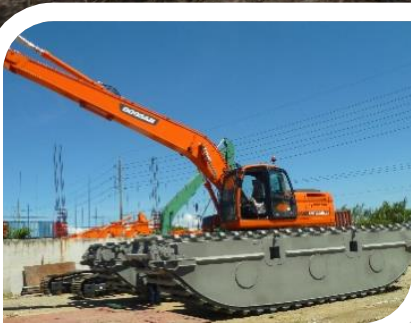


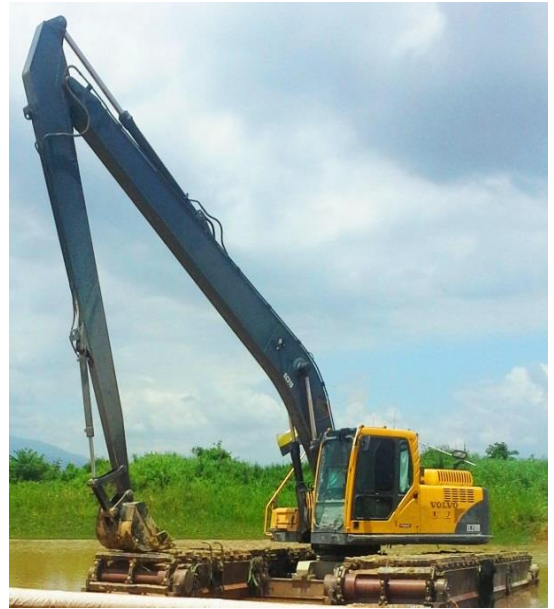


Engineering



BUILT FOR BETTER PERFORMANCE

AMPHIBIOUS EXCAVATOR



Amphibious excavator or swamp buggy are specially designed to maneuver and go through swampy areas with soft underfoot terrain where traditional excavators cannot go. The machine crosses swamps, ditches, lakes and waterway with ease.

It is ideal for the working site which is too shallow for dredger & too soft for conventional excavator. With the outstanding edge design & features, we are able to provide a wide range of solutions in handling numerous working conditions accordingly.

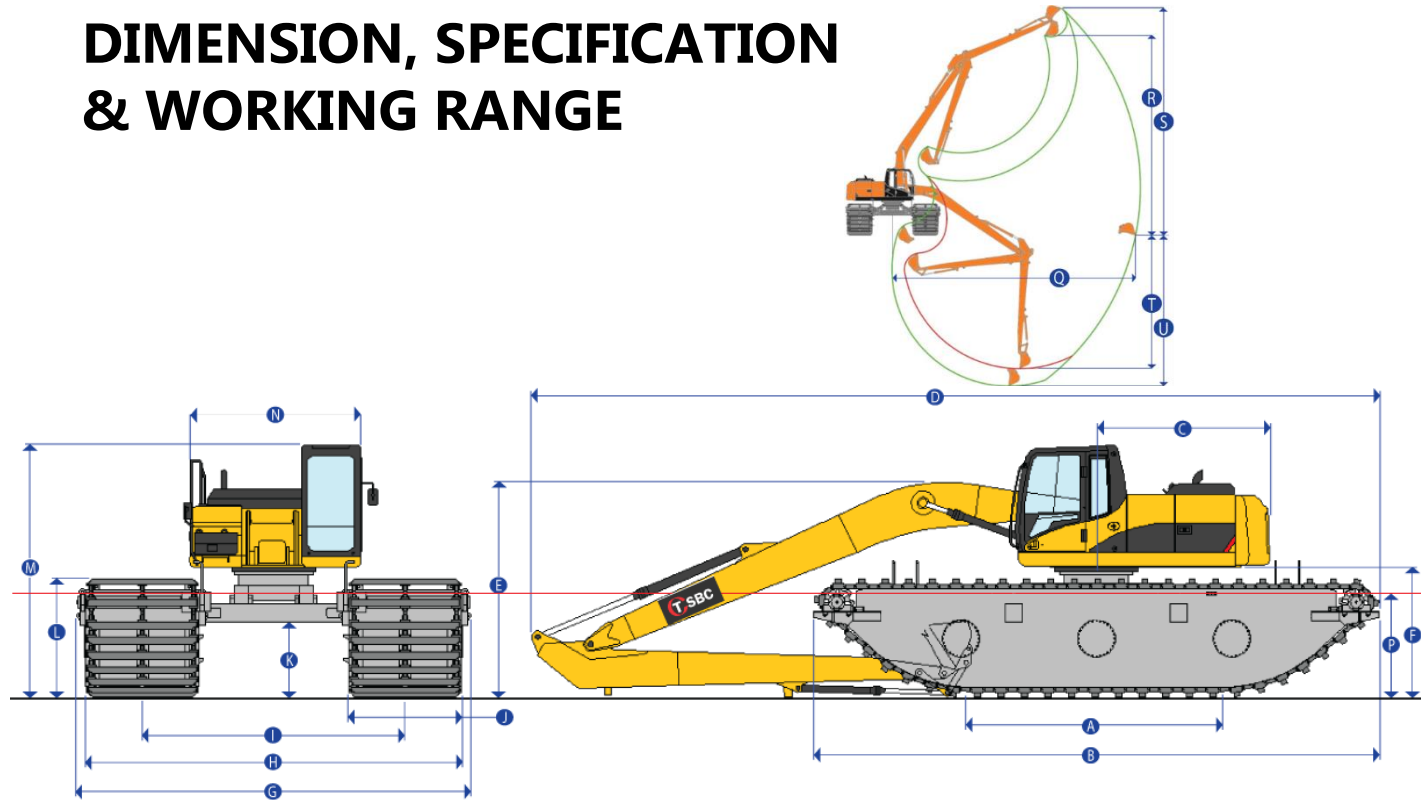
Applications :

