



Forklift **Technologies**

HEAVY DUTY FORKLIFT TRUCKS





With lifting capacities ranging from 3 up to 32 tonnes, IPO Lifts heavy duty forklift trucks are suitable for any heavy duty application with a variety of options.

A wide range of capacities, engine power-outputs, wheelbases, masts, attachments and optional features is on offer, enabling customers to select the optimum solution for an extensive range of industrial application requirements. These industrial forklifts can be tailor made to the needs of any demanding and intensive operating environment.

Reliable proven components, low cost of ownership, fuel efficiency and outstanding driver comfort which deliver an excellent return on investment.



MANUFACTURER AND SUPPLIER OF PREMIUM QUALITY HEAVY DUTY FORKLIFT TRUCKS.



Found in 1990, IPO Ltd. operates in three business domains – manufacturing, consulting and distribution. The company is dedicated to delivering premium quality technology solutions for the machine building, mining, construction, agricultural and transport industries.

In the beginning of 2011 IPO Ltd. expanded its manufacturing portfolio with the design and production of own brand patented forklift trucks. They are distinguished with premium quality, innovative design and reliability, achieved by installation of high quality components - Perkins, Cummins, Yanmar, Dana, Graziano, Hella, Walvoil, etc.

The manufacturing business unit of forklift trucks in IPO Lifts emerges as a result of the company's long standing experience in the machine-building sector combined with an opportunity in the market for highly customized heavy duty loading equipment.

The 20+ years of experience in the design, production, repair and maintenance of equipment and spare parts for the mining, agriculture and road construction industries provides our manufacturing team with the vital know-how and expertise in the forklift concept development, design and building process.

Furthermore IPO Ltd. is an official dealer of leading manufacturers of diesel engines (Cummins and Yanmar), transmissions (Allison) and filtration systems (Fleetguard) for the local market. Having the access to premium quality components for the production of the forklifts provides an unparalleled advantage in achieving high levels of efficiency in the components selection and uncompromised performance achieved by the manufactured machines.



HIGH PERFORMANCE AND RELIABILITY



IPO Lifts are developed to meet the high demands for performance and reliability set by the market. The wide portfolio range of 3 to 32 tonnes load capacity of the machines means enabling customers to select the optimum solution for an extensive range of industrial application requirements. These industrial forklifts can be tailor made to the needs of any demanding and intensive operating environment. From the precision of a hydrostatic drive and reliable gearbox of the light forklifts to the robust design, specifically made for the most demanding applications - steel, metal, concrete, stone blocks, industrial sites, ports – IPO Lifts ensure excellent performance and productivity at optimum cost.

What sets our forklifts apart?

- Wide production range – forklifts with lifting capacity from 3 to 32 tons
- Heavy duty off-road forklifts and front loaders
- Manufacturing of tailor-made forklifts in accordance with customer requirements
- High-quality machines with 12 month guarantee
- High spare parts availability at stock
- Warranty and aftermarket service
- Great variety of attachments and options
- Short lead time

Premium Quality Components

- The careful selection of premium quality components built in the forklifts ensures excellent performance, reliability and long exploitation life of the machines.
- Engines – standard and specially built for their application in forklifts, delivering uncompromised reliability in performance, low consumption of fuel, long exploitation period and low noise levels and emissions, in full conformity with all EU directives.
- Premium quality driving axels, transmissions and hydraulic systems, ensuring easy and comfortable operation.
- Highly wear resistant tires with a long life expectancy, with excellent application in rough terrain operation conditions.

INNOVATIVE DESIGN IN VARIETY OF APPLICATIONS



Heavy duty forklifts with load capacity of 3 to 32 ton

IPO Lifts are distinguished with their wide variation in loading capacity and their innovative design, fully developed by our specialized engineering unit. Key focus of the product development team is the optimal fit of the produced forklifts for the particular loading and off-loading needs of our clients. Therefore, main priority in the production process is the development of machines, built according to the clients' specific requirements. This means that each manufactured forklift could be accustomed to a wide variety of parameters – off-road operation capability, lifting capacity, lifting height, etc.

