

ARCHIMEDEAN SCREW PUMP

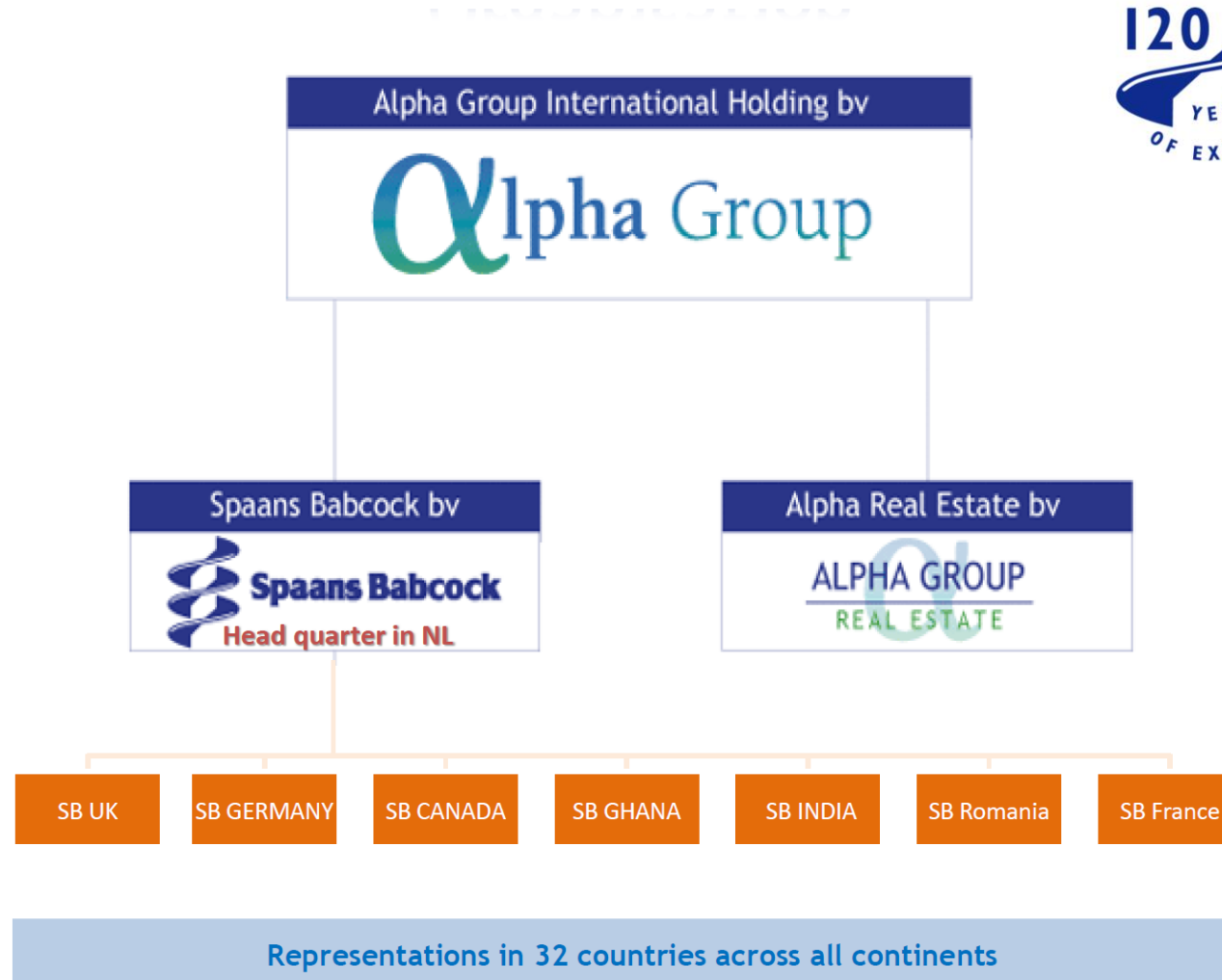


by  **LANTEC Environmental Sdn Bhd**

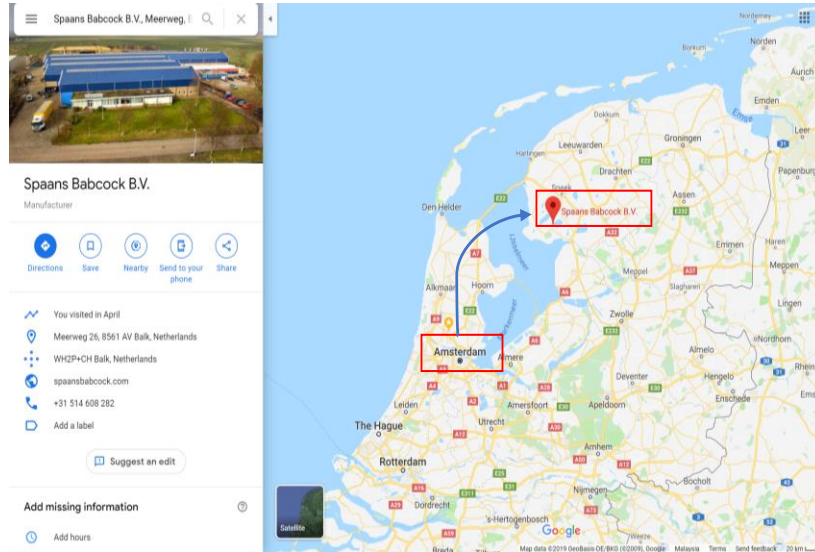


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INTRODUCTION TO SPAANS BABCOCK



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INTRODUCTION TO SPAANS BABCOCK

Quality:

- ✓ Quality Assurance ISO **9001:2015**
- ✓ Surface preparation ISO 8501-1, 1988
- ✓ Welding methods according ASME, AWS and EN-ISO-15614
- ✓ Welders qualified according NEN-EN-ISO-9606
- ✓ Spaans quality control / ITP
 - dimensional report
 - painting report
 - material certificates
 - test reports

Components:

A-brands are mainly used, which provide worldwide service network:

- | | |
|------------------|---------------------|
| ✓ Screw bearings | Spaans / SKF |
| ✓ Coupling | Flender |
| ✓ Gearbox | Flender / SEW |
| ✓ Motor | Siemens / WEG / ABB |



INTRODUCTION TO SPAANS BABCOCK

Screw body:

- ✓ Superior welding
Automatic welding with constant current ensures high quality



