000 x 1200 wide \| 800 x 1200 long | mm | 3875 | | | 4075 | | | 3875 | | | 4075 | | |
| R70-30T | Rated lift | $h_3$ mm | 2320 – 2820 | | 2920 – 4020 | | 4120 – 5120 | | 2390 – 2890 | | 2990 – 4090 | | 4190 – 4690 | |
| | Height, mast lowered | $h_1$ mm | 1850 – 2100 | | 2150 – 2700 | | 2750 – 3250 | | 1850 – 2100 | | 2150 – 2700 | | 2750 – 3000 | |
| | Height, mast raised | $h_4$ mm | 3130 – 3630 | | 3730 – 4830 | | 4930 – 5930 | | 3200 – 3700 | | 3800 – 4900 | | 4993 – 5500 | |
| | Free lift | $h_2/h_5$ mm | 160 | | | | | | 1070 – 1320 | | 1370 – 1920 | | 1970 – 2220 | |
| | Length | $l_2$ mm | 2687 | | | | | | 2687 | | | | | |
| | Load distance | $x$ mm | 457 | | | | | | 457 | | | | | |
| | Working aisle width Ast<br>Pallet 1000 x 1200 wide \| 800 x 1200 long | mm | 4001 | | | 4201 | | | 4001 | | | 4201 | | |

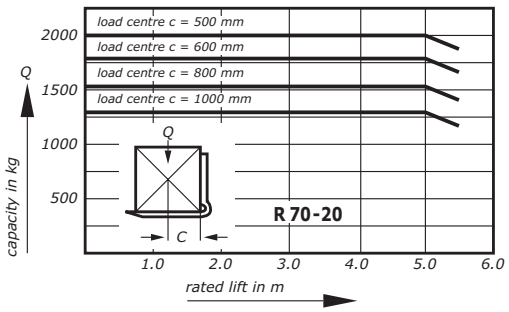
The models depicted in this brochure may contain special parts or attachments which are not supplied as standard.

* R70-25 only up to rated lift of 4800 mm

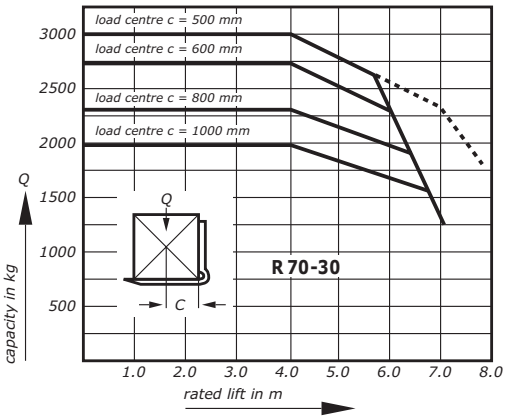
**Capacity Chart**
**Telescopic and HiLo Masts**

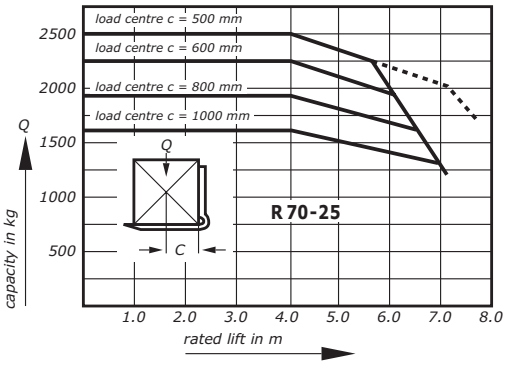


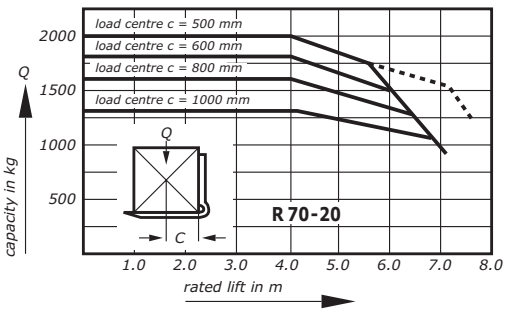




**Capacity Chart**
**Triple full free lift**




------ = twin tyres

| Triple full free lift | | |
|---|---|---|
| 1280 | | |
| 1722 | | |
| 3 | | 8 |
| from | | to |
| 3580 | – | 7780 |
| 1850 | – | 3250 |
| 4255 | – | 8455 |
| 1220 | – | 2620 |
| 2577 | | |
| 462 | | |
| 3900 | | 4100 |
| 3430 | – | 7630 |
| 1850 | – | 3250 |
| 4255 | – | 8455 |
| 1070 | – | 2470 |
| 2712 | | |
| 482 | | |
| 4026 | | 4226 |

# Technical Data
# LPG Forklift Trucks
# Models R 70-20 T/R 70-25 T/R 70-30 T.

## Drive.

The generator coupled to the engine generates current and feeds the drive motor through an electronic speed and power regulator.

