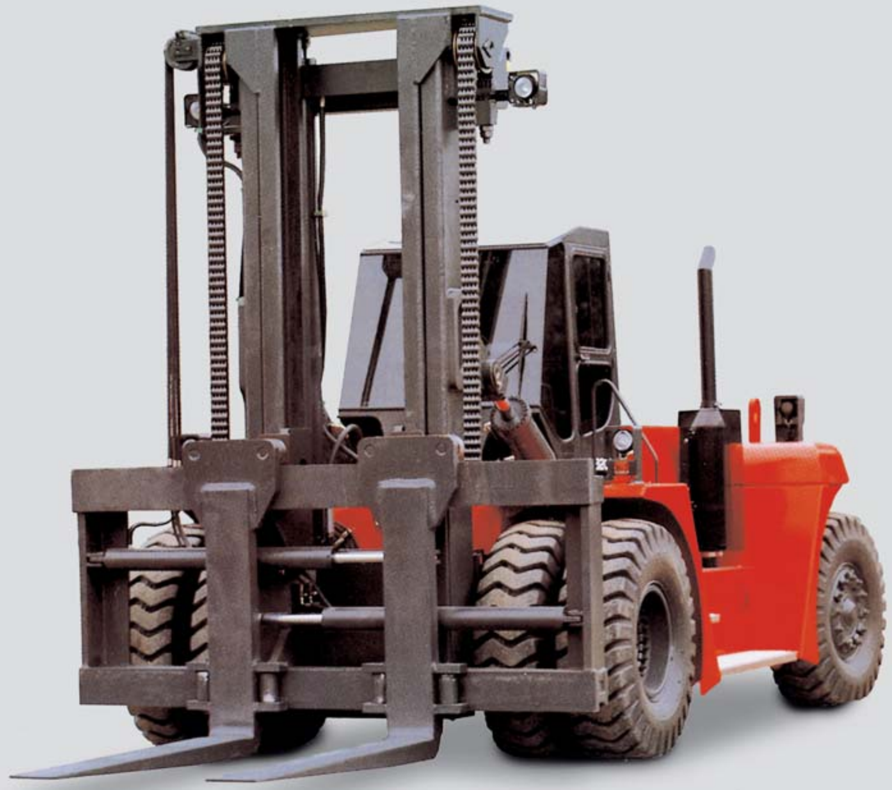
Engine-powered counterbalanced truck 18 000 kg to 52 000 kg



022/023

H 180
H 200
H 220
H 236
H 250
H 280
H 320
H 370
H 520

Introduction
The Linde range of forklift trucks H 180, H 200, H 236, H 250, H 280, H 320, H 370 and H 520 has been developed to suit a wide range of different applications and incorporates the latest technology in meeting the rigorous existing and anticipated environmental standards. The main design features result from a thorough analysis of materials handling and operating requirements to ensure maximum productivity.

Features
- Ergonomically designed operator's compartment
- Powerful modern diesel engine giving high performance combined with low fuel consumption and exhaust emissions
- Exceptional low speed torque providing responsive handling at low-speed
- Load-sensing hydraulic system with two variable piston-type pumps providing delivery-on-demand hydraulic services
- Heavy-duty industrial powershift transmission for smooth acceleration and deceleration

Operator's compartment
Steps on either side of the vehicle provide access to the centralised driver's compartment. A comfortable suspension-type driver's seat is standard with full adjustment for weight and size of the operator. Operator controls satisfy the ergonomic standards defined by ISO 6682 and have all been further optimised for easy, effortless operation. Individual hydraulic control levers provide all load control movements, facilitating smooth, easy load handling. Control and supervision instruments installed in centralised console to the front left of the driver's position. Steering fully adjustable to the operator's preferred driving position.

Chassis
A modern fabricated chassis of dual longitudinal box sections with lateral stress bracing is provided to give high strength to weight ratio and full protection to components.

High-tech diesel engines
These modern propulsion units are notable for particularly smooth running with low noise emissions and outstandingly clean exhaust.

Engine H 180 to H 280
Scania 9.0 litre (6-cylinder) turbocharged diesel engine. Rated output 165 kW at 2200 rpm.