- ✓ Flight segments
Made of single steel segments



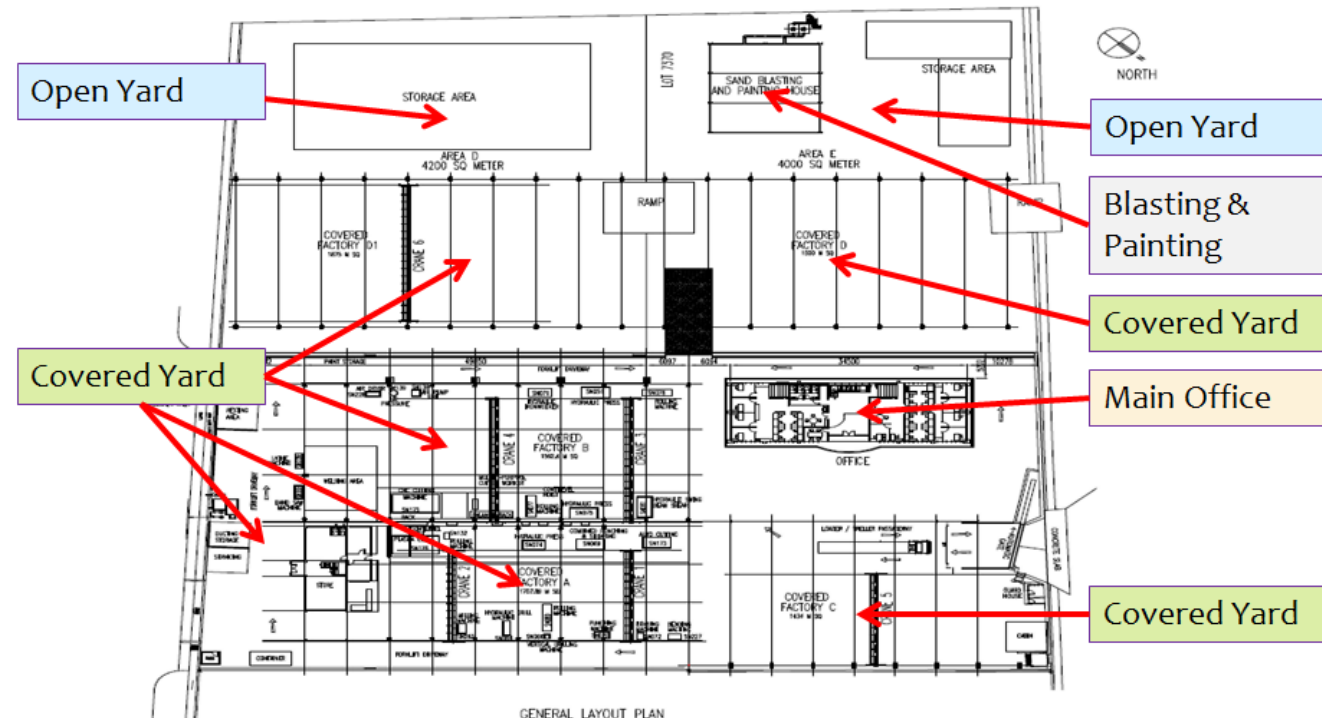
LOCAL MANUFACTURING FACTORY



LOCAL MANUFACTURING FACTORY

➤ BME headquarter is in Malaysia, with its administration building and manufacturing facilities at Bandar Teknologi Kajang, Selangor, Malaysia. With total land space of more than 17,000 square meter, our facilities comprises a 3-storey office building on built-up space of 1,500 square meter and 8 yards measuring a combine land space of more than 16,000 square meter, consists of fabrication yard, painting yard, open yard).

LAYOUT MAP



LOCAL MANUFACTURING FACTORY



SCREW PUMP REFERENCE

MALAYSIA

Simpang Ampat (2008)
Kuala Perlis (2015)
Kg Bakau (2017)

Baling (2006)
Keriang Tinggi (2015)

Parit 4 SPT (2019)
Parit 5 SPT (2020)
Prai A (2022)

Telaga Ara (2018)
Tebing Tinggi (2020)
Bachok (2021)

Kerian (in progress)

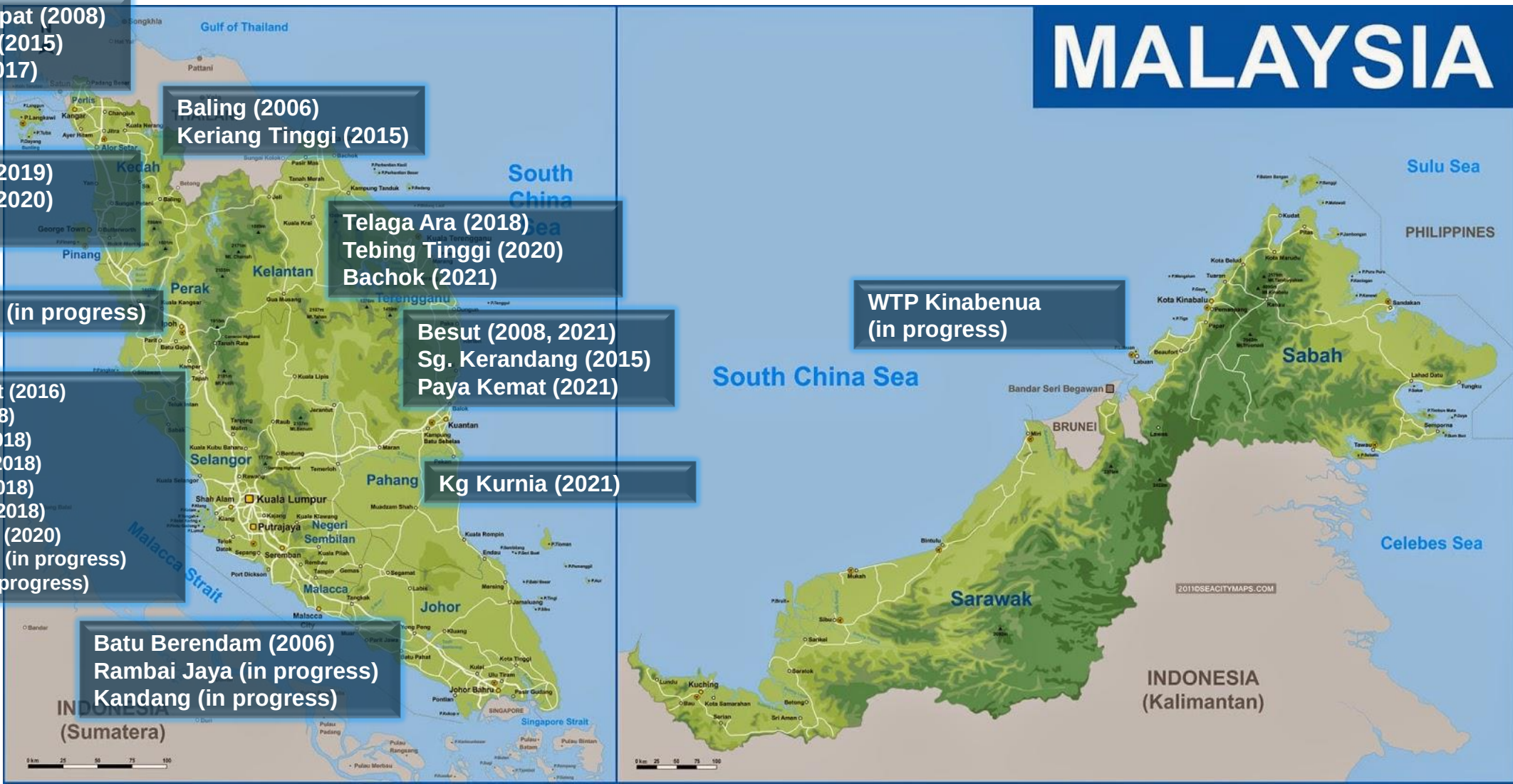
WTP Kinabenua
(in progress)

Kuala Langat (2016)
Banting (2018)
Sg Rasau (2018)
Port Klang (2018)
Sg Kuyoh (2018)
Kg Asahan (2018)
Pandamaran (2020)
Bagan Terap (in progress)
Sri Muda (in progress)