The drive has the following advantages:

- The truck constantly holds the speed set by the foot pedal regardless of gradient. This makes for safe driving and simplifies operation.
- The travel speed is controlled independently of the lift speed. Therefore fast hoisting and slow driving (inching) can take place at the same time without special equipment. This is completely free of wear, saves on operating costs and simplifies operation.
- Wear free braking is achieved through the drive system: both to a standstill and then holding the truck in position. Even on a gradient, the R 70 will remain stationary until the drive pedal is depressed – holding it with the brake pedal is not necessary. This simplified operation takes the pressure off the driver when positioning the forks or the load.
- The driver can electronically adjust the performance characteristics at any time to suit the job in hand. Thus, he can adapt his truck to all working conditions and thereby achieve maximum productivity.
- Resilient engine mounts prevent vibrations being transmitted through the truck to the driver.
- The R 70 enjoys the high reliability, long life and low maintenance costs of an electric drive.

## Service brake.

- The service brake is a maintenance-free multi-disc brake which runs in an oil bath and is both wear free and silent in operation. New brake linings will never be needed. Half of the discs move with the wheel hub, the other half with the drive axle. Braking is achieved by pressing the discs together, with the heat generated being taken up by the oil. This means perfect braking whatever the weather conditions.
- The multi-disc brake is encapsulated to protect it from dirt and water.
- Readjustments are a thing of the past.
- The maintenance-free, silent multi-disc brake does away with the servicing costs common to other brakes, which constitute up to 30 % of the overall maintenance costs.

## Electrics.

The digital electrical system allows simple adaptation to altered operating conditions. The exchange of information between electrical assemblies, e.g. between the drive controller and the cockpit, is achieved using the CAN bus system (Controller Area Network) already used successfully in other types of vehicle. The number of cables and plug connectors is reduced in comparison to the previous system and thus reliability is increased. In addition, it is easy to implement variants to the electrical equipment.

## Driver's compartment.

Constant research and development have decisively improved the driver's compartment in the R 70:

- Low step for convenient entry and exit.
- The cockpit has an LCD display and a facility for the driver to select from a range of pre-set drive performance levels. He can select the most suitable acceleration or braking and travel speeds from 5 pre-set options. Further adjustments of the drive parameters to suit the application conditions can be made by simply altering the software.
- Automotive style pedal arrangement*, no driver learning curve.
- The up-to-date driving characteristics of the R 70 allow the truck to be held on a gradient or on uneven roadways without the use of hand or foot brakes.
- Roomy footwell with inclined floor plate and non-slip rubber matting.
- Automotive style hand brake to the right of the driver's seat.
- Drive and braking regulated by the drive pedal position make it simple and easy for the driver.
- Adjustable steering column plus reach and rake adjustment for the seat provide an extremely comfortable working position for any physique.
- The driver is protected from vibrations which could damage his health by the
  - resiliently mounted drive unit
  - rubber mounting for driver's compartment
  - hydraulically damped seat, adjustable to the driver's weight.

## Mast.

STILL clear view masts in telescopic, HiLo and triplex designs for every application:

- Telescopic:
  the mast suitable for most applications. Economical mast design. The hoist chains are run in protective guide rails. This prevents noise and increases chain life.
- HiLo:
  for high stacking under low ceilings. Utilises the space right up to the roof.
- Triplex:
  for applications with low doorways and greater stacking heights. Utilises the space right up to the roof.
- Fork carriage:
  The fork carriage, completely redesigned for this truck, gives a clear view onto the load being picked up, thanks to its optimised profiles. The hydraulic hoses for attachments are run in the dead visibility area of the mast sections – with no hose reels – for wear-free operation.

## Steering.

Light, fully hydraulic power steering provides great manoeuvrability and thus a high throughput of goods. A single hydraulic pump supplies the hoist and steering systems. Hydraulic oil for the steering is diverted from the general hydraulic circuit by a priority valve.

## Overhead guard.

The overhead guard is available in different designs so that the R 70 can be adapted to a wide range of applications and driver requirements.

When the roof-cover version overhead guard is specified, a cab can be fitted with ease.

## Safety.

The STILL clear view mast and good all round visibility ensure the highest possible safety levels.

The new R 70 complies with all applicable EC safety requirements and regulations. It thus carries the "CE" symbol.

## Quality.

All forklift trucks from STILL comply with the ISO 9001 quality standard. They are carefully constructed and manufactured. The materials used are checked to stringent standards.

* available with twin pedal control if required

R 70-20/30T – e 1.5 3/04 td Subject to technical modifications.

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