

**CHANGLONG COSCO**

**GANGWAY  
AUTO RESET QUICK RELEASE HOOK**



**CHANGLONG INTERNATIONAL  
(CCL TECHNOLOGIES) CO., LTD.**



## GANGWAY ON DOCK

The gangway is an equipment for people boarding & disembarking safely and favorably during oil tanker operating at modern size oil dock. The conventional boarding equipment accomplish the purpose by a own ladder of tanker. The latest size oil dock, especially naked pier, dock surface is discontinuous and too high in elevation, the ship bump and drift continually and strongly during operation. Distance between the shipboard in berth and the edge of dock is too long because of the large fender. In this condition, it is difficult to settle the contact between ship and dock with accommodation ladder. Therefore, it is a necessary choice to adopt gangway to replace accommodation ladder so as to accelerate loading work of tanker and ensure that people is safe during boarding & disembarking. The gangway almost become a necessary size equipment same as marine loading arm at oil dock.

Though the gangway' s function is simple, it must have good technical performance because it will be used in special environment. To adapting to the fluctuation of ship and the happenchance, a detail analysis about information of hydroaraphy, weather and ship must be carried out during design, to confirm the suitable operation condition and choose the correct scheme and reliable preventive measure so as to attain anticipative purpose.

The gangway designed and manufactured by our company have many types for choosing. Usually the gangway is driven by a mechanical and hydraulic-drive system equipped with various protection device as per requirement during design to ensure each drive mechanism safe operation.







### Technical characteristic:

- The gangway combined many advantages make a agile, steady and safe operation and convenient maintenance.
- The ladder body is made of aluminium alloy and it is light and safe.
- Adopt four-link mechanism for steps, and steps will still keep in horizontal when the ladder changing in a range of minus 45degrees to 60 degrees.
- The triangle ladder and front ladder are connected with single point, so that the land wheel under triangle ladder will still keep contacting with deck of ship steadily and be immune from influence from bump of ship and inequality of deck.
- The hydraulic system is arranged suitably, weatherproof and convenient to maintain.
- Locking performance of the lifting mechanism is firm and interlocked.
- Control cabinet is mounted on bottom platform to make operating intuitive and convenient. Every operation such as pitching of main ladder and front ladder, setting of triangle ladder, elevating & rotating of service platform can be accomplished on bottom platform.
- The electric control system is designed independently by our company adopting domestic and international products of famous manufacturer for its main components, which have reliable quality and good performance.
- The wireless remote make operating more convenient.
- The gangway meets following national standard:
  - \*Hoister design standard\*
  - \*Steel structure design standards\*
  - \*Chemical and petroleum enterprise design standards – fireproof electrics\*
  - \*Handling oil dock fireproof design standards\*
  - \*Measurement of dry film thickness\*
  - \*Surface rust grade and scale removal grade of steel before painting\*
  - \*Erection quality test criterion for harbor equipment\*
  - \*Hydraulic system general technical specification\*
  - \*Steel and alloy chemical analysis\*
  - \*High grade wire rope\* etc. in latest edition\*

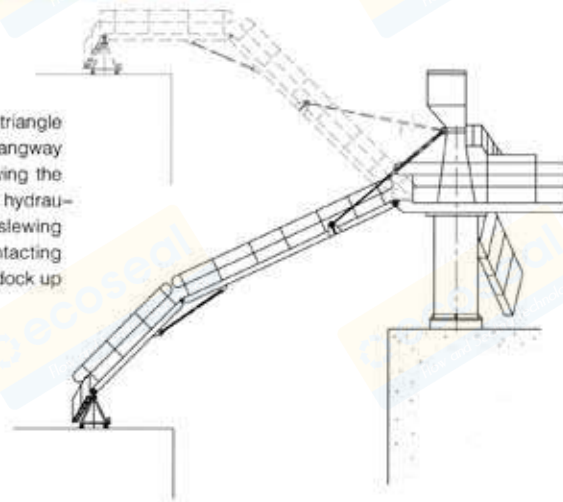
### Main technical parameter:

equipment gross power	5.5 – 16kw
equipment weight	about 8 – 35T
working height range	-7m ~ +20m (refere to dock surface)
swing angle of platform	± 90°
working grade	M4
pitching angle of main ladder	± 45°
pitching angle of front ladder	0 – 60°
design pressure of hydraulic cylinder	10 – 16MPa
explosion proof grade	DIIBT4
protection grade	IP55
type	B L x