- Dredging, landscaping, erosion control & prevention.
- Deepening of canal, river channel & delta
- Maintaining & cleaning of rivers, lakes, shoreline & ponds.
- Digging trenches for oil & gas pipe installation.
- Wetland & swamp construction.
- Road building through wetlands.
- Clearing of ice layer on river surface.

Features :

- Premium steel plate with reinforced structure for undercarriage body.
- Atmospheric corrosion & saltwater resistant pontoon.
- Strengthen pontoon base for rough terrain operation.
- Each pontoon consist of 3 independent water tight compartments & 3 maintenance holes for the ease of service and maintenance.
- Genuine seamless hydraulic pipes.
- Ultra high pressure hydraulic hose.
- 4x multi-synchronous hydraulic motor direct drive system.
- Uniform & phenomenal pulling force.
- Track system with heavy duty design for abrasive wear resistant.
- Indurated bushing & roller for extended operating period.

DIMENSION, SPECIFICATION & WORKING RANGE



Amphibious Undercarriage Models

Dimension	Description	TR80 For 6 – 8 ton class excavator	TR140 For 12 – 14 ton class excavator	TR200 For 20 – 22 ton class excavator	TR250 For 24 – 27 ton class excavator	TR300 For 28 – 30 ton class excavator	TR350 For 33 – 36 ton class excavator	TR400 For 40 – 45 ton class excavator
A	Track Length On Ground	3.17	4.50	4.15	4.15	5.00	5.20	6.50
B	Max. Track Length	6.28	9.29	9.63	9.63	10.84	11.84	11.77
C	Rear Upper Structure Length	1.30	2.18	2.75	3.00	3.12	3.50	3.65
D	Overall Length	8.76	12.24	13.55	14.41	15.50	16.59	16.50
E	Height of Boom	2.80	2.95	3.47	3.55	4.10	4.12	4.15
F	Counterweight Clearance	1.62	1.84	2.17	2.20	2.31	2.27	2.40
G	Overall Width, min/max (outwardly extendable)	2.06/2.86	4.22/5.32	5.29/ 6.09	5.87/6.67	5.54/7.20	6.27/7.27	6.33/7.33
H	Undercarriage Width, min/max	3.38/4.18	3.95/5.05	5.00 / 5.80	5.58/6.38	5.25/6.91	5.97/6.97	5.97/6.97
I	Track Gauge, min/max	3.51/4.31	2.50/3.60	3.38 / 4.18	3.66/4.46	3.33/4.99	4.02/5.02	4.02/5.02
J	Track Cleat Width	1.30	1.45	1.62	1.92	1.92	1.95	1.95
K	Min. Ground Clearance	1.05	1.14	1.30	1.30	1.29	1.13	1.16
L	Track Height	1.50	1.69	2.03	2.03	2.03	2.03	2.19
M	Overall Cab Height	3.53	3.77	4.08	4.12	4.13	4.20	4.37
N	Upper Structure Overall Width	2.27	2.49	2.70	2.85	2.98	2.99	3.20
P	Estimated Water Level	1.25	1.30	1.55	1.65	1.70	1.60	1.73
Q	Recommended Outreach	9.00	12.00	14.00	15.00	16.00	17.00	18.00
R	Max. Loading Height	8.50	10.00	13.00	14.80	15.80	16.50	17.50
S	Max. Cutting Height	9.80	11.90	14.50	16.00	17.10	18.20	19.00
T	Max. Digging Depth from Side	5.60	6.70	7.20	8.00	9.00	10.00	10.80
U	Max. Digging Depth from Front	6.20	8.00	8.50	9.50	10.50	11.50	12.30