Besut (2008, 2021)
Sg. Kerandang (2015)
Paya Kemat (2021)

Kg Kurnia (2021)

Batu Berendam (2006)
Rambai Jaya (in progress)
Kandang (in progress)



AFTER SALES SERVICES



Fast & efficient delivery



Fast & efficient installation



Training & trouble-shooting



Control panel & cabling

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SCREW PUMP APPLICATION

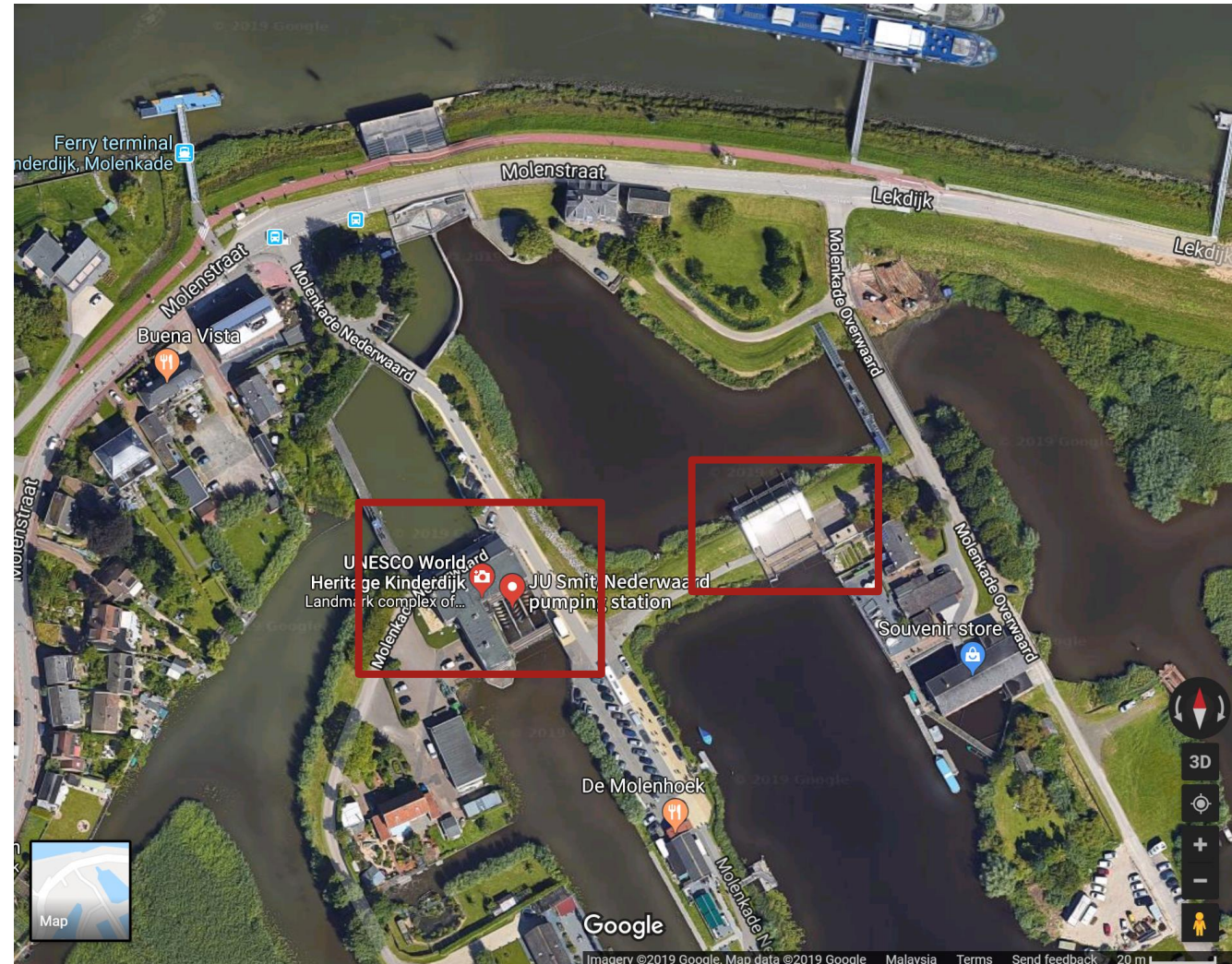
- Storm Water Pumping Stations (Flood Control)



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SCREW PUMP APPLICATION

- Drainage Pumping Stations



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SCREW PUMP APPLICATION

- Irrigation



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SCREW PUMP APPLICATION

- Industrial Waste Water



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SCREW PUMP APPLICATION

- STP's: Sewage Inlet Pumps

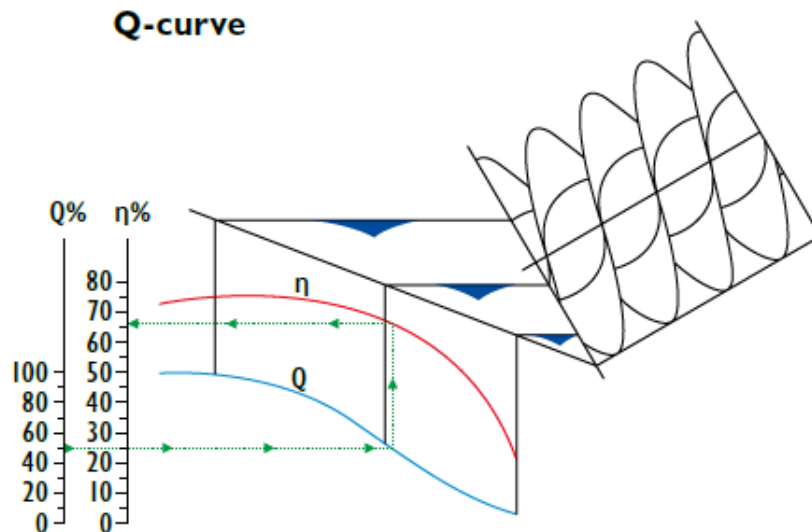




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SCREW PUMP ADVANTAGES

- Low rotation speed
 - Low wear & tear
 - Low maintenance cost
 - Long lifetime (more than 40 years)
- Easy maintenance
 - Environment friendly
- Large free passage
 - Self-clean
- Constant high efficiency
 - Self regulating pump capacity
- Not affected by water level
- Proven technology