### Variety and application scope of gangway:

#### (一) BL2 gangway

It is made of main ladder, front ladder, triangle ladder, slewing platform and riser. The gangway accomplishes pitching and horizontal slewing the main ladder and front ladder are driven by hydraulic cylinder. Main ladder cylinder and slewing cylinder can be in freewheel after contacting without counterweight. It is applied for the dock up to 50,000 tons capacity. (See right figure)



#### (二) BL4 gangway

It is made of main ladder, front ladder, slewing platform, lifting mechanism and tower frame. The gangway is equipped with multi-platform. The triangle ladder, front ladder and main ladder are arranged for an arm to make more application range, the ladders are driven by hydraulic cylinder to accomplish pitching and extending. Extending and shrinking of slewing cylinder drive the platform slewing in a range from minus 90 degrees to 90 degrees in horizontal. Elevating of the slewing platform by the reducer which is performed and ladders through pulley block. Slewing mechanism and main ladder can be in freewheel during contacting. It is applied for the dock over 50,000 tons capacity. (See right figure)



## Guide for selecting gangway

Selection of gangway shall be carried out according to dock capacity, change of tide, condition of dock surface and ratio of performance & price. Customer shall fill following data sheet and submit it to manufacturer so as to confirm the operating envelope, size and load information of gangway.

### Dock data:

No.	Description	Data
1	distance from centerline of gangway to edge of dock	m
2	dock level	m
3	designed highest water level	m
4	designed lowest water level	m
5	thickness of fender relaxed	m
	thickness of fender compressed	m
6	voltage of power supply	V
7	frequency of power supply	HZ





Vessel data :

No.	Description	Data
1	minimum distance of vessel flange axis to deck	m
2	maximum distance of vessel flange axis to deck	m
3	transverse drift (perpendicular to deck)	m
4	total fore and aft drift (parrel to the deck)	m
5	lightdraft of large vessel	m
6	fulldraft of small vessel	m

Environment data:

No.	Description	Item	Data
1	maximum designed wind velocity (10 meters upon the lowest water level, 3 seconds gust)	reset state	m/s
		movement / connect state	m/s
2	earthquake factor in restoration state	probability coefficient of earthquake Z	G
		acceleration of earthquake force	degree
3	ambient temperature	highest	°C
		lowest	°C





## QUICK RELEASE HOOK

The automatic restoration quick release hook provides new mooring arrangement for modern dock at river and sea.

This product not only keeps the characteristics of agile operation, safe mooring and quick release of original quick release hook, but also adds the function of automatic restoration after release of mooring rope. This product greatly relieves work intensity and makes more convenience for operation.

The quick release hook produced by our company combines advantages of other products and has characteristics of agile operation, light weight, safe mooring and quick release etc. Each hook will be strictly manufactured, assembled and inspected according to ISO 9001 quality system, and they will be subjected a tension test before leaving factory to check whether they completely meet the requirement of outdoor, long-term and safe operating at dock.

### Advantages:

Each hook could release quickly under a rated load.

The operating force is less than 20kg when the hook is fully loaded.

The head of hook is designed for balance so that restoration of the hook and release part could be completed with a single act.

The hook is capable of enduring the slope angle to horizontal of the load is less than 55 degrees.

Design is carried out respectively as per in hazardous zone and non-hazardous zone.

Adopt sparkproof and insulating design for quick release hook used in hazardous zone.

Capstan and electro-hydraulic control components meet standard d II BT4

Each hook will be subjected tensile test with a 1.25x rated pull before leave factory.

The base structure of hook is bolted with foundation bolts or welded with steel foundation.

### Makeup and operation of action:

Quick release hook usually is made of two parts of quick mooring and release, this includes electric capstan and locking of hook; release mechanism, hook and metal-structure etc.