- > Specification are calculated in unit meter (m).
- > Dimensions & specification only for reference. It vary from excavator models & brands.
- > Dimension are subjected to change without prior notice for sustainable product improvement.

LONG BOOM / STICK



Long reach attachment is designed to maximize the extension of standard excavator for more digging depth and forward reach. Based on our engineering data collected from research and extensive field testing, the long boom / stick was designed professionally without compromising the stability and operability of the excavator.

Based on our extensive experience and professional technical knowledge, our attachments are recommended for all brands of excavators e.g. Caterpillar, Komatsu, Kobelco, Hitachi, Volvo, Doosan, Sumitomo, Liu Gong, JCB, Hyundai, XCG, Liebherr, etc.

Applications :

- River & sea dredging on land or barge.
- Pond excavation & maintenance.
- Deep foundation excavation.
- Drainage construction.
- Distant digging.
- Canal construction & maintenance.
- Waterway reclamation.
- Pipeline construction.

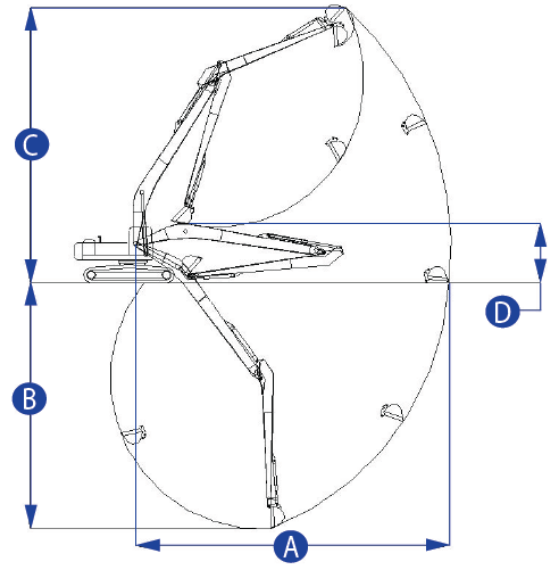
Features :

- Various grade of high tensile steel plate for bucket and long boom.
- Genuine seamless hydraulic pipes.
- Ultra high pressure hydraulic hose.
- Finite Element Analysis (FEA) combined with latest CAD software to design, build, assemble, simulate & test our boom structure.
- Premium & OEM grade bucket cylinder.
- Extended pin and bushing service life of critical connections by hardening process.
- Extensive long reach packages for different excavator models ranging from 10 to 200 metric ton.
- Assurance of perfect product alignment with our advanced finishing procedure by Line Bore Machine.
- Integrated commission testing & Quality inspection prior to shipment.

STANDARD EXCAVATOR

Our long boom package supplied with the following items:

- 1x boom
- 1x stick/dipper arm
- 1x bucket
- 1x bucket cylinder/ram
- 1x boom yoke pin
- 1 set of hydraulic pressure hose
- 1 set of linkage
- 2x bucket pins
- 2x bucket link pins



