MATERIAL HANDLING SOLUTIONS
Via Buffalora, 3 – 25135 Brescia
info@mhs.srl · www.mhs.srl

	Standard	Options
48V permanent magnet synchronous drive motor	●	
Hydraulic power unit	●	
PU wheel	●	
1150mm fork length	●	
570mm outside fork width	●	
Wheel arms lifting limitation	●	
Lifting damping system	●	
Multi-function tiller	●	
48V/80Ah lithium battery[EVE]	●	
Additional wheels	●	
Dual load wheels	●	
USB power supply	●	
Fork lift & lower adopts stepless speed regulating	●	
Different length of forks		○
Different width of outside fork		○
Key switch		○
48V/105Ah lithium battery [EVE]		○
48V/125Ah lithium battery [CATL]		○
Load backrest		○
Lithium battery[48V/80Ah,EVE] with the on-board charger[48V,20A]		○
Lithium battery[48V/105Ah,EVE] with the on-board charger[48V,20A]		○
Controls and instruments		
Electric steering [Stand-on model]	●	
Systech controller	●	
Interactive meter	●	
Non contact interlock switch	●	
Safety		
Emergency disconnect switch	●	
Horn	●	
PIN code access	●	
Turning deceleration[Stand-on model]	●	
Mast protection		○



without notice concerning colors, equipment, or specifications detailed in this brochure, or to discontinue individual models. The colors of trucks, delivered may differ slightly from those in brochures.

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ISO45001 ISO45001:2018

ISO14001 ISO14001:2015

ISO9001 ISO9001:2015

HANGCHA trucks conform to the European Safety Requirements.

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X SERIES

PALLET STACKER WITH INITIAL LIFT

with capacity of 1,200 to 1,600kg



X SERIES
PALLET STACKER

X series pallet stackers with initial lift are a new generation of products newly developed by Hangcha for warehousing and logistics applications. Using the advanced permanent magnet brushless drive technology and equipped with a new 48V system, the products have advanced performance, comfortable, safe and reliable operations and low use and maintenance costs, and are ideal tools for loading, unloading and handling palletized goods in warehouses, supermarkets, workshops.

REVOLUTIONARY PERFORMANCE

48V VOLTAGE WITH PERMANENT MAGNET SYNCHRONOUS DRIVE MOTOR

- The electric steering feature enables easier and more flexible operation (Stand-on model).
- The permanent magnet synchronous drive system has excellent performance and low energy consumption. The 48V power supply system has less heat generated.
- With the VCU control, the truck can be controlled accurately, stably and more efficiently.



Regenerative brake and slope anti-slide function are offered by this truck.



RUGGED ON THE OUTSIDE

The X series pallet stacker with initial lift adopts a professional industrial design of exterior and a series family design. The truck has a smooth vivid profile and a fully ergonomic design, following the latest exterior design trend.

Made of high-strength steel plates that are molded by stamping, the truck exterior is robust, durable and high-grade, and meets environmental protection requirements.



With high power drive motor, provides fast travel speed and good gradeability.

Pedestrian type	
6.0 km/h	8.0 %
Travel speed(laden)	Gradeability(1.2/1.4t laden)

Stand-on type	
9.0 km/h	10 %
Travel speed(laden)	Gradeability(1.2/1.4t laden)



COMFORTABLE EXPERIENCE

- Optimized designing structure can offer a good visibility and easy entrance of the pallet.
- The compact body and big rounded design provide an ideal operation in limited space, and the wedge designed chassis greatly increases the passing ability.
- Customer can choose different width of outside fork and length of forks to fit variable pallet.

RELIABILITY

- With the 4-piovt and low center of gravity design and a high-strength steel frame structure, the frame has a large residual load capacity.
- The lifting cylinders of the arm have been optimized for design, ensuring stability and reliability, with reduced stress and increased durability.
- Using non-contact proximity switch, it can provides long life and reliable operation.
- H-type mast profile section to provide more stable and rigid performance.
- This truck features a newly designed drive system, where the drive motor does not rotate with the steering tiller during turning, thus preventing the cables connected to the drive motor from easily breaking due to bending.



The proportional lifting/lowering speed regulation system enables more stable and accurate operation.



- Newly developed tiller is compact and stylish.