Engine H 320, H 370 and H 520
Scania 12.0 litre (6-cylinder) turbocharged diesel engine. Rated output 222 kW at 2100 rpm (243 kW, H 370 and H 520).

Transmission and drive axle
Torque converter-coupled powershift transmission. Three-speed (H 180 to H 280). Four-speed (H 320, H 370 and H 520). Electrically operated gear selector. Optional forward/reverse inhibitor. Drive disengagement is actuated by a switch located in the brake pedal. Heavy-duty wide-track double reduction type drive axle.

Steering
Hydrostatic power steering allows full steering lock to be attained even at standstill. Accurate manoeuvrability with minimum effort. Heavy-duty fabricated steer axle. Mounted to the chassis via spherelastic bushes allowing axle articulation on uneven ground. Through-rod double-acting cylinder mounted direct to the steer axle, with fixed length track links and sealed spherical bearings connected to the stub axles. Factory-set steering geometry, requires no adjustment.

Hydraulic system
Load-sensing hydraulic system. Two (three for H 320, H 370, H 520) highly efficient variable piston-type pumps, controlled by load sensing valves, provide metered quantities of hydraulic oil to all services on demand. Only the precise amount of oil required by the services selected is delivered, the result of this is to reduce sustained load on the engine, thereby saving fuel, and reduce wear on hydraulic parts by limiting unnecessary oil flow, which results in an extended oil life.

Brakes
Oil-actuated, hub-mounted wet disc brake units. Fail-safe oil-actuated brake system. Input shaft, disc mounted hand brake unit. Foot brake application by applied pressure to the centralised brake plate. Parking brake application by electric switch situated on the operator's console.

LINDE	**Forklift Truck** Designation to VDI 3586	**Data sheet for materia**
January 2004		