Excavator Operating Weight	Length		A Max. Reach		B Max. Depth		C Max. Height		D Boom Height		Bucket Capacity (Approximate)	
	m	ft	m	ft	m	ft	m	ft	m	ft	Yard ³	m ³
12 – 14 ton (26,400 – 30,800 lb)	12.0 13.0	39' 43'	12.00 13.00	39' 4" 42' 8"	8.30 9.00	27' 2" 29' 6"	10.50 10.90	34' 5" 35' 9"	2.10 2.10	6' 11" 6' 11"	0.52 0.39	0.4 0.3
15 – 16 ton (33,000 – 35,200 lb)	14.0	46"	14.00	45' 11"	10.70	35' 0"	11.80	38' 8"	2.30	7' 6"	0.52	0.4
20 -22 ton (44,000 - 48,400 lb)	15.5 16.5	50' 54'	15.50 16.50	50' 10" 54' 2"	11.46 12.16	37' 7" 39' 11"	13.78 14.40	45' 3" 47' 3"	2.50 2.50	8' 3" 8' 3"	0.65 0.52	0.50 0.40
23 - 27 ton (50,600 - 55,000 lb)	17.0 18.0	56' 59'	17.00 18.00	55' 9" 59' 0"	12.80 14.00	41' 11" 45' 11"	14.95 15.85	49' 0" 51' 9"	2.70 2.70	8' 11" 8' 11"	0.65 0.52	0.50 0.40
28 - 30 ton (61,600 - 66,000 lb)	18.0 19.0	59' 62'	18.00 19.00	59' 0" 62' 3"	13.80 14.00	45' 1" 45' 11"	15.20 15.50	49' 10" 50' 10"	3.10 3.10	10' 2" 10' 2"	0.78 0.65	0.60 0.50
33 - 35 ton (72,600 - 77,000 lb)	18.5 20.0	60' 65'	18.50 20.00	60' 5" 65' 6"	14.50 16.00	47' 6" 52' 6"	15.10 15.60	49' 6" 51' 3"	3.40 3.40	11'0" 11'0"	0.91 0.78	0.70 0.60
40 - 45 ton (88,000 - 99,000 lb)	21.0 22.0	68' 72'	21.00 22.00	68' 10" 72' 2"	15.30 16.25	50' 2" 53' 4"	15.58 15.92	49' 3" 52' 3"	3.70 3.70	12' 2" 12' 2"	1.04 1.04	0.80 0.80
50 - 55 ton (110,000 - 121,000 lb)	21.0 22.0	68' 75'	21.00 22.00	68' 10" 72' 2"	15.00 15.80	49' 3" 51' 10"	15.95 16.05	52' 4" 52' 8"	3.95 3.95	12' 11" 12' 11"	1.30 1.17	1.00 0.90
60 - 65 ton (132,000 - 143,000 lb)	23.0	75'	23.00	75' 5"	17.50	57' 4"	17.50	57' 5"	4.10	13' 6"	1.56	1.20
70 - 75 ton (154,000 - 165,000 lb)	24.0	79'	24.00	78' 8"	18.10	59' 3"	19.00	62' 4"	4.60	15' 1"	1.82	1.40
80 - 85 ton (176,000 - 187,000 lb)	25.0	82'	25.00	82' 0"	18.60	61' 0"	19.20	62' 11"	4.70	15' 5"	1.95	1.50
100 - 110 ton (220,000 - 242,000 lb)	27.0 28.0	88' 92'	27.00 28.00	88' 7" 91' 9"	20.00 21.00	65' 7" 68' 10"	19.00 20.00	62' 4" 65' 7"	5.00 5.00	16' 5" 16' 5"	2.08 1.82	1.60 1.40
120 - 130 ton (264,000 - 286,000 lb)	28.0 29.0	92' 95'	28.00 29.00	91' 9" 95' 1"	21.00 22.00	68' 10" 72' 2"	20.00 20.50	65' 7" 67' 3"	5.50 5.50	18' 1" 18' 1"	2.08 1.82	1.60 1.40

- Dimensions & specification only for reference. It vary from machine model.
- Dimension are subjected to change without prior notice for sustainable product improvement.

BUCKET



Excavator bucket or digging bucket possess the power and force for the digging operation into the ground. We understand the necessity to fulfil our customer requirement according to their working environment and nature. TSBC Engineering provide different option of the bucket which include :

- General Purpose bucket
- Mechanical & Hydraulic Clamshell Bucket,
- Skeleton Bucket
- Heavy Duty Bucket
- Rock Bucket
- Ripper Bucket
- Ditching / Batter Bucket.

Our bucket are designed for different excavation work considering the type of material used, material density, size of material, abrasiveness of material, the working environment, high impact, low impact application or profile of the bucket.

We are balancing the high stresses exerted on each bucket by selecting high quality steel plate with different industrial grade and perfect welding quality control assisted by computer design to guarantee structural strength, performance and quality.