### Operation:

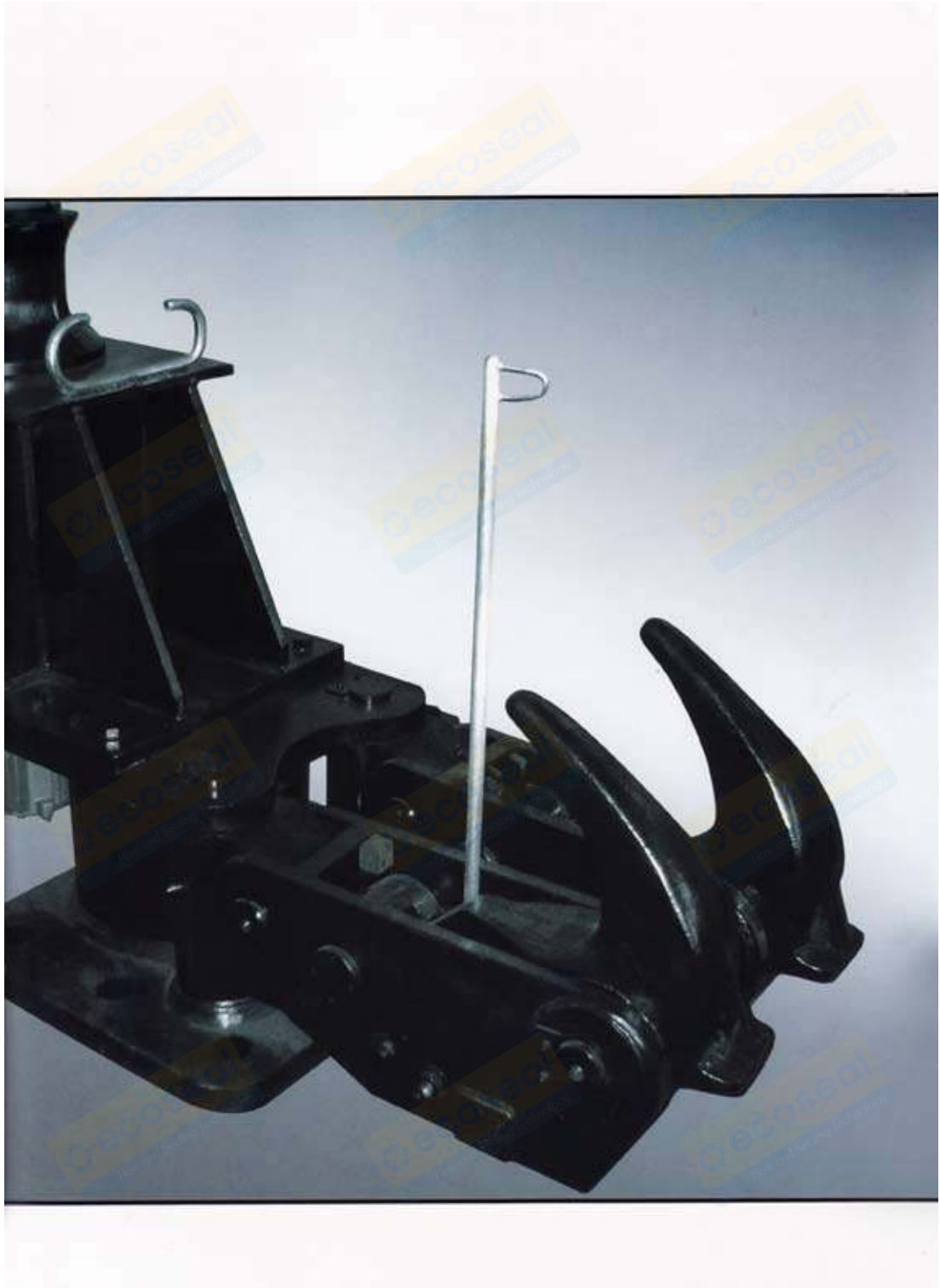
Tie the drag rope on capstan and wind the drag rope to drag the mooring rope to head of quick release hook, then hitch mooring rope on hook, so that mooring work is completed. When release of rope is needed, only to operate the release lever or press the button to open locking mechanism, so that the hook shall overturn with the pull of rope and mooring rope shall be released quickly and easily. Finally raise the head of hook to stored position for restoration of hook.

### Material:

Adopt cast steel or quality alloy steel forging for hook body, quick release hook will be entirely sprayed with zinc and the thickness of zinc according to international standard.