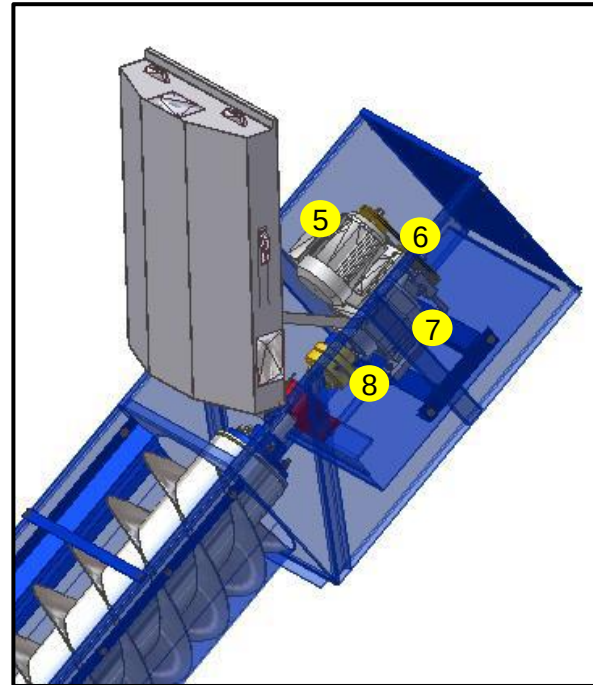
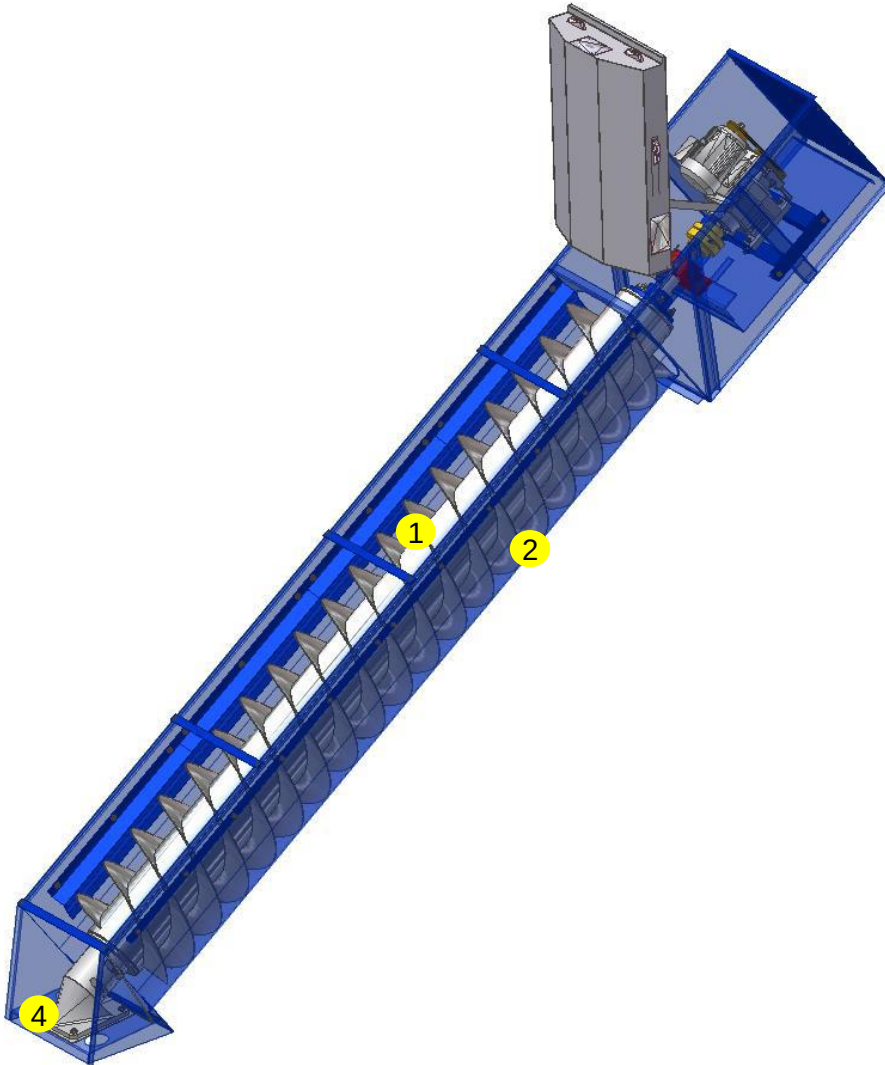


*video of screw pump running in dry condition.



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SCREW PUMP COMPONENT

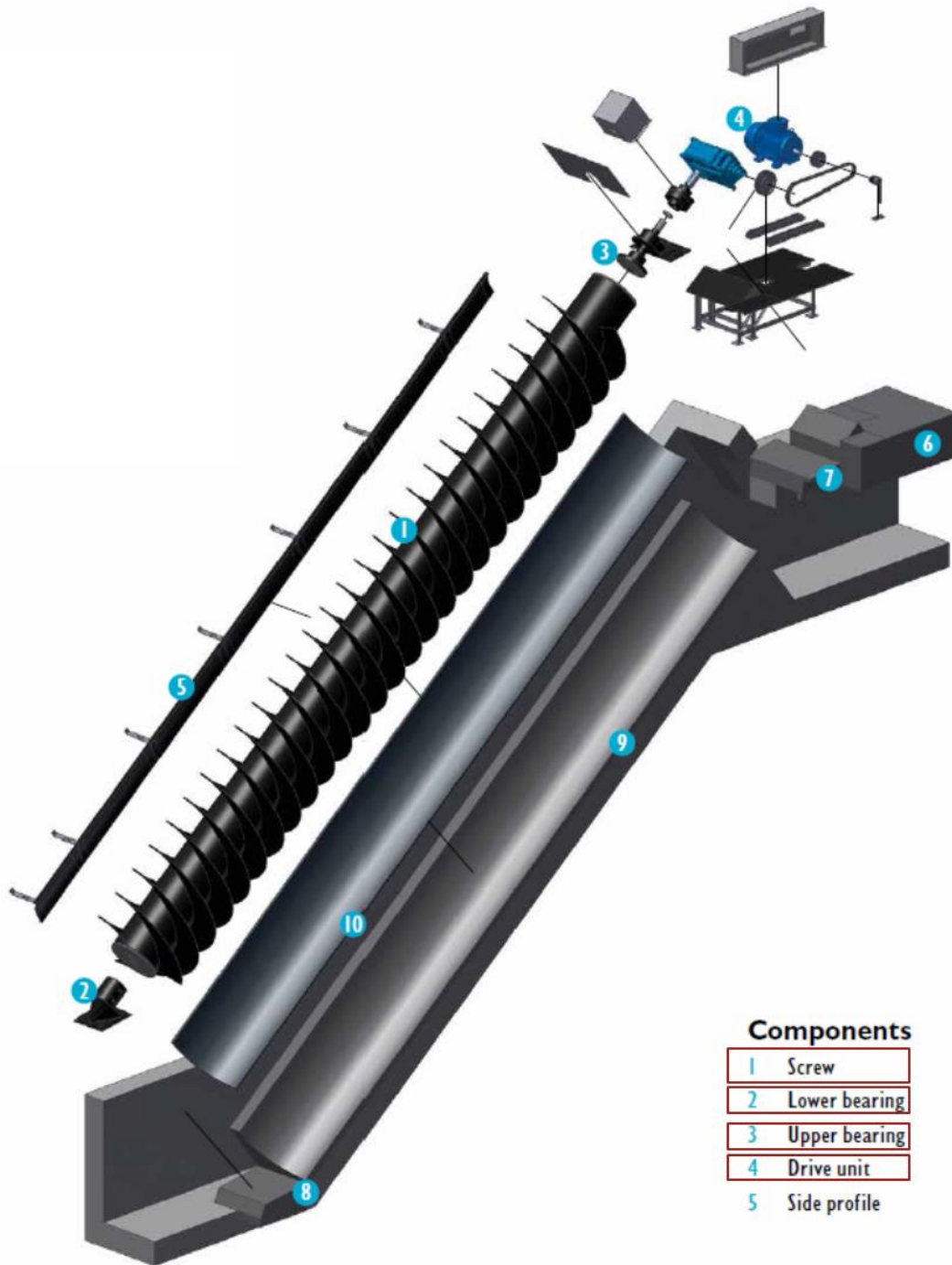


- 1 Screw (Steel S235J)
- 2 Trough (Steel S235J)
- 3 Upper bearing
- 4 Lower bearing
- 5 Motor
- 6 V-belt
- 7 Gearbox
- 8 Flexible coupling