Characteristics	1.1	Manufacturer		Linde	Linde	Linde
	1.2	Model designation		**H 180**	**H 200**	**H 220**
	1.3	Power unit: battery, diesel, petrol, LP gas, mains power		Diesel	Diesel	Diesel
	1.4	Operation: Manual, stand-on, seated		Rider, seated	Rider, seated	Rider, seated
	1.5	Load capacity	Q (kg)	18000	20000	22000
	1.6	Load centre	c (mm)	1200	1200	1200
	1.8	Axle centre to fork face	x (mm)	1090	1090	1090
	1.9	Wheelbase	y (mm)	4000	4000	4250
Weights	2.1	Service weight	kg	30000	31500	32000
	2.2	Axle load with load, front/rear	kg	45000/3000	48100/3400	50500/3500
	2.3	Axle load without load, front/rear	kg	16700/13300	16700/14800	16700/15300
Wheels and tyres	3.1	Tyres: solid rubber (R), superelastic (SE), pneumatic (P)		P/P	P/P	P/P
	3.2	Tyre size, front		14.00 x 24/24 pr	14.00 x 24/24 pr	14.00 x 24/24 pr
	3.3	Tyre size, rear		14.00 x 24/24 pr	14.00 x 24/24 pr	14.00 x 24/24 pr
	3.5	Wheels, number front/rear (x=driven)		4x / 2	4x / 2	4x / 2
	3.6	Track width, front	b_{10} (mm)	2186	2186	2186
	3.7	Track width, rear	b_{11} (mm)	2199	2199	2199
Dimensions	4.1	Mast lift, forward/backward	α/β (Grad)	5 / 10	5 / 10	5 / 10
	4.2	Height of mast, lowered	h_1 (mm)	3810	3810	3810
	4.3	Free lift	h_2 (mm)	150	150	150
	4.4	Lift	h_3 (mm)	4000	4000	4000
	4.5	Height of mast, extended	h_4 (mm)	5755	5755	5755
	4.7	Height of overhead guard	h_6 (mm)	3280	3280	3280
	4.8	Height of seat	h_7 (mm)	2180	2180	2180
	4.12	Towing coupling height	h_{10} (mm)	642	642	642
	4.19	Overall length	l_1 (mm)	8395	8395	8645
	4.20	Length of fork face	l_2 (mm)	5995	5995	6245
	4.21	Overall width	b_1/b_2 (mm)	3020	3020	3020
	4.22	Fork dimensions	s/e/l (mm)	110 / 200 / 2400	110 / 200 / 2400	110/ 250 / 2400
	4.24	Width of fork carriage	b_3 (mm)	3000	3000	3000
	4.25	Fork spread minimum/maximum	b_5 (mm)	950/2550	950/2550	1000/2600
	4.31	Ground clearance, mast	m_1 (mm)	300	300	300
	4.32	Ground clearance, centre of wheelbase	m_2 (mm)	390	390	390
	4.33	Aisle width with pallet 1000 x 1200 across forks	Ast (mm)	8970	8970	9240
	4.35	Turning radius	Wa (mm)	5280	5280	5550
	4.36	Minimum pivoting point distance	b_{13} (mm)	1845	1845	1845
Performance	5.1	Travel speed, with/without load	km/h	26 / 27.5	26 / 27.5	25.5 / 27.5
	5.2	Lifting speed, with/without load	m/s	0.25 / 0.30	0.25 / 0.30	0.25 / 0.30
	5.3	Lowering speed, with/without load	m/s	0.40 / 0.40	0.40 / 0.40	0.40 / 0.40
	5.5	Tractive force, with/without load (2 km/h)	kN	147.4 / –	147.4 / –	147.4 / –
	5.7	Climbing ability, with/without load (2 km/h)	%	31.1 / –	28.7 / –	27.1 / –
	5.9	Acceleration time, with/without load	s	–	–	–
	5.10	Service brake		Wet disc	Wet disc	Wet disc
	6.4	Battery voltage/rated capacity	V/Ah	2 x 12 / 140	2 x 12 / 140	2 x 12 / 140
Drive	7.1	Engine manufacturer/type	EU STEP II	Scania DI 956 A 1)	Scania DI 956 A 1)	Scania DI 956 A 1)
	7.2	Engine output to ISO 1585	kW	165	165	165
	7.3	Rated speed	min^{-1}	2200	2200	2200
	7.4	Number of cylinders/displacement	cm^3	6 / 9000	6 / 9000	6 / 9000
	7.5	Fuel consumption to VDI cycle	l/h	12	12	12
Other	8.1	Type of drive control		Torque converter 3 / 3	Torque converter 3 / 3	Torque converter 3 / 3
	8.2	Working pressure for attachments	bar	190	200	215
	8.3	Oil flow for attachments	l/min	–	–	–
	8.4	Noise level at operator's ear	dB(A)	74	74	74
	8.5	Towing coupling, design/type, DIN		–	–	–

1) Optional DI 952A = 165 kW/2200 EU STEP I
2) Optional DI 948A = 222 kW/2100 EU STEP I
3) Optional DI 948A = 243 kW/2100 EU STEP I
4) Optional DI 1240A = 243 kW/2100 EU STEP I