- Displayed turtle speed function applied to move slowly and helps to stack goods in narrow spaces.



- The hydraulic power unit applied to provide low noise, low vibration, smooth lifting and landing reliable operation.
- The battery is reliably fixed and the battery cover is support by soft materials, so that the vibration and noise generated during the operation of the vehicle are reduced.

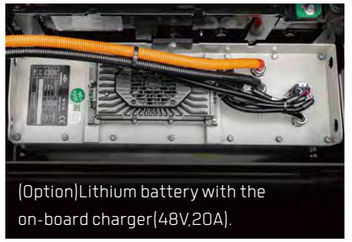




The power plug is fixed on the truck body to avoid damage from battery installment.



The stamped fork with higher strength and impact resistance, and guided fork prongs, further improve operation efficiency.



(Option)Lithium battery with the on-board charger(48V,20A).

Water-proof plugs and connectors applied to provide a reliable protection to electric system.



For the stand-on model, a function of stopping lifting when the lifting height reaches the limit of 1.8m and resuming the lifting after the guardrails are retracted is provided to facilitate personnel to escape when high position goods fall.

SAFETY

- Turning speed is automatically reduced when steering (Stand-on model).
- With three braking types: releasing brake, reversing brake and emergency brake, the driving safety has been ensured.
- The applied slope anti-slip function ensures the safety of the operation.



The emergency button on the tiller head can effectively avoid the harm to the driver.

Travel speed will be automatically reduced after fork lifting 500mm.





- The lifting buffering function can ensure the safety of the truck when the fork is lifted to the top.
- It has an intelligent soft landing that automatically slows down the lowering speed when the fork is less than 100mm above the ground, effectively protecting cargo safety. (Available for duplex mast)





MAINTENANCE

- Permanent magnet synchronous motor need no maintenance.
- The fault information can be checked directly via the interactive instruments instead of the manual.
- Rear cover can be completely open, operator can see all the components, so the maintenance is very convenient.
- All shafts installed lubricated shaft sleeve and oil cup, provide convenient maintenance and long service life.



LI-ION TECHNOLOGY

HANGCHA provides Li-ion battery (LiFePO4) with 6 years or 12000 hours warranty.

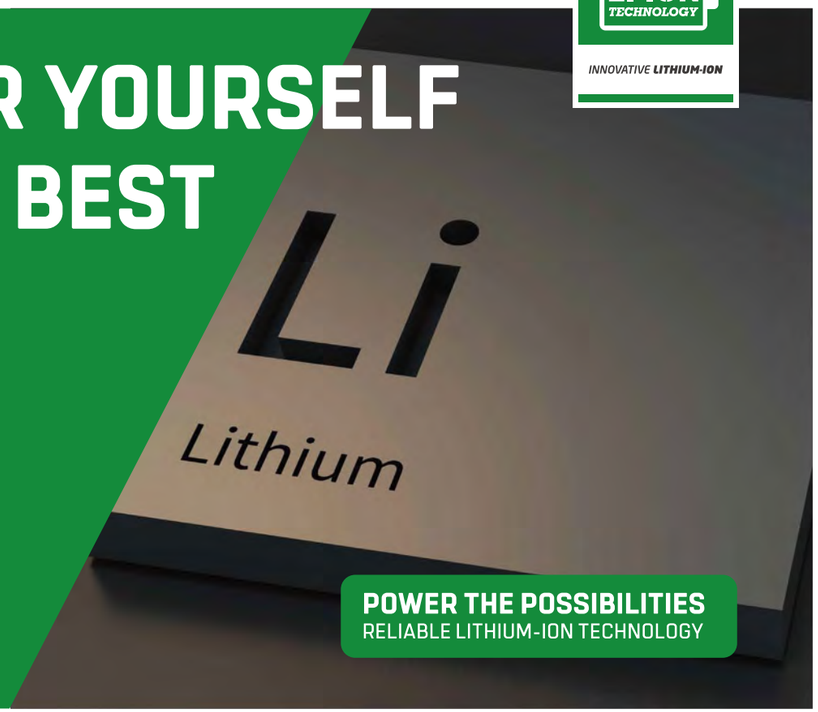
6 YEARS WARRANTY

LITHIUM POWERED

LI-ION TECHNOLOGY

INNOVATIVE LITHIUM-ION

EMPOWER YOURSELF WITH THE BEST



V48 LITHIUM ION

POWER THE POSSIBILITIES
RELIABLE LITHIUM-ION TECHNOLOGY

LITHIUM BATTERY ADVANTAGES

Long service life
4000 full charging cycles with at least 75% residual capacity.