Application :

- Ditching/Batter Bucket : Used for cleaning wide trenches, slope cutting, loading materials, finishing construction work, landscaping & road maintenance application.
- Rock Bucket : Designed for demolition & rock handling. It is built for aggressive bucket loading in high abrasive applications.
- Ripper Bucket : Used in the excavation work in the quarry, or hard ground.
- Skeleton Bucket : Built for sifting out rock, brush or other large debris in soil.
- Clamshell Bucket : Used for handling the complete range of bulk commodities .

Features

- Extended bucket strength & durability with high quality & abrasive resistant material.
- Superior bucket design & customized bucket capacity.
- Optional bolt-on side cutter & wearing plate to improve bucket productivity.
- Mounting bracket directly welded onto top plate & bucket shell.
- Hard chromed stainless steel cylinder rod for hydraulic clamshell bucket.
- Equipment of bucket teeth on the cutting edge to provide higher strength and longer life.

ORANGE PEEL GRAB



Hydraulic Orange Peel Grab (cactus grab) are designed for handling municipal waste, wood chip, scrap and gravel.

The grab are executed with its hydraulic system with high penetration power. Our design of the grab grants a very high gripping force, due to the vertical and large cylinders and the geometry of the tines.

Features

- Customized individual driven tine.
- Robust structure in high elastic strength steel.
- Hard chromed stainless steel cylinder rod.
- High closing force & maximized penetration power.
- Optional rotation mechanism.
- Low periodic maintenance & less downtime.

Application :

- Handling of scrap, woodchips, domestic waste materials, rock dumping, compacted car bodies.
- Dredging work for mining & construction.



Mechanical Orange Peel Grab are specially designed for heavy duty operations. It is used in several executions for scrap or small rocks handling.

We manufacture customized grab that can be executed in 2 ropes & 4 ropes (holding rope & closing rope) operation.

Features

- High quality wear resistance steel.
- Reinforced lever arm.
- Heavy duty bearing & shaft.
- Easy periodical maintenance.
- Customized number of ropes & tines.

Application :

- Loading & unloading lump cargo, pig iron, ore, clinker, garbage woodchips.
- Dredging work for port, shipping, mine, metallurgy, architecture, waste treatment plant.

ADVANCED FACILITIES & EQUIPMENT

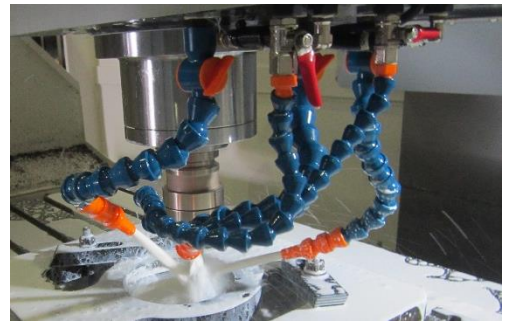


TSBC Engineering invest heavily in latest equipment in our manufacturing facilities. We provide training and workshop periodically to our employees to improve their skills and stay competitive in this industry.

Detail and scheduled research and development (R&D) conducted by our engineering discover and create new knowledge about scientific and technological topics for the purpose of uncovering and enabling development of valuable new products, processes, and services. Our effort in optimizing the productivity and efficiency is to reward our valued customer for their trustiness in believing our company.

For our professional sales service, an attentive commission test is done prior to the shipment to ensure the functionality of our products and great after-sales service to provide support and service to the customers.

TSBC engineering uphold "Reliability and Quality" as the most important management policy. We are committed to provide secure, innovative products and services that best meet and exceed the needs of our customers around the world. We are confident that our innovation and quality in the products set us apart from our competitors.



BUILT FOR BETTER PERFORMANCE



TSBC Engineering Sdn. Bhd is a specialist in design and manufacturing of amphibious excavator and attachment. With multiple years field experience in the mechanical and construction industry, we have been making sustainable progress possible and has proven ourselves as the premium amphibious excavator manufacturer in the region.

We use experience and intelligence to adjust the operating characteristic of the excavator and all features are designed to maximize performance. Our company emphasize in two way communication where we not only take customer input into consideration but to also take it to manufacturing. We always strive to exceed customer's expectation to ensure that their assets are based on solid, defensible judgments on equipment benefits cost and return on investment.

By delivering the best products and service to the customer, TSBC Engineering Sdn. Bhd is committed to build a long term relationship with our valued customer.



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