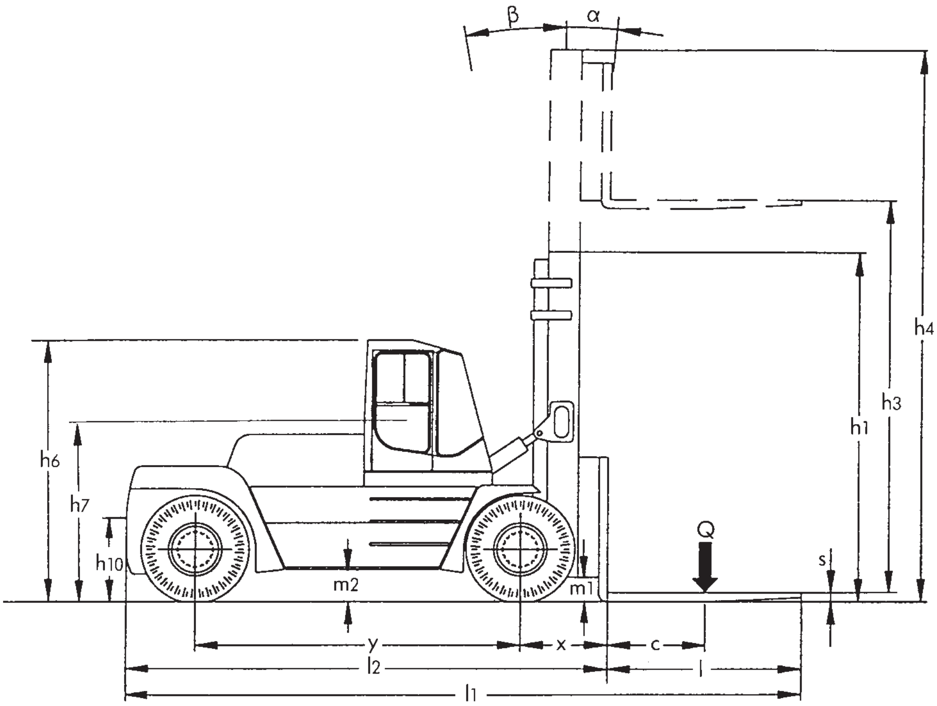
al handling equipment

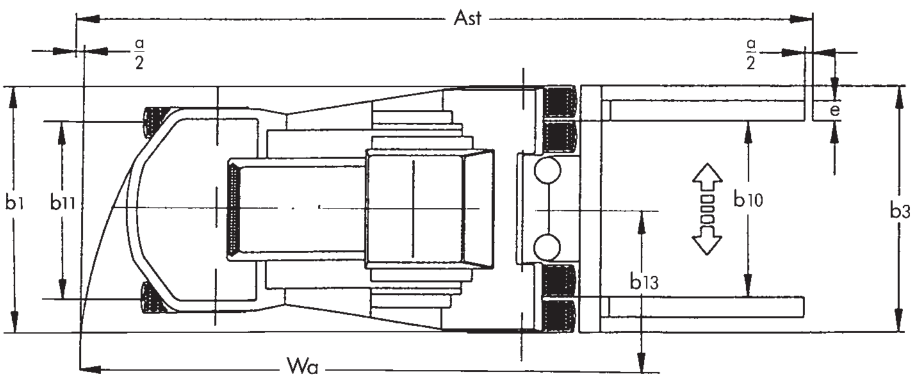
DFG

Registration note

VDI 2198

Linde	Linde	Linde	Linde	Linde	Linde
H 236	**H 250**	**H 280**	**H 320**	**H 370**	**H 520**
Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Rider, seated	Rider, seated	Rider, seated	Rider, seated	Rider, seated	Rider, seated
23600	25000	28000	32000	37000	52000
1200	1200	1200	1200	1200	1200
1090	1090	1195	1195	1240	1340
4250	4250	4500	4750	5000	6000
33200	34100	39600	41300	48600	56400
53000/3800	55100/4000	63100/4500	68600/4700	80100/5500	102000/6400
16700/16500	16700/17400	20300/19300	20500/20800	24700/23900	28800/27600
P/P	P/P	P/P	P/P	P/P	P/P
14.00 x 24/24 pr	14.00 x 24/24 pr	16.00 x 25/28 pr	16.00 x 25/28 pr	18.00 x 25/36 pr	18.00 x 25/40 pr
14.00 x 24/24 pr	14.00 x 24/24 pr	16.00 x 25/28 pr	16.00 x 25/28 pr	18.00 x 25/36 pr	18.00 x 25/40pr
4x / 2	4x / 2	4x / 2	4x / 2	4x / 2	4x / 2
2186	2186	2440	2440	3030	3030
2199	2199	2656	2656	2612	2612
5 / 10	5 / 10	5 / 10	5 / 10	5/10	5/10
3810	3810	4010	4010	4625	5050
150	150	150	150	150	150
4000	4000	4000	4000	4000	4000
5755	5755	5955	5955	6485	6975
3280	3280	3375	3375	3645	3645
2180	2180	2275	2275	2545	2545
642	642	676	676	747	790
8645	8645	9135	9385	9680	10780
6245	6245	6735	6985	7280	8380
3020	3020	3410	3410	4160	4160
110 / 250 / 2400	110 / 250 / 2400	110 / 300 / 2400	110 / 300 / 2400	135 / 300 / 2400	150 / 300 / 4160
3000	3000	3400	3400	3400	3400
1000/2600	1000/2600	1550/2750	1550/2750	1950/2750	1950/2750
300	300	300	300	300	300
390	390	395	395	480	480
9240	9240	10045	10325	10655	11885
5550	5550	6250	6530	6815	7945
1845	1845	2480	2570	2640	3235
25/27	25/27	22.5/24.5	21.6/22.4	23.5/25	22.3/24
0.25/0.30	0.25/0.30	0.27/0.32	0.27/0.32	0.21/0.26	0.16/0.21
0.40/0.40	0.40/0.40	0.40/0.40	0.40/0.40	0.40/0.40	0.40/0.40
147.4/–	147.4/–	156.2/–	225.9/–	222.4/–	264.2/–
25.6/–	24.5/–	22.7/–	31.9/–	25.6/–	25.1/–
–	–	–	–	–	–
Wet disc	Wet disc	Wet disc	Wet disc	Wet disc	Wet disc
2 x 12 / 140	2 x 12 / 140	2 x 12 / 140	2 x 12 / 140	2 x 12 / 140	2 x 12 / 140
Scania DI 956 A 1)	Scania DI 956 A 1)	Scania DI 956 A 1)	Scania DI 1252 A 2)	Scania DI 1252 A 3)	Scania DI 1252 A 4)
165	165	165	222	243	243
2200	2200	2200	2100	2200	2100
6/9000	6/9000	6/9000	6/11700	6/11700	6/11700
12	12	12	15.3	15.3	19.5
Torque converter 3/3	Torque converter 3/3	Torque converter 3/3	Torque converter 4/4	Torque converter 4/4	Torque converter 4/4
220	235	205	225	200	190
–	–	–	–	–	–
74	74	74	74	74	74
–	–	–	–	–	–