Return on investment
Add flexibility to your operation,cost-saving in the long term, increased efficiencies.

Maintenance free
No topping up of water or checking acid levels.

High energy density
The high energy density of the Li-Ion battery ensures long working times and increases the high availability.

Cold area application
Li-Ion batteries maintain high performance at temperatures below freezing.

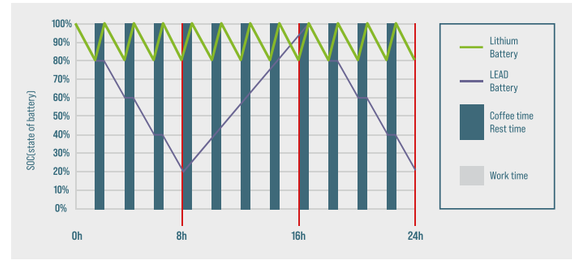
High safety and reliability
Intelligent battery management monitoring every important function, no emission of battery gasses.

Opportunity charging
Full performance during several shifts thanks to effective interim charging.

FEATURES & BENEFITS
THE HANGCHA DIFFERENCE

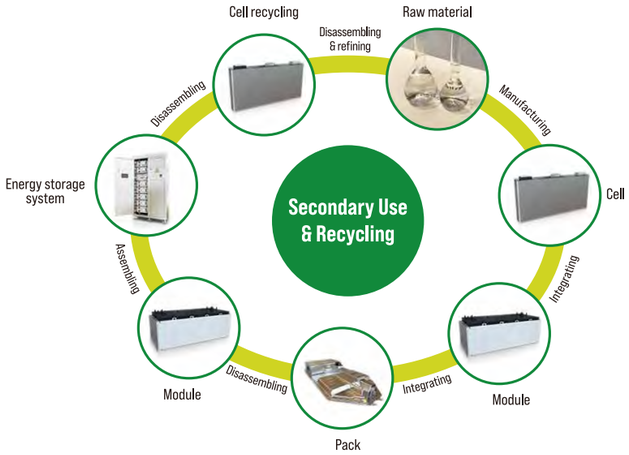
Efficiency

By quick opportunity charging any downtime, such as a lunch break, can be efficiently used and the battery is recharged in a very short period of time. Interim charging does not affect the battery service life.



Safety

/ Intelligent battery management monitoring every important function.
/ Higher user safety, thanks to acid-free use.
/ User friendly due to avoided battery change.
/ No emission of battery gasses.



QUESTION 1

Q: What are the characteristics of lithium batteries, especially when used in high and low temperature environments?

Charging temperature:	-30℃-65℃
Discharge temperature:	-30℃-65℃
Storage environment temperature:	-30℃-65℃

After the truck key switch is closed, the instrument battery condition needs to be checked:
1. Confirm that there is no battery system alarm message on the instrument panel.
2. Please check the remaining power before use. It is recommended to use the SOC between 50% and 100%.
3. If the SOC is lower than 20%, it is not recommended to continue using it. Please charge it as soon as possible.

QUESTION 2

Q: What is the charging time and usage time calculation of forklift lithium battery?

1. Available power of lithium battery (kWh) = rated voltage × rated power × 90% (To avoid over-discharge damaging the battery, the forklift is equipped with low power protection (less than 10%)).
2. Charging time (h) = rated capacity of lithium battery (Ah) × 90% ÷ charger output current (A).
3. The power consumed for charging (kWh) = the available power of the lithium battery ÷ 93% (the charging efficiency of the charger is calculated as 93%).
4. Usage time (h) = available power of lithium battery ÷ energy consumption data.

For specific energy consumption values, please refer to the technical table on the sharing platform.

QUESTION 3

Q: How does Hangcha BMS work to ensure the safety of the lithium battery?

HANGCHA BMS (battery management system) can monitor the cells at all times. As a result, hangcha lithium power is the reliable solution.