Rough Terrain Forklifts – 4x4x4

IPO Lifts rough terrain forklifts are a reliable and versatile solution. They are distinguished by their productivity and security for all types of cargo handling on difficult and irregular terrain. Offering a wide range of off-road and semi-industrial models in the market, IPO Lifts 4x4 are perfect for virtually any rehandling environment from docks to yards, special events, timber forestry, construction sites and builders' merchants.

The machines have a greater turning radius and are supplied with both front and back driving axels – 4x4x4. The special features ensure they are designed for high mobility and superb productivity in rough terrain area.

Excellent performance in a variety of problematic conditions:

- Open mines
- Military
- Agriculture
- Woodwork enterprises
- Deserts and sand regions
- Underdeveloped road conditions

CORE TECHNOLOGIES AND COMPONENTS

STRENGTH AND DURABILITY

CHASSIS

- Chassis is manufactured from special metal plates, providing high strength and reliability of the structure.
- Regular load distribution over the entire structure.



MAST

- Robust mast and its bearing structure are providing high strength, maximum stability and hardness along the whole loading length.
- Perfect visibility.
- Big width of driving and secondary spools between mobile and fixed mast ensure even load distribution..



AXLE

- Mounted on the chassis by cardan shaft.
- Double acting cylinder is entirely protected from mechanical interventions.
- Hydraulic valves protecting double acting cylinder from overloading.
- Complete hydrostatic servo control provides excellent maneuverability without any drivers difficulties or fatigue



POWER AND PERFORMANCE

DRIVING AXLE

- IPO Lifts are with double reduced driving heavy duty axle with main shifting initially and planetary wheel reducers secondary.
- Semi-shafts are mobile and are operating in bearings, set in oil, which are with autonomous independent cooling.
- Axle drive equipped with wet disc brakes performing in oil with service required.



ENGINE

- Modern turbocharged engines are used in order to cover latest emission and noise level regulations.
- High output, extended service intervals, low fuel consumption.

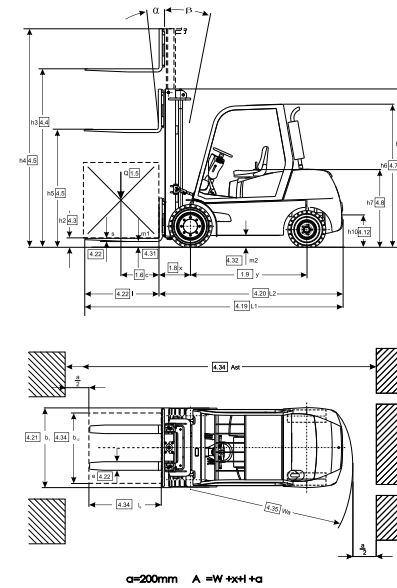


TRANSMISSION

- Heavy duty high performance industrial transmissions (directly mounted to the engine) are installed.
- Hydrodynamic transmissions are with 2 (3) forward shifts and 2 (3) rear shifts with electrical selection.



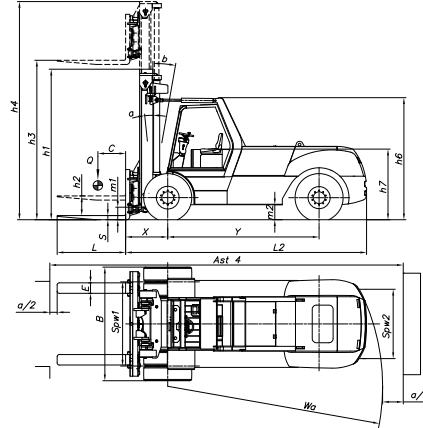
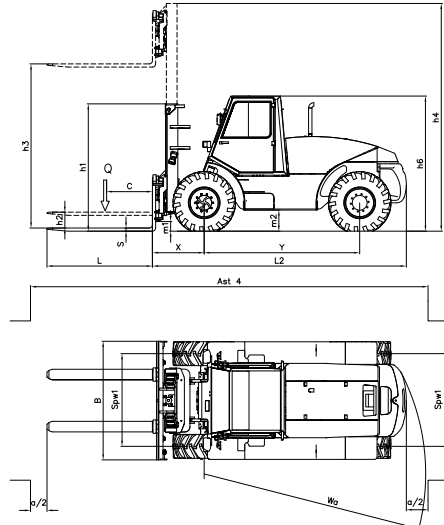
TECHNICAL SPECIFICATIONS AND PARAMETERS