### Main technical data:

pull of each hook		350kN ~ 2500kN
quantity of hook body for one unit		1 ~ 6 hook(s)
operating force by handle		< 150N
swing angle of hook body in horizontal		45 ~ 90°
swing angle of hook body in vertical		45°
pulling speed of electric capstan		18 ~ 25m/min
pull of electric capstan		10KN ~ 30KN
working diameter of capstan		250mm
electromotor	model	YZBE
	explosion proof grade	D II BT4
	protection grade	IP55
	power	5.5 ~ 15kw
power supply		3-AC 380V 50Hz

### Edit instruction for type of product:

Z H xxx H x - x x



### Example of mark:

ZH100H1-11: indicate that the automatic restoration quick release hook is of 100 tons pull, manual, single-hook, explosion proof, with capstan.

### Notice of order:

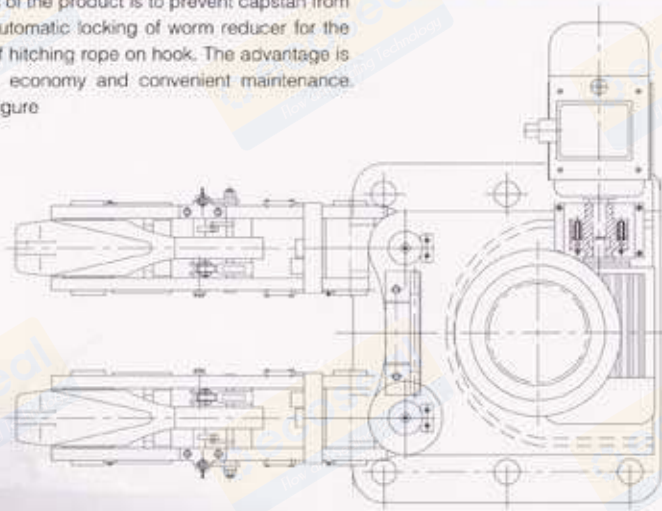
Customer shall give the type and code of additional necessary condition in detail base on their demand according to edit instruction for type of product in this stylebook; if the requirement demanded by customer differs from specification in this stylebook, we will carry out a special designing and manufacturing for customer as long as the detailed requirement is given.



### THE TYPE OF QUICK RELEASE HOOK

#### 1. Quick release hook with reducer in winding mechanism of worm wheel

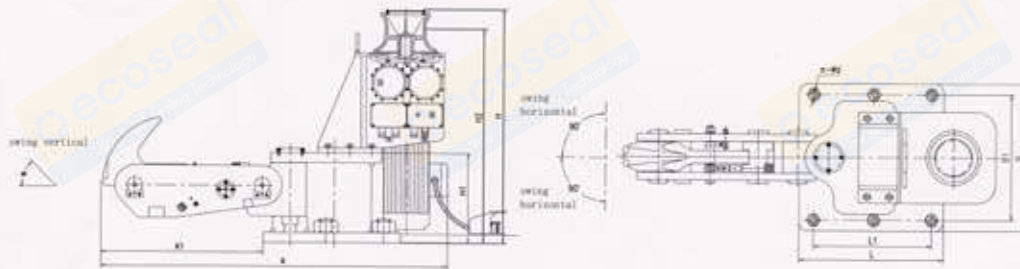
Characteristics of the product is to prevent capstan from reversing by automatic locking of worm reducer for the convenience of hitching rope on hook. The advantage is reliable brake, economy and convenient maintenance. See following figure







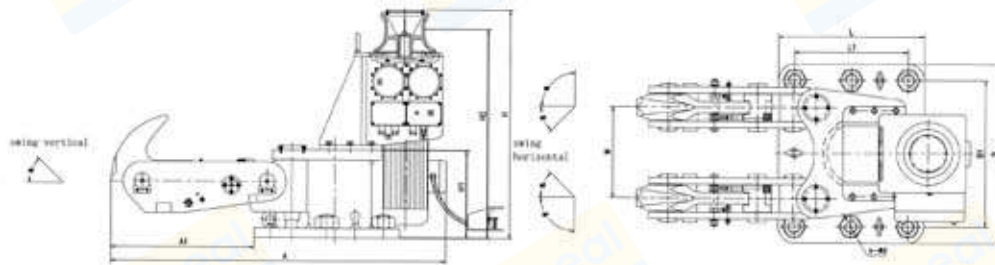
## 2. Single hook



unit: mm

Type	Dimensions									
	A	A1	H	H1	H2	B	B1	L	L1	n-φd
ZH05H1	1268	583	1325	370	1225	600	400	600	450	4-M48
ZH06H1	1523	798	1345	407	1245	600	450	650	470	6-M48
ZH07H1	1573	888	1345	420	1245	600	450	650	470	6-M56
ZH100H1	1714	959	1345	450	1245	600	450	700	500	6-M64
ZH125H1	1785	1030	1345	480	1245	600	450	700	500	6-M72
ZH150H1	1955	1200	1345	500	1245	680	480	700	500	6-M76
ZH200H1	2500	1250	1370	520	1250	700	500	750	540	6-M76
ZH250H1	2000	1250	1370	520	1250	700	500	750	540	6-M85