Battery Safety Management:
Overcharge/over discharge protection
Overcurrent/over-temperature/low- temperature protection
Multi-level fault diagnosis protection
Double fault monitoring

Battery Parameter Detection:
Battery voltage detection and analysis
Battery current detection and analysis
Battery temperature detection and analysis

Equilibrium Management:
Equalization based on voltage mode
Equalization based on time mode
Equalization based on battery cell SOC
Active/passive equalization optional

Other Features:
Low cost,low power consumption
Historical data record
Flexible cascade expansion
CRC data validation

1.2t Mast Specification

Mast type	Max Lifting Height h_3	Max. fork height (h_3 +h_{13})	Lowered Height h_1	Extended Height h_4	Free lift	Load capacity at 600mm
						1.2t
	mm	mm	mm	mm	mm	kg
Double cylinder duplex full free wide view	2100[1]	2190	1540	2590	90	1200
	2500[1]	2590	1740	2990	90	1200
	2700	2790	1840	3190	90	1200
	3000	3090	1990	3490	90	1150
	3200	3290	2090	3690	90	1020
	3400	3490	2190	3890	90	920
	3600	3690	2290	4090	90	880
Duplex full free wide view	2100[1]	2190	1540	2590	1070	1200
	2500[1]	2590	1740	2990	1270	1200
	2700[1]	2790	1840	3190	1370	1200
	3000	3090	1990	3490	1520	1150
	3200	3290	2090	3690	1620	1020
	3400	3490	2190	3890	1720	920
	3600	3690	2290	4090	1820	880
Triplex full free wide view	3600[1]	3690	1660	4080	1195	880
	3900[1]	3990	1760	4380	1295	820
	4100[1]	4190	1830	4580	1360	770
	4300	4390	1890	4780	1425	730
	4500	4590	1960	4980	1495	700
	4700	4790	2030	5180	1560	650

Note: 1] Optional feature for battery side roll out was necessary, It can make changing the battery easier.

1.4-1.6t Mast Specification

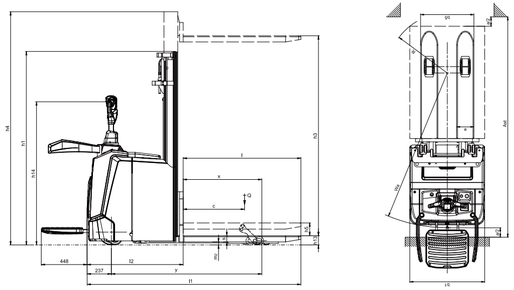
Mast type	Max Lifting Height h_3	Max. fork height (h_3 +h_{13})	Lowered Height h_1	Extended Height h_4	Free lift	Load capacity at 600mm	
						1.4t	1.6t
	mm	mm	mm	mm	mm	kg	kg
Double cylinder duplex full free wide view	2000[1]	2090	1540	2540	90	1400	1600
	2400[1]	2490	1740	2940	90	1400	1600
	2700	2790	1890	3240	90	1300	1400
	2900	2990	1990	3440	90	1200	1250
	3000	3090	2040	3540	90	1150	1200
	3300	3390	2190	3840	90	950	1000
	3500	3590	2290	4040	90	900	950
	3800	3890	2440	4340	90	850	900
	4000	4090	2540	4540	90	800	850
	4200	4290	2640	4740	90	750	800
	4500	4590	2790	5040	90	700	750
Duplex full free wide view	2000[1]	2090	1540	2540	1020	1400	1600
	2400[1]	2490	1740	2940	1220	1400	1600
	2700	2790	1890	3240	1370	1300	1400
	3000	3090	2040	3540	1520	1150	1200
	3300	3390	2190	3840	1670	950	1000
	3500	3590	2290	4040	1770	900	950
Triplex full free wide view	3500[1]	3590	1660	4020	1160	900	950
	3800[1]	3890	1760	4320	1260	850	900
	4000[1]	4090	1830	4520	1330	800	850
	4200	4290	1890	4720	1390	750	800
	4500	4590	1990	5020	1490	700	750
	4700	4790	2060	5220	1560	650	700
	4800	4890	2090	5320	1590	630	680
	5000	5090	2160	5520	1660	600	650
	5200	5290	2230	5720	1730	550	600
	5500	5590	2330	6020	1830	450	500
	6000	6090	2500	6520	2000	350	400

Note: 1] Optional feature for battery side roll out was necessary, It can make changing the battery easier.