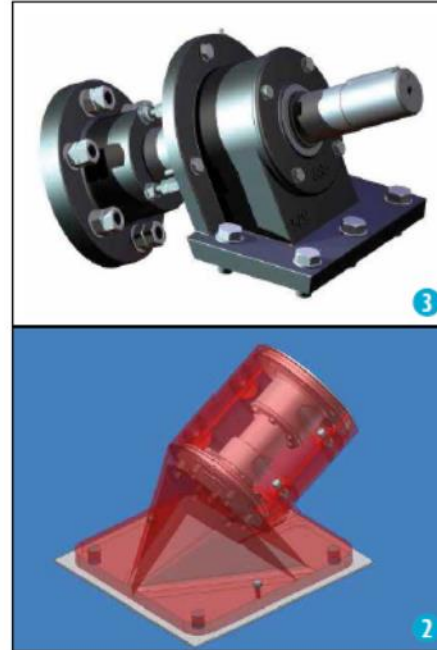
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SCREW PUMP COMPONENT



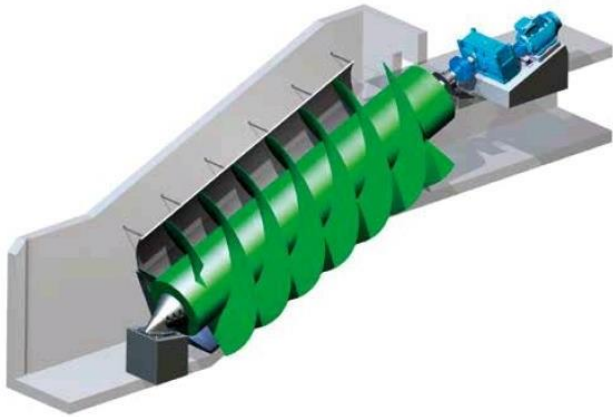
Components

1	Screw
2	Lower bearing
3	Upper bearing
4	Drive unit
5	Side profile

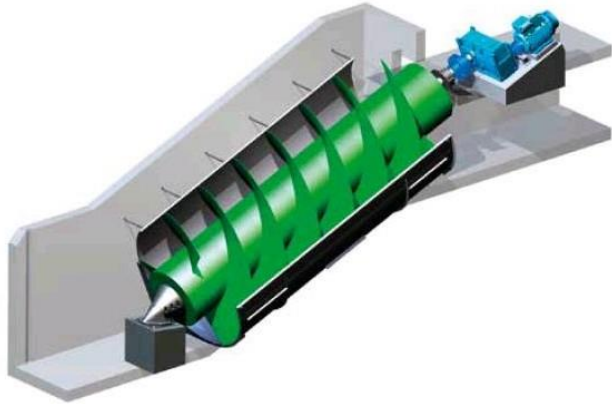


6	Concrete foundation for drive unit
7	Concrete foundation for upper bearing
8	Concrete foundation for lower bearing
9	Rough formed trough
10	Final screed