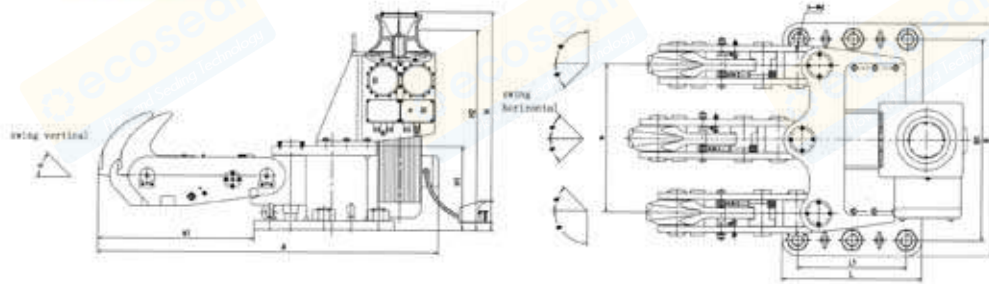
### 3、Double hook



units: mm

Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH35H2	1223	1325	1325	370	1225	700	400	650	470	480	4-M48
ZH60H2	1538	1345	1345	407	1245	780	450	750	550	420	6-M48
ZH75H2	1638	1345	1345	420	1245	850	450	750	550	420	6-M56
ZH100H2	1760	1345	1345	450	1245	925	450	750	550	520	6-M64
ZH125H2	1780	1345	1345	480	1245	905	450	750	550	520	6-M72
ZH150H2	1960	1345	1345	500	1245	1000	480	750	550	520	6-M76
ZH200H2	2000	1380	1370	520	1260	1060	500	800	580	550	6-M78
ZH250H2	2000	1380	1370	520	1260	1050	500	800	580	550	6-M85

### 4、Triple-hook

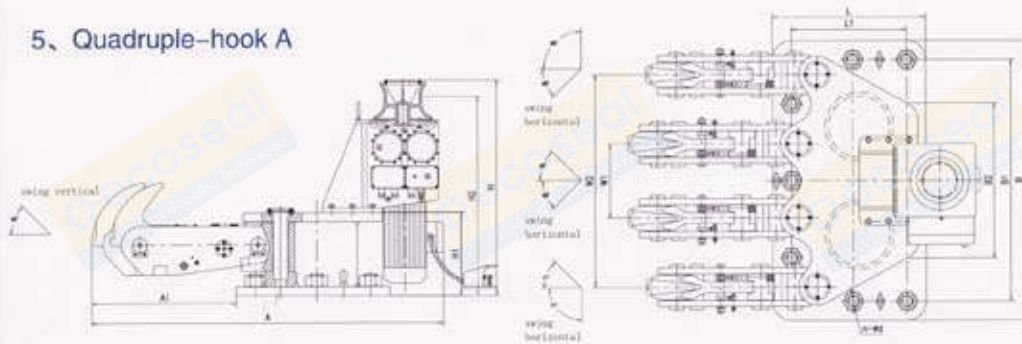


units: mm

Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH35H3	1300	803	1350	370	1250	800	620	700	520	580	6-M56
ZH60H3	1670	808	1350	410	1250	900	670	800	620	650	6-M64
ZH75H3	1750	908	1350	420	1250	1000	750	850	660	700	6-M72
ZH100H3	1860	979	1350	460	1250	1060	800	900	700	760	7-M72
ZH125H3	1930	1050	1350	460	1250	1060	800	900	700	760	7-M78
ZH150H3	2200	1220	1350	480	1250	1200	920	1020	760	850	7-M85
ZH200H3	2250	1270	1400	500	1260	1250	980	1050	800	900	7-M90
ZH250H3	2250	1270	1400	500	1260	1250	980	1050	800	900	7-M90