Technical data

Distinguishing mark	1.1	Manufacturer			
	1.2	Manufacturer's type designition		CDD12-XT1S-SIL	CDD14-XT1S-SIL	CDD16-XT1S-SIL
	1.3	Drive: electric (battery type, mains, ...), diesel, petrol, fuel gas		Electric	Electric	Electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		standing	standing	standing
	1.51	Load capacity at load centre distance c_1	kg	1200	1400	1600
	1.52	Load capacity at load centre distance c_2	kg	2000	2000	2000
	1.6	Load centre distance	c [mm]	600	600	600
	1.8	Load distance, centre of drive axle to fork	x [mm]	700/768	700/768	700/768
	1.9	Wheelbase	y [mm]	1366/1434	1401/1469	1401/1469
Weight	2.1	Service weight	kg	1150	1200	1200
	2.2	Axle loading, laden front/rear	kg	920/1430	1020/1580	1100/1700
	2.3	Axle loading, unladen front/rear	kg	815/335	850/350	850/350
Tyres/chassis	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		PU	PU	PU
	3.2	Tyre size, front		Ø250x80	Ø250x80	Ø250x80
	3.3	Tyre size, rear		Ø83x73	Ø83x73	Ø83x73
	3.4	Additional wheels [dimensions]		Ø140x55	Ø140x55	Ø140x55
	3.5	Wheels, number front/rear (x = driven wheels)		1x+1/4	1x+1/4	1x+1/4
	3.6	Tread, front	b_{10} [mm]	516	516	516
	3.7	Tread, rear	b_{11} [mm]	385	385	385
Dimensions	4.2	Height, mast lowered	h_1 [mm]	1840	1890	1890
	4.3	Free lift	h_2 [mm]	90	90	90
	4.4	Lift	h_3 [mm]	2700	2700	2700
	4.5	Height, mast extended	h_4 [mm]	3190	3240	3240
	4.6	Initial lift	h_5 [mm]	125	125	125
	4.9	Height drawbar in driving position min./max.	h_{14} [mm]	1170/1400	1170/1400	1170/1400
	4.15	Height, lowered	h_{13} [mm]	90	90	90
	4.19	Overall length	l_1 [mm]	2053/2501[3]	2088/2536[3]	2088/2536[3]
	4.20	Length to face of forks	l_2 [mm]	903/1351[3]	938/1386[3]	938/1386[3]
	4.21	Overall width	b_1/b_2 [mm]	800	800	800
	4.22	Fork dimensions DIN ISO 2331	s/e/l [mm]	65/185/1150	65/185/1150	65/185/1150
	4.25	Fork spread	b_5 [mm]	570	570	570
	4.32	Ground clearance, centre of wheelbase	m_2 [mm]	15	15	15
	4.34.1	Aisle width for pallets 1000 x 1200 crossways	Ast [mm]	2268/2703[3,5]	2302/2737[3,5]	2302/2737[3,5]
	4.34.2	Aisle width for pallets 800 x 1200 lengthways	Ast [mm]	2318/2753[3,5]	2352/2787[3,5]	2352/2787[3,5]
	4.35	Turning radius	Wa [mm]	1619/2054[4]	1655/2089[4]	1655/2089[4]
Performance data	5.1	Travel speed, laden/unladen	km/h	9/11	9/11	9/11
	5.2	Lift speed, laden/unladen	m/s	0.225/0.47	0.195/0.4	0.18/0.4
	5.3	Lowering speed, lade/unladen	m/s	0.45/0.4	0.45/0.4	0.45/0.4
	5.8	Max. gradeability, laden/unladen	%	10/16	10/16	8/16
	5.10	Service brake		Regenerative	Regenerative	Regenerative
Electric-engine	6.1	Drive motor rating S2 60 min	kW	2.2	2.2	2.2
	6.2	Lift motor rating at S3 15%	kW	4.2	4.2	4.2
	6.4	Battery voltage/nominal capacity	[V]/[Ah] or kWh	48/80	48/80	48/80
	6.5	Battery weight	kg	60	60	60