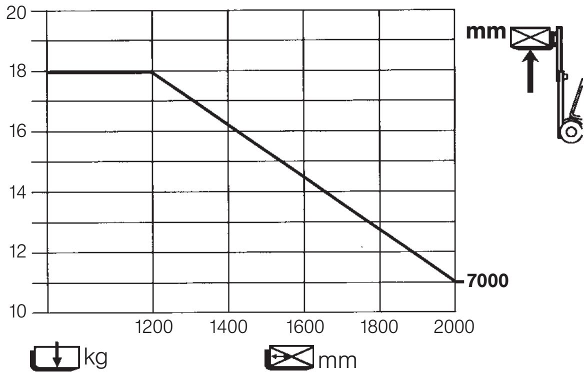




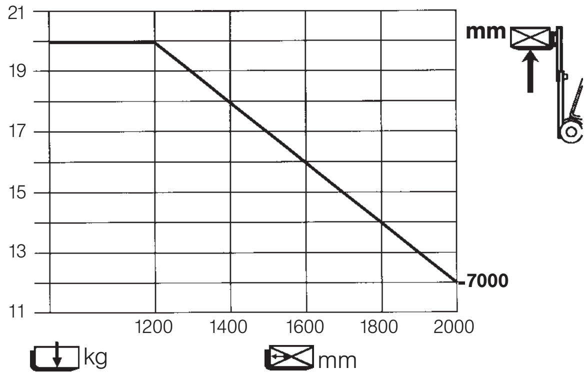
H 180, H 200, H 220, H 236 and H 250								
h_3	Lift	3890	4890	5890	6890	7890	8890	9890
h_3+s	Lift height	4000	5000	6000	7000	8000	9000	10000
h_2	Normal free lift	150	150	150	150	–	–	–
h_1	Closed height*	3885	4385	4885	5385	5885	6385	7885
h_4	Extended height	5755	6755	7755	8755	9755	10755	11755
	Special free lift (Duplex)	2000	2500	3000	3500	4000	4500	5000
H 280 and H 320								
h_3	Lift	3890	4890	5890	6890	7890	8890	–
h_3+s	Lift height	4000	5000	6000	7000	8000	9000	–
h_2	Normal free lift	150	150	150	150	150	150	–
h_1	Closed height*	4085	4585	5085	5585	6085	6585	–
h_4	Extended height	5955	6955	7955	8955	9955	10955	–
	Special free lift (Duplex)	2000	2500	3000	3500	4000	4500	–
H 370								
h_3	Lift	3865	4865	5865	6865	7865	8865	9865
h_3+s	Lift height	4000	5000	6000	7000	8000	9000	10000
h_2	Normal free lift	150	150	150	150	150	150	150
h_1	Closed height*	4625	5125	5625	6125	6625	7125	7625
h_4	Extended height	6485	7485	8485	9485	10485	11485	12485
	Special free lift (Duplex)	2000	2500	3000	3500	4000	4500	5000
H 520								
h_3	Lift	3850	4850	5850	6850	7850	8850	9850
h_3+s	Lift height	4000	5000	6000	7000	8000	9000	10000
h_2	Normal free lift	150	150	150	150	150	150	150
h_1	Closed height*	5125	5625	6125	6625	7125	7625	8125
h_4	Extended height	6975	7975	8975	9975	10975	11975	12975
	Special free lift (Duplex)	2000	2500	3000	3500	4000	4500	5000