5、Quadruple-hook A

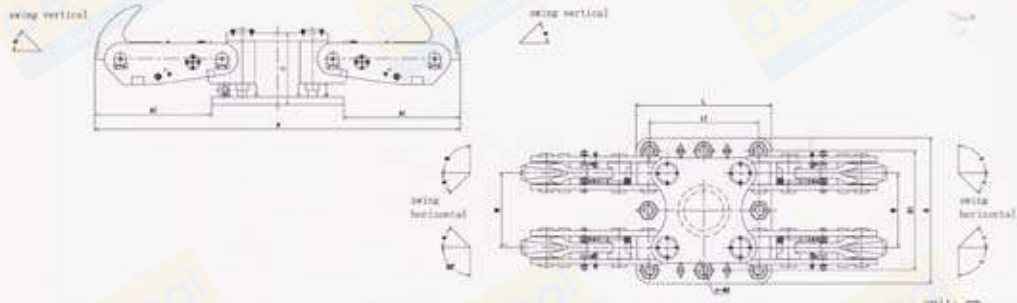


unit: mm

Type	Dimensions													
	A	A1	H	H1	H2	B	B1	B2	L	L1	W1	W2	n-φd	
ZH05H4-A	1220	603	1250	370	1250	1120	920	400	700	520	300	300	9-M56	
ZH60H4-A	1600	808	1350	410	1250	1185	1050	550	850	620	350	350	9-M64	
ZH75H4-A	1770	908	1350	420	1250	1300	1100	500	850	650	350	350	9-M72	
ZH103H4-A	1880	979	1350	460	1250	1365	1165	500	900	700	450	450	9-M76	
ZH125H4-A	1950	1050	1350	480	1250	1365	1165	500	900	700	480	480	9-M80	
ZH150H4-A	2220	1220	1350	480	1250	1570	1320	600	1050	760	480	480	9-M85	
ZH200H4-A	2270	1270	1400	500	1280	1650	1400	700	1050	800	520	520	9-M90	
ZH250H4-A	2270	1270	1400	500	1280	1650	1400	700	1050	800	520	520	9-M90	

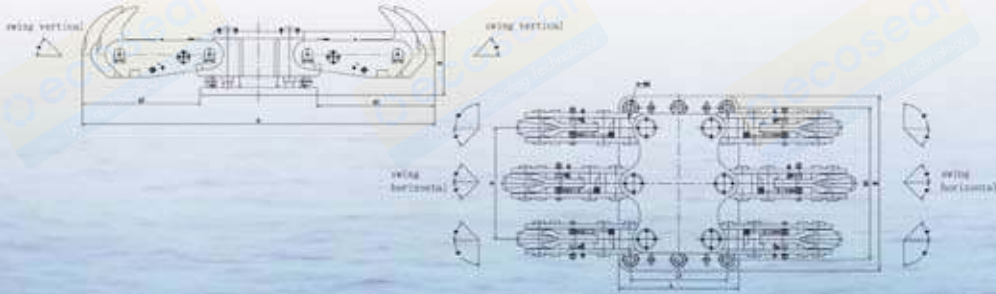


### 6、Quadruple-hook B



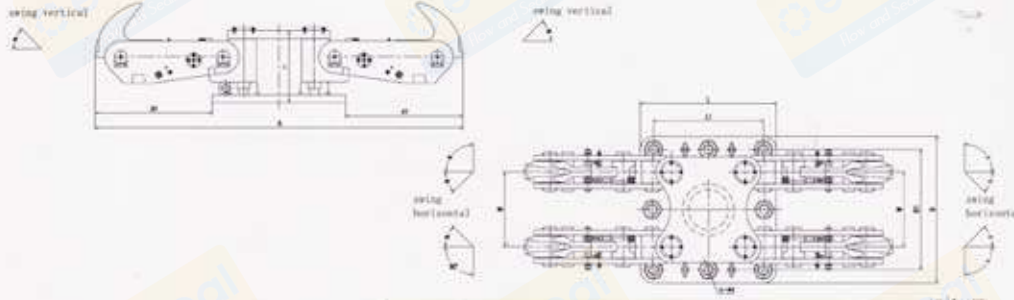
Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH05H4-A	1976	583	1325	370	1225	825	825	810	650	420	6-M56
ZH60H4-A	2636	788	1345	410	1245	850	850	1060	900	420	6-M64
ZH75H4-A	2836	888	1345	420	1245	850	850	1060	900	420	8-M72
ZH100H4-A	3036	859	1345	450	1245	1100	900	1120	940	520	8-M76
ZH125H4-A	3186	1030	1345	480	1245	1100	900	1120	940	520	8-M80
ZH150H4-A	3500	1200	1345	500	1245	1200	950	1300	1100	520	8-M85
ZH200H4-A	3880	1250	1380	520	1260	1250	1000	1380	1230	550	8-M90
ZH250H4-A	3880	1250	1380	520	1260	1250	1000	1380	1230	550	8-M90