Note: 1] According to VDI2198 standard+261mm. 2] According to VDI2198 standard+157mm. 3] Triplex full-free+21mm 4] Lowering+68mm



Technical data

Distinguishing mark	1.1	Manufacturer			
	1.2	Manufacturer's type designition		CDD12-XT1-SIL	CDD14-XT1-SIL	CDD16-XT1-SIL
	1.3	Drive: electric (battery type, mains, ...), diesel, petrol, fuel gas		Electric	Electric	Electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		pedestrian	pedestrian	pedestrian
	1.51	Load capacity at load centre distance c_1	kg	1200	1400	1600
	1.52	Load capacity at load centre distance c_2	kg	2000	2000	2000
	1.6	Load centre distance	c [mm]	600	600	600
	1.8	Load distance, centre of drive axle to fork	x [mm]	700/768	700/768	700/768
	1.9	Wheelbase	y [mm]	1387/1455	1387/1455	1387/1455
Weight	2.1	Service weight	kg	1090	1120	1120
	2.2	Axle loading, laden front/rear	kg	780/1510	860/1660	930/1790
	2.3	Axle loading, unladen front/rear	kg	740/350	760/360	780/360
Tyres/chassis	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		PU	PU	PU
	3.2	Tyre size, front		Ø250x80	Ø250x80	Ø250x80
	3.3	Tyre size, rear		Ø83x73	Ø83x73	Ø83x73
	3.4	Additional wheels [dimensions]		Ø140x55	Ø140x55	Ø140x55
	3.5	Wheels, number front/rear (x = driven wheels)		1x+1/4	1x+1/4	1x+1/4
	3.6	Tread, front	b_{10} [mm]	510	510	510
	3.7	Tread, rear	b_{11} [mm]	385	385	385
Dimensions	4.2	Height, mast lowered	h_1 [mm]	1840	1890	1890
	4.3	Free lift	h_2 [mm]	90	90	90
	4.4	Lift	h_3 [mm]	2700	2700	2700
	4.5	Height, mast extended	h_4 [mm]	3190	3240	3240
	4.6	Initial lift	h_5 [mm]	125	125	125
	4.9	Height drawbar in driving position min./max.	h_{14} [mm]	790/1205	790/1205	790/1205
	4.15	Height, lowered	h_{13} [mm]	90	90	90
	4.19	Overall length	l_1 [mm]	2000[3]	2000[3]	2000[3]
	4.20	Length to face of forks	l_2 [mm]	850[3]	850[3]	850[3]
	4.21	Overall width	b_1/b_2 [mm]	800	800	800
	4.22	Fork dimensions DIN ISO 2331	s/e/l [mm]	65/185/1150	65/185/1150	65/185/1150
	4.25	Fork spread	b_5 [mm]	570	570	570
	4.32	Ground clearance, centre of wheelbase	m_2 [mm]	15	15	15
	4.34.1	Aisle width for pallets 1000 x 1200 crossways	Ast [mm]	2267[3,5]	2267[3,5]	2267[3,5]
	4.34.2	Aisle width for pallets 800 x 1200 lengthways	Ast [mm]	2317[3,5]	2317[3,5]	2317[3,5]
	4.35	Turning radius	Wa [mm]	1620	1620	1620
Performance data	5.1	Travel speed, laden/unladen	km/h	6/6	6/6	6/6
	5.2	Lift speed, laden/unladen	m/s	0.225/0.47	0.195/0.4	0.18/0.4
	5.3	Lowering speed, lade/unladen	m/s	0.45/0.4	0.45/0.4	0.45/0.4
	5.8	Max. gradeability, laden/unladen	%	8/16	8/16	6/16
	5.10	Service brake		Regenerative	Regenerative	Regenerative
Electric-engine	6.1	Drive motor rating S2 60 min	kW	2.2	2.2	2.2
	6.2	Lift motor rating at S3 15%	kW	4.2	4.2	4.2
	6.4	Battery voltage/nominal capacity	[V]/[Ah] or kWh	48/80	48/80	48/80
	6.5	Battery weight	kg	60	60	60

Note: 1] According to VDI2198 standard+261mm. 2] According to VDI2198 standard+157mm. 3] Triplex full-free+21mm 4] Lowering+68mm