Identification	1.1	Manufacturer	IPO-Lifts Ltd		IPO-Lifts Ltd		IPO-Lifts Ltd		IPO-Lifts Ltd	
	1.2	Type	IPO 30		IPO 40		IPO 40		IPO 50	
	1.3	Drive:elec, diesel, gasoline, LPG	Diesel		Diesel		Diesel		Diesel	
	1.4	Driver position: Seated	Seated		Seated		Seated		Seated	
	1.5	Load capacitywww	Q t		3,00		4,00		4,00	
	1.6	Load center	c mm		500		500		600	
	1.7	Distance from CL of front axle to fork face	x mm		450		500		500	
	1.8	Wheel base	y mm		1800		1800		1800	
Weights	2.1	Weight - unladen	kg		4520		5283		5673	
	2.2	Axle weight laden, front / rear	kg		6780/900		8394/889		8558/1115	
	2.3	Axle weight unladen, front / rear	kg		1920/2550		2171/3112		2113/3560	
Wheels, Chasis	3.1	Tyre type: SE=Superelastic, L=Pneumatic	L/L		SR		L/L		L/L	
	3.2	Tyre size, front	8,15-15 PR 14		8,15-15		8,15-15 PR 14		250-15 PR 14	
	3.2	Tyre size, rear	6,5-10 PR 14		6,5-10		6,5-10 PR 14		23x9-10 PR 14	
	3.3	Wheels, front / rear (x=drive)	2X/2		2X/2		4X/2		2X/2	
	3.5	Track, Spw1 / Spw2 front / rear	997/975		997/975		1255/974		1270/994	
Basic Dimensions	4.1	Mast tilt angles, forward (a) / backward (b)	Grad		5/11		6/11		5/10	
	4.2	Mast height - closed	h1 mm		2240		2240		2240	
	4.3	Free lift	h2 mm		130		130		130	
	4.4	Lift	h3 mm		3300		3300		3300	
	4.5	Mast height - extended	h4 mm		3825		3855		3855	
	4.6	Full free lift, duplex / triplex	h5 mm		-		-		-	
	4.7	Heigh of overhead guard	h6 mm		2210		2210		2210	
	4.8	Seat height	h7 mm		1170		1170		1180	
	4.9	Length to fork face	L2 mm		4060		4008		4068	
	4.10	Overall width	B mm		2910		2858		2918	
	4.11	Fork dimension (thickness / wight / length)	s/e/l mm		40x125x1150		45x125x1150		50x140x1150	
	4.12	Fork carriage to ISO 2328, Class A, B			3A		3A		3A	
Performance data	5.1	Travel speed, laden / unladen	km / h		19/20		18/19		18/19	
	5.1	Lifting speed, laden / unladen	m/s		0.36/0.5		0.34/0.5		0.34/0.5	
	5.2	Lowering speed, laden / unladen	m/s		0.45 max/0.45 min		0.45 max/0.45 min		0.45 max/0.45 min	
	5.2	Drawbar, pull, laden / unladen	kN		17/17		25/25		37/37	
	5.3	Gradeability laden / unladen	%		22/22		26/22		26/22	
	5.3	Service brake, type			Hydraulic		Hydraulic		Hydraulic	
	5.5	Parking brake, type			Hand		Hand		Hand	
	5.6	Drawbar pull unladen			20		22		22	
Engine	5.7	Gradeability, laden			22		26		26	
	6.1	Engine manufacture / type			Perkins 404D-22T		Perkins 1104D-44T		Perkins 1104D-44T	
	6.2	Engine output to ISO 1585	kW		43		62,5		62,5	
	6.3	Rated speed rotation	1/min		2500		2200		2200	
Other Details	6.4	Cylinders / displacement	/cm3		4/2200		4/4400		4/4400	
	7.2	Transmission manufacturer / type	*		Graziano PST 1		Graziano PST 1		Graziano PST 2	
	7.3	Coupling			hydrodynamic 1/1		hydrodynamic 1/1		hydrodynamic 2/2	
	7.4	Working pressure for attachments	bar		180		180		180	