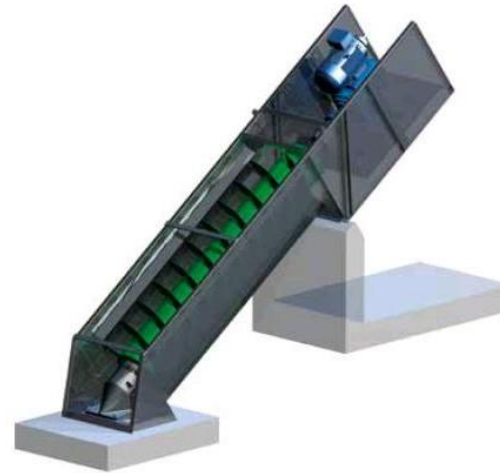
TYPES OF INSTALLATION



Concrete trough



Steel liner



Compact/Semi-compact type

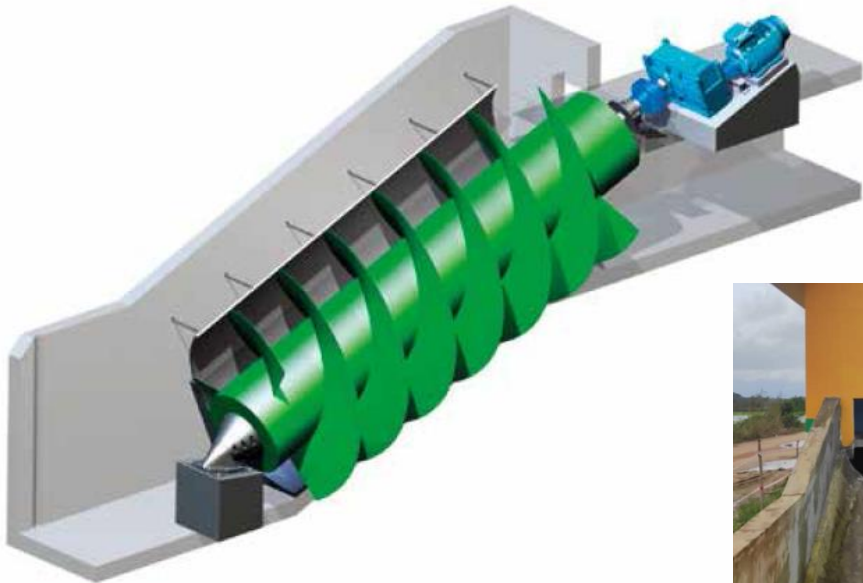


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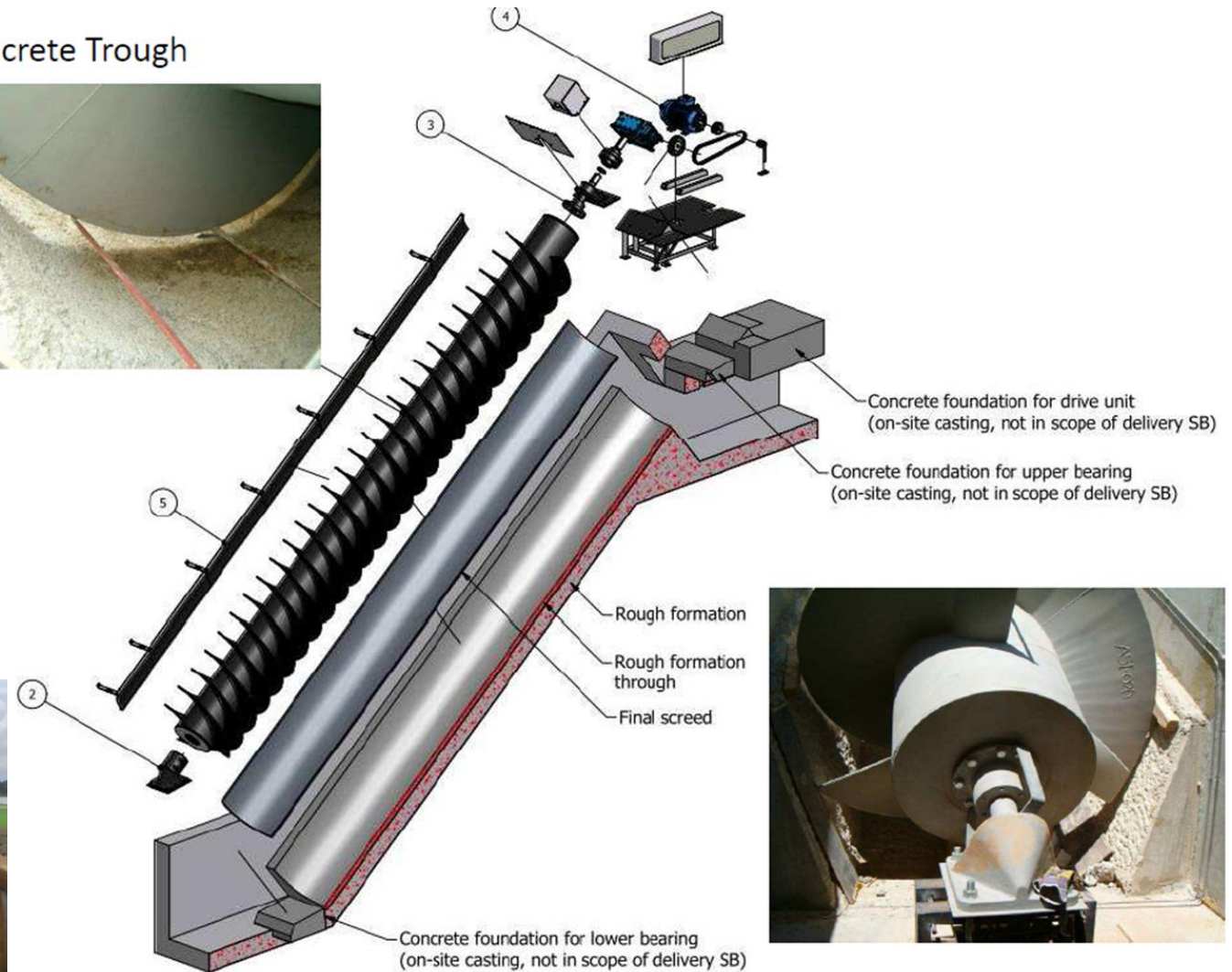
TYPES OF INSTALLATION

Concrete trough

For this type the concrete trough will be screeded by the screw pump itself.



Concrete Trough



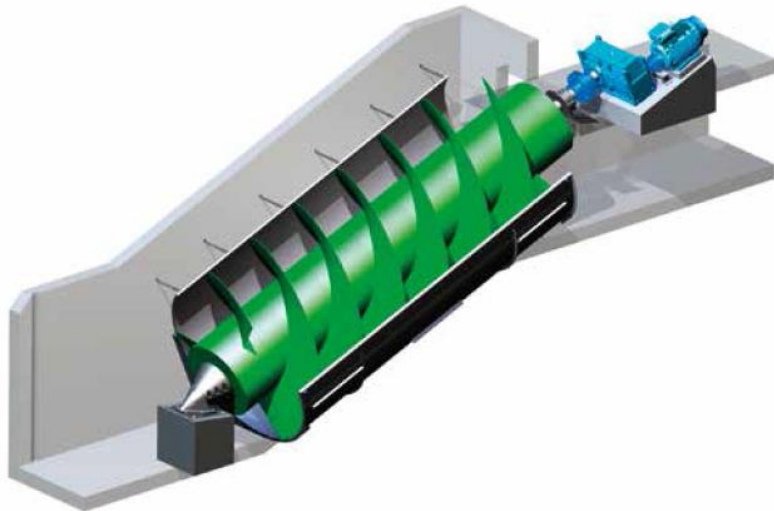
CONCRETE TROUGH TYPE INSTALLATION



TYPES OF INSTALLATION

Steel trough

Utilising a steel trough, the lifetime of the trough will be extended compared to a concrete trough. This concept will ensure a perfect fit of the screw in the trough which gives a maximum efficiency. The steel trough is preassembled in our factory.



Steel trough liner (not assembled)



No screeding required!



Concrete to be poured below the trough (by civil contractor)



Steel trough liner (assembled to the screw body)