### 7、Six-hook



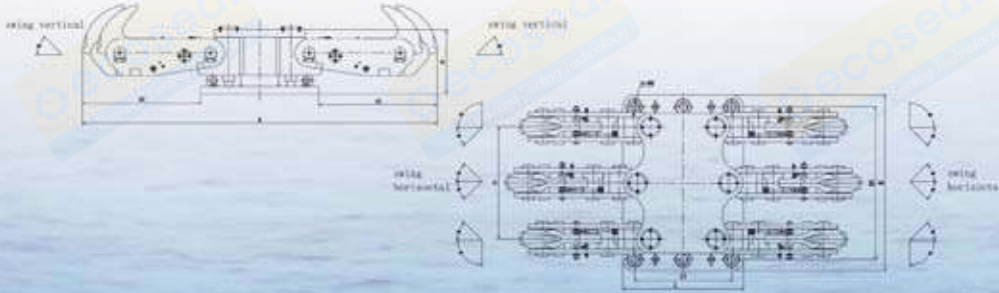
Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH05H4-A	2010	603	1350	370	1250	800	820	810	650	580	8-M64
ZH60H4-A	2760	828	1350	410	1250	900	870	1080	900	650	8-M72
ZH75H4-A	2760	908	1350	420	1250	1000	750	1080	900	700	8-M72
ZH100H4-A	3040	979	1360	460	1250	1080	800	1120	940	760	8-M76
ZH125H4-A	3320	1050	1350	480	1250	1080	800	1120	940	760	8-M80
ZH150H4-A	3500	1220	1360	480	1250	1200	820	1300	1100	850	8-M85
ZH200H4-A	3880	1270	1400	500	1280	1250	950	1380	1230	900	8-M90
ZH250H4-A	3680	1270	1400	500	1280	1250	980	1380	1230	900	8-M90

### 6、Quadruple-hook B



Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH95H4-A	1976	583	1325	370	1225	825	625	810	650	420	8-M66
ZH60H4-A	2636	788	1345	410	1245	850	650	1060	900	420	8-M64
ZH75H4-A	2836	888	1345	420	1245	850	650	1060	900	420	8-M72
ZH100H4-A	3036	959	1345	450	1245	1100	900	1120	940	520	8-M76
ZH125H4-A	3186	1050	1345	480	1245	1100	900	1120	940	520	8-M80
ZH150H4-A	3500	1200	1345	500	1245	1200	950	1300	1100	520	8-M85
ZH200H4-A	3880	1250	1380	520	1260	1250	1000	1380	1230	550	8-M90
ZH250H4-A	3880	1250	1380	520	1260	1250	1000	1380	1230	550	8-M90

### 7、Six-hook



Type	Dimensions										
	A	A1	H	H1	H2	B	B1	L	L1	W	n-φd
ZH35H4-A	2010	803	1350	370	1250	800	620	810	650	580	8-M64
ZH60H4-A	2760	808	1350	410	1250	900	670	1060	900	650	8-M72
ZH75H4-A	2760	908	1350	420	1250	1000	750	1060	900	700	8-M72
ZH100H4-A	3040	979	1350	460	1250	1060	800	1120	940	760	8-M76
ZH125H4-A	3320	1050	1350	480	1250	1060	800	1120	940	760	8-M85
ZH150H4-A	3500	1220	1350	480	1250	1200	920	1300	1100	850	8-M85
ZH200H4-A	3680	1270	1400	500	1280	1250	960	1380	1230	900	8-M90
ZH250H4-A	3680	1270	1400	500	1280	1250	960	1380	1230	900	8-M90