*) with 150 mm free lift

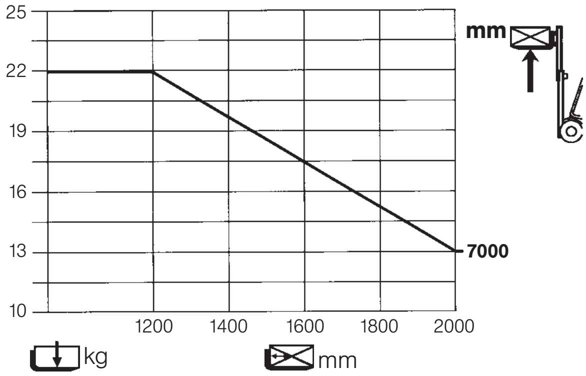
H 180



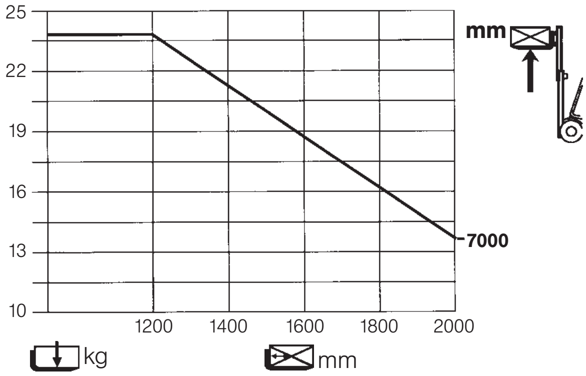
H 200



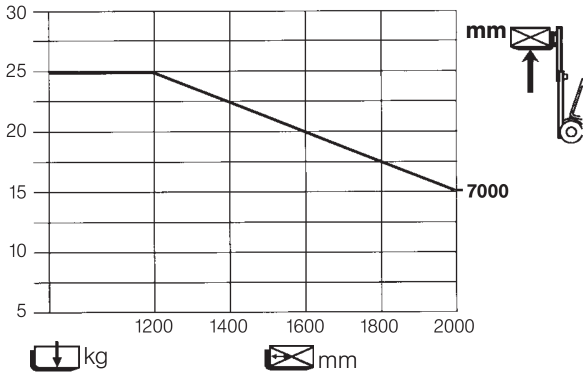
H 220



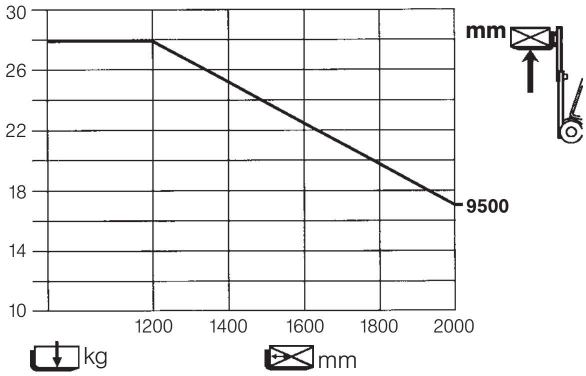
H 236



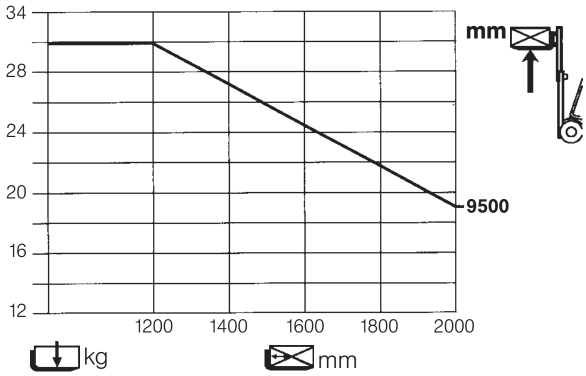
H 250



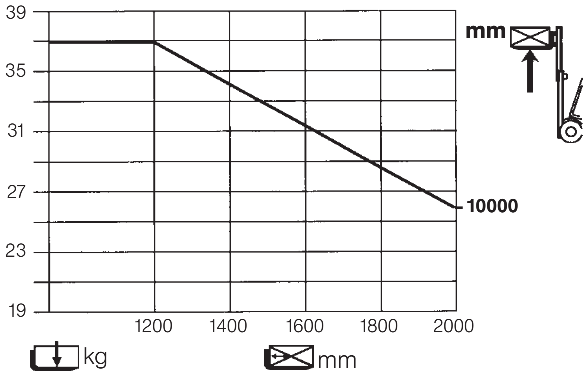
H 280



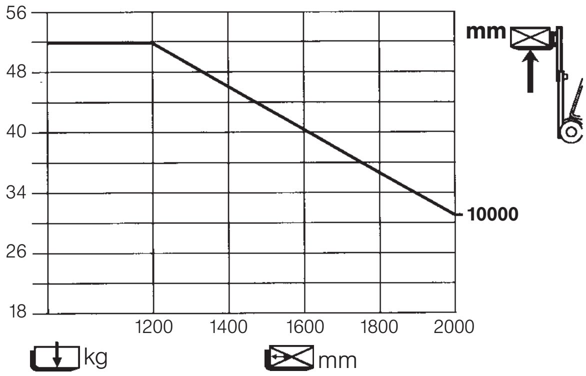
H 320



H 370



H 520



Equipment

Mast
Robust clearview fabricated mast of all-roller construction affording great strength, maximum load stability and mast rigidity to full lift height. Full-width load rollers and side thrust rollers between inner and outer mast ensure complete alignment. Sideshift and fork positioner are fitted as standard.

Safety
- Neutral starting device
- Fail-safe hydraulic braking system
- Emergency warning light
- Audible warning (horn)
- Audible warning (reverse gear)
- Good all-round visibility
- Load lowering valve
- Low noise levels

Standard equipment
- Fully equipped mid-mounted cab with hinged doors, front, top and rear screen wipers and washers, heaters and demisters
- Full-suspension seat
- Comprehensive instrumentation
- Scania turbocharged diesel engine
- Clark powershift transmission
- Heavy-duty wide-track double reduction drive axle
- Wet disc brake system
- Brake system accumulator
- Load-sensing hydraulic system with piston-type pumps
- Servo-assisted hydraulic controls
- Hydrostatic power steering
- High lift and lowering speed
- Sideshift / fork positioner
- Adjustable steering wheel: Forward / reverse, up and down 80 mm
- Full road lighting
- Horn
- Internal rear view mirror

Optional equipment
- Safety control system:
  – Overload protection
  – Maximum travel speed inhibitor
- Extra heating
- Air conditioning
- Radio-cassette player
- Fire extinguisher, powder 3 kg
- Hydraulic oil pre-heater
- Engine oil pre-heater
- Control system – oil levels and pressure in engine / transmission
- Central lubrication system
- Forward / reverse inhibitor
- Automatic gear shifting
- Front and rear mirrors
- Wide range of hydraulic specialist attachments
- Coil boom
- Crane jib
- Container handling spreaders, fixed, side and telescopic
- Toplift hydraulic stops – 30' and 35'
- Working lights on spreader
- Reverse warning
- Quick-change forks / attachments
- Two external rearview mirrors

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