STEEL LINER TYPE INSTALLATION



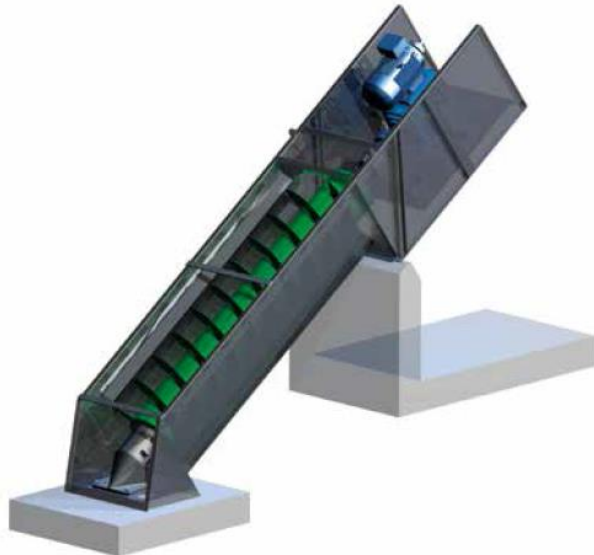


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TYPES OF INSTALLATION

Compact & Semi Compact type

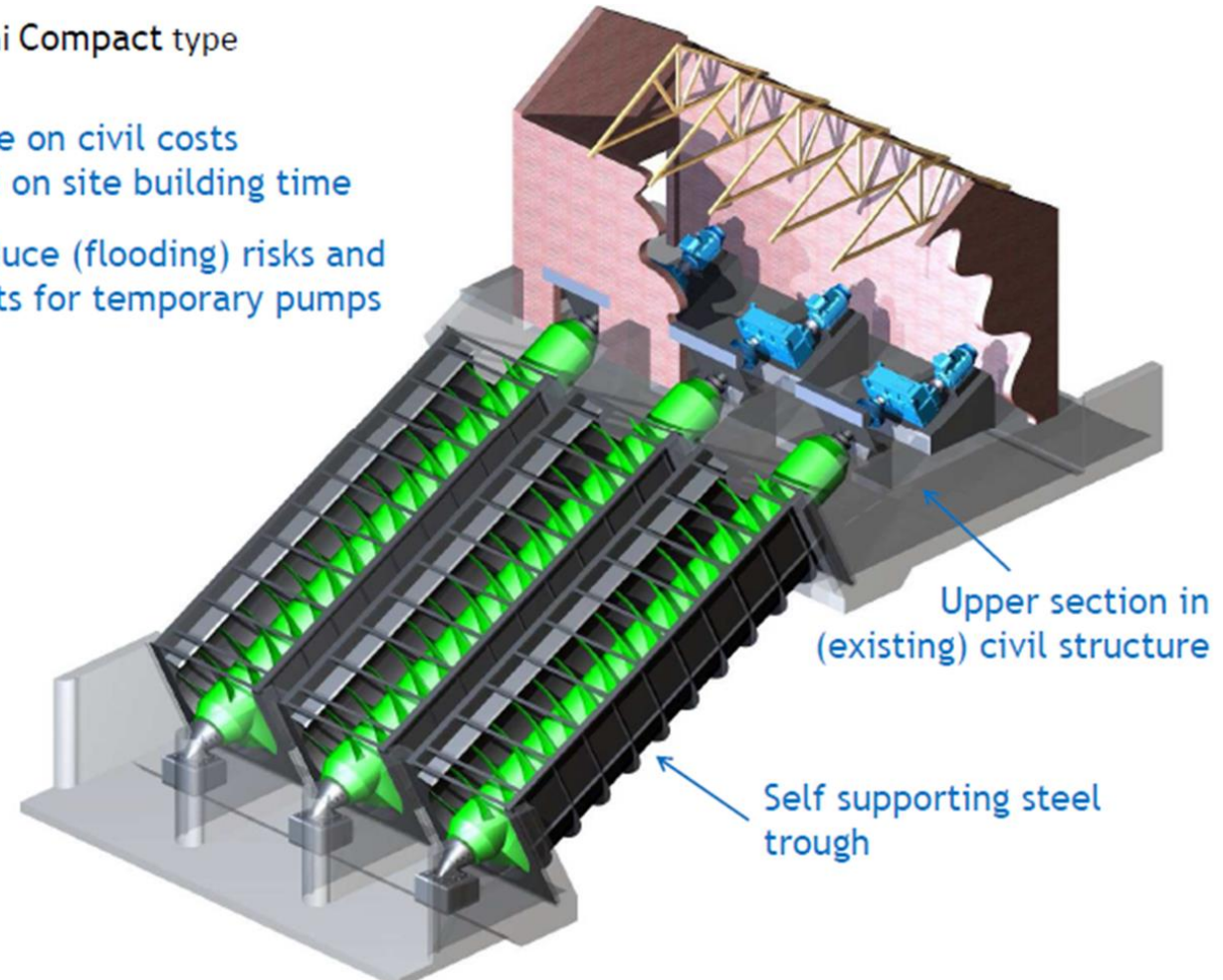
The compact type has a self supporting trough with integrated drive unit. The semi compact type has the drive unit in a machine room. It is a very simple installation and with low civil costs. The complete unit is preassembled in our factory.