D (G) 30;35;40									
simplex					triplex				
h3	3700	4000	4500	5000	4300	4800	5100	5500	6000
h1	2440	2590	2840	3190	2060	2220	2340	2460	2630
h4	4225	4525	5025	5525	4760	5260	5600	5960	6470
h2	130	130	130	130	0	0	0	0	0
a/b	5/12	5/12	5/12	3/6	5/12	3/6	3/6	3/6	3/6

TECHNICAL SPECIFICATIONS AND PARAMETERS



						Identification			
						1.1	1.2	Manufacturer	Type
Weights	1.3	Drive:elec., diesel, gasoline, LPG				IPO-Lifts Ltd	IPO 40 DR	Diesel	Diesel
	1.4	Driver position: Seated				IPO-Lifts Ltd	IPO 50 DR	Seated	Seated
	1.5	Load capacity	Q	t		IPO-Lifts Ltd	IPO 70 DR	4,00	5,00
	1.6	Load center	c	mm				600	600
	1.7	Distance from CL of front axle to fork face	x	mm				850	910
	1.8	Wheel base	y	mm				2200	2700
	2.1	Weight - unladen		kg				7800	8100
	2.2	Axle weight laden, front / rear		kg				9500/1800	11500/1800
Wheels, Chasis	2.3	Axle weight unladen, front / rear		kg				3120/4400	3520/4980
	3.1	Tyre type: SE= Superelastic, L=Pneumatic						L/L	L/L
	3.2	Tyre size, front						365/80 R 20	365/80 R 20
	3.2	Tyre size, rear						365/80 R 20	365/80 R 20
	3.3	Wheels, front / rear (x=drive)						2X/2X	2X/2X
Basic Dimensions	3.5	Track, Spw1 / Spw2 front / rear						1730/1730	1730/1730
	4.1	Mast tilt angles, forward (a) / backward (b)		Grad				10/12	10/12
	4.2	Mast height - closed	h1	mm				2480	2610
	4.3	Free lift	h2	mm				130	130
	4.4	Lift	h3	mm				3300	3300
	4.5	Mast height - extended	h4	mm				4065	4195
	4.6	Full free lift, duplex / triplex	h5	mm				-	-
	4.7	Heigh of overhead guard	h6	mm				2490	2490
	4.8	Seat height	h7	mm				1470	1470
	4.9	Length to fork face	L2	mm				3920	3950
	4.10	Overall width	B	mm				2100	2100
	4.11	Fork dimension (thickness / wight / length)	s/e/l	mm				50x120x1200	50x120x1200
	4.12	Fork carriage to ISO 2328, Class A, B						4B	4B
	4.13	Ground clearance laden under mast	m1	mm				280	280
	4.14	Ground clearance center of wheel base	m2	mm				360	360
	4.15	Turning radius, minimum	min	mm				1150	1150
Performance data	4.16	Turning radius, maximum	max	mm				4200	4200
	5.1	Travel speed, laden / unladen		km / h				22/26	22/26
	5.1	Lifting speed, laden / unladen		m/s				0.40/0.50	0.40/0.50
	5.2	Lowering speed, laden / unladen		m/s				0.60/0.40	0.60/0.40
	5.2	Drawbar, pull, laden / unladen		kN				50/50	50/50
	5.3	Gradeability laden / unladen		%				26/32	26/32
	5.3	Service brake, type						Hydraulic	Hydraulic
	5.5	Parking brake, type						Hand	Hand
Engine	5.6	Drawbar pull unladen						20	22
	5.7	Gradeability, laden						22	26
	6.1	Engine manufacture / type						Perkins 1104D-44T	Perkins 1104D-44T
	6.2	Engine output to ISO 1585		kW				62	74
Other Details	6.3	Rated speed rotation		1/min				2200	2200
	6.4	Cylinders / displacement		/cm3				4/4400	4/4400
	7.1	Fuel tank capacity						150	150
	7.2	Transmission manufacturer / type	*					DANA/T12000	DANA/T12000
	7.3	Coupling						hydrodynamic 3/3	hydrodynamic 3/3
	7.4	Working pressure for attachments		bar				180	180

						Identification			
						1.1	1.2	Manufacturer	Type
Weights	1.3	Drive: elec., diesel, gasoline, LPG				IPO-Lifts Ltd	IPO 160 D	Diesel	Diesel
	1.4	Driver position: Seated				IPO-Lifts Ltd	IPO 200 D	Seated	Seated
	1.5	Load capacity	Q	t		IPO-Lifts Ltd	IPO 250 D	16,00	20,00
	1.6	Load center	c	mm		IPO-Lifts Ltd	IPO 320 D	1200	1200
	1.7	Distance from CL of front axle to fork face	x	mm				1010	1160
	1.8	Wheel base	y	mm				3620	4000
	2.1	Weight - unladen		kg				23600	31120
	2.2	Axle weight laden, front / rear		kg				36350/3250	47500/3620
Wheels, Chasis	2.3	Axle weight unladen, front / rear		kg				10500/13100	16900/14220
	3.1	Tyre type: SE=Superelastic, L=Pneumatic						L/L	L/L
	3.2	Tyre size, front						12.00-20	14.00-24 PR28
	3.2	Tyre size, rear						12.00-24 PR28	16.00-25
	3.3	Wheels, front / rear (x=drive)						4X/2	4X/2
Basic Dimensions	3.5	Track, Spw1 / Spw2 front / rear						2020/1810	2210/2010
	4.1	Mast tilt angles, forward (a) / backward (b)		Grad				6/10	6/10
	4.2	Mast height - closed	h1	mm				3600	3500
	4.3	Free lift	h2	mm				200	200
	4.4	Lift	h3	mm				4000	4000
	4.5	Mast height - extended	h4	mm				5550	5950
	4.6	Full free lift, duplex	h5	mm				-	-
	4.7	Heigh of overhead guard	h6	mm				2900	3150
	4.8	Seat height	h7	mm				1690	1860
	4.9	Length to fork face	L2	mm				5760	6360
	4.10	Overall width	B	mm				2720	3060
	4.11	Fork dimension (thickness / wight / length)	s/e/l	mm				100x250x2400	110x250x2400
	4.12	Fork carriage to ISO 2328, Class A, B						Fork positioner	Fork positioner
	4.13	Ground clearance laden under mast	m1	mm				300	300
	4.14	Ground clearance center of wheel base	m2	mm				360	380
	4.15	Aisle wight pallet 1000/1200	min	mm				8800	9450
	4.16	Turning radius, maximum	max	mm				5350	6200
Performance data	5.1	Travel speed, laden / unladen		km / h				23/25	25/30
	5.1	Lifting speed, laden / unladen		m/s				0.35/0.40	0.25/0.29
	5.2	Lowering speed, laden / unladen		m/s				0.5/0.3	0.45 max/0.40 min
	5.2	Drawbar, pull, laden / unladen		kN				95/110	130/180
	5.3	Gradeability laden / unladen		%				25/23	28/25
	5.3	Service brake, type						Hydraulic	Hydraulic
	5.5	Parking brake, type						Hydraulic	Hydraulic
	5.6	Drawbar pull unladen						20	22
Engine	5.7	Gradeability, laden						22	26
	6.1	Engine manufacture / type						Perkins 1106D-E66TA	Perkins 1106D-E66TA
	6.2	Engine output to ISO 1585		kW				120	168
	6.3	Rated speed rotation		1/min				2200	2200
Other Details	6.4	Cylinders / displacement		/cm3				6/6600	6/6600
	7.2	Transmission manufacturer / type	*					DANA/T20000	DANA/HR32000
	7.3	Coupling						hydrodynamic 3/3	hydrodynamic 4/4
	7.4	Working pressure for attachments		bar				210	210

D (G) 50									
simplex					triplex				
h3	3700	4000	4500	5000	4300	4800	5100	5500	6000
h1	2540	2690	2940	3290	2160	2320	2440	2560	2730
h4	4540	4840	5340	5840	5100	5600	5940	6300	6810
h2	130	130	130	130	0	0	0	0	0
a/b	5/12	5/12	5/12	3/6	5/12	3/6	3/6	3/6	3/6

D 160				D 200				D 250				D 320			
duplex				duplex				duplex				duplex			
h3	4500	5000	5500	6000	4500	5000	5500	6000	4500	5000	5500	6000	4500	5000	5500
h1	3800	4050	4300	4550	4200	4450	4700	4950	4200	4450	4700	4950	4850	5100	5350
h4	5150	5650	6150	6650	6450	6950	7450	7950	6450	6950	7450	7950	7100	7600	8100
h2	190	190	190	190	250	250	250	250	250	250	250	250	320	320	320
a/b	6/10	6/10	3/5	3/5	6/10	6/10	3/5	3/5	6/10	6/10	3/5	3/5	6/10	6/10	3/5

SUPERIOR COMFORT AND ERGONOMICS



Operator comfort and high productivity during exploitation of the forklifts are another key priority in the design process.

- The full hydrostatic driving system allows high maneuverability of the machines avoiding any difficulty in exploitation.
- Low vibration levels are achieved by the cabin module being mounted to the chassis on its own rubber pads.
- All forklifts are equipped with adjustable seats with a belt and armrests for high level of operator's comfort and perfect visibility in all directions

Optional equipment

- Heated, soundproofed cabin.
- Air-conditioner, spark retainer, automatic shifting, etc.
- Great variety of attachments manufactured by KAUP, CASCADE, etc.

OPERATOR SAFETY

Uncompromised operator health and safety of IPO Lifts is ensured through full compliancy with all safety requirements - ROPS & FOPS STANDARD. All forklifts are subject to functional, agility and stability tests carried out by an external authorized agency.

- All devices and signals are concentrated on adjustable steering panel.
- Hydraulic safety valves in the brake pedal, control system, hydraulic distributors, etc.
- Control valve for lifting and lowering gears.
- Safety valves in lifting cylinders.
- Valve regulating mast gradient.
- Valve monitoring fork speed and preventing gun-controlled movement with load.
- Drive direction shift is with imbedded protector for engine start when in neutral position.
- Sound signal during rear drive.
- Signal lamp on when forklift is in operation.





QUALITY CONTROL ASSURED

Modern and fully equipped quality control facilities for incoming, preventive and final control over the manufacturing process guarantees the premium quality of the forklifts. An excellently trained team of highly critical specialists carry out all quality control procedures as well as standard testing of the final machine – maximum load capacity, maximum speed laden, maximum lifting height, etc.

Warranty

All machines are offered with a standard 1 year guarantee. An extension of the warranty period to 2 years is available subject to additional payment. The warranty and post-warranty service of the machines is carried out only by our qualified forklift production team.

The quality of the manufactured products by IPO Lifts is guaranteed by the successfully implemented system ISO 9001:2008, by application of input control, selection of optimal technology, control over functional and technical parameters at various stages of the production cycle, as well as output control of the final products.

CERTIFICATE

BUREAU VERITAS
Certification



IPO - LIFTS LTD.
6, Teofan Raynov Str., 4300 Karlovo, Bulgaria

Bureau Veritas Certification certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standard detailed below

Standard

ISO 9001:2008

Scope of certification

Design, manufacturing, service, repair and trade of forklifts, electric forklifts and mining machines. Manufacturing and trade of their respective spare parts and consumables.

Certification cycle start date: **07 August 2014**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **06 August 2017**

Original certification date: **07 August 2014**

Certificate No: BG120309Q Version 1, Revision date: **07 August 2014**


Rayna Zlatarova, Technical Manager Bureau Veritas Certification Bulgaria

Certification body address: Brandon House, 180 Borough High Street, London SE1 1LB, United Kingdom
Local Office: 81A, Bulgaria Blvd., 1404 Sofia, Bulgaria



Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by contacting the organization.
To check this certificate validity please call: +359 (2) 983 60 44

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Forklift **Technologies**



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