Semi Compact type

Save on civil costs
and on site building time

Reduce (flooding) risks and
costs for temporary pumps



COMPACT TYPE INSTALLATION



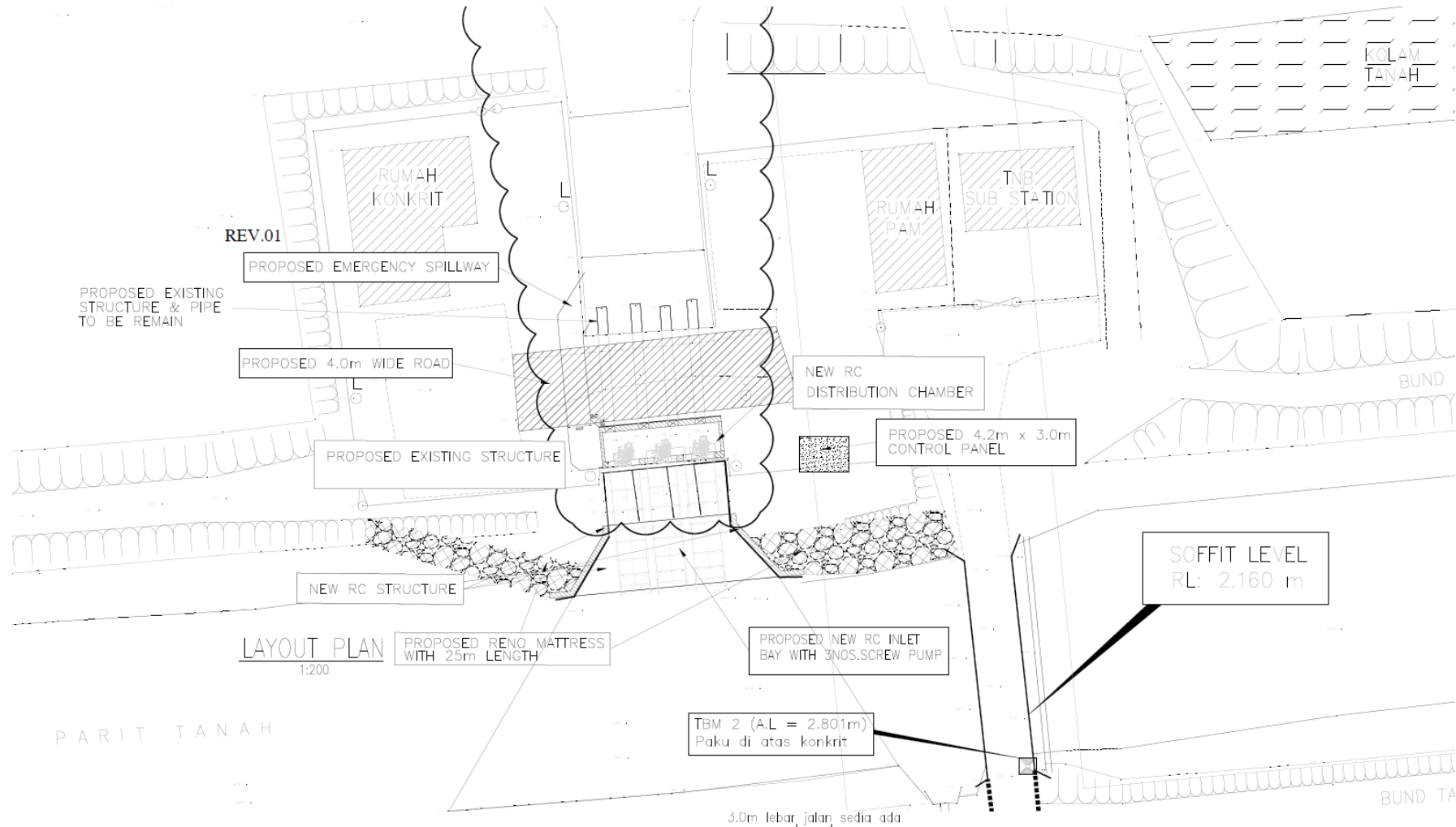


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ARCHIMEDEAN SCREW PUMP REPLACING EXISTING SUBMERSIBLE PUMP



ARCHIMEDEAN SCREW PUMP REPLACING EXISTING SUBMERSIBLE PUMP





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ARCHIMEDEAN SCREW PUMP REPLACING EXISTING SUBMERSIBLE PUMP



**Kg Asahan, 3x 1600 l/s
Installed in 2018**

ARCHIMEDEAN SCREW PUMP REPLACING EXISTING SUBMERSIBLE PUMP

AFTER



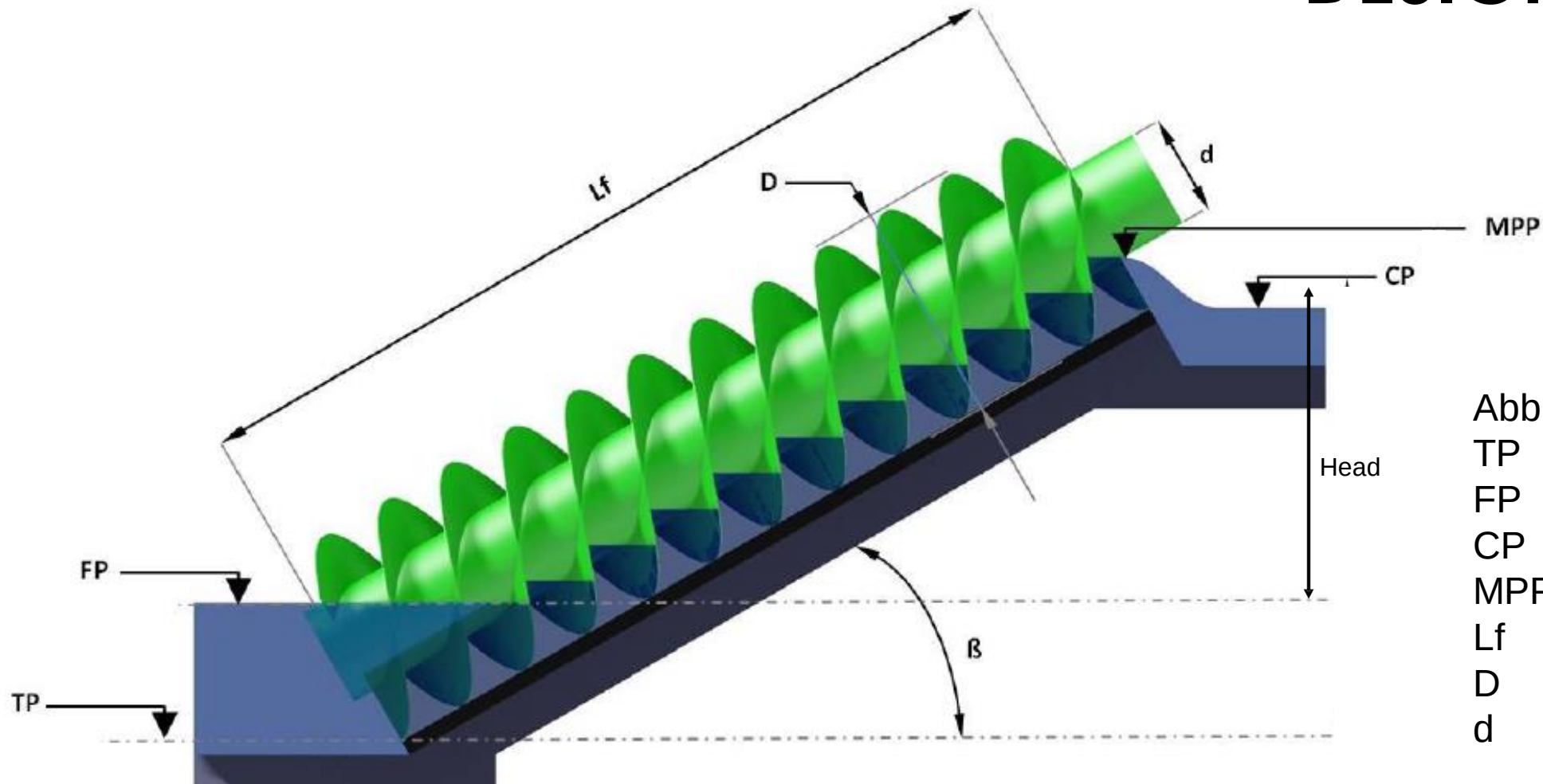
BEFORE





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DESIGN PARAMETER



Abbr.

TP touch point, capacity 0%

FP fill point, capacity 100%

CP chute point

MPP max pumping point

Lf length of flights

D diameter of screw

d diameter of tube

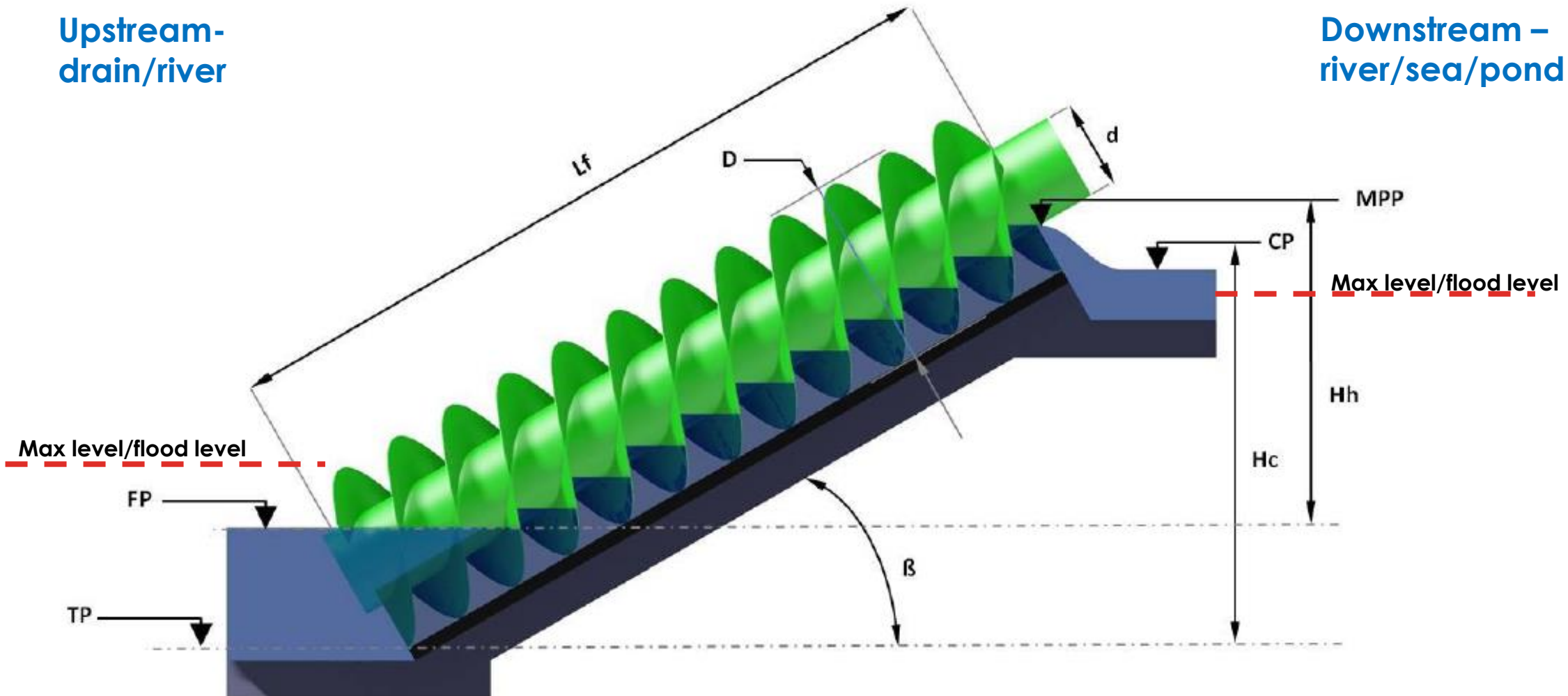
Pumping head = CP - FP

For Flood/Stormwater/Drainage application

DESIGN PARAMETER

Upstream-
drain/river

Downstream –
river/sea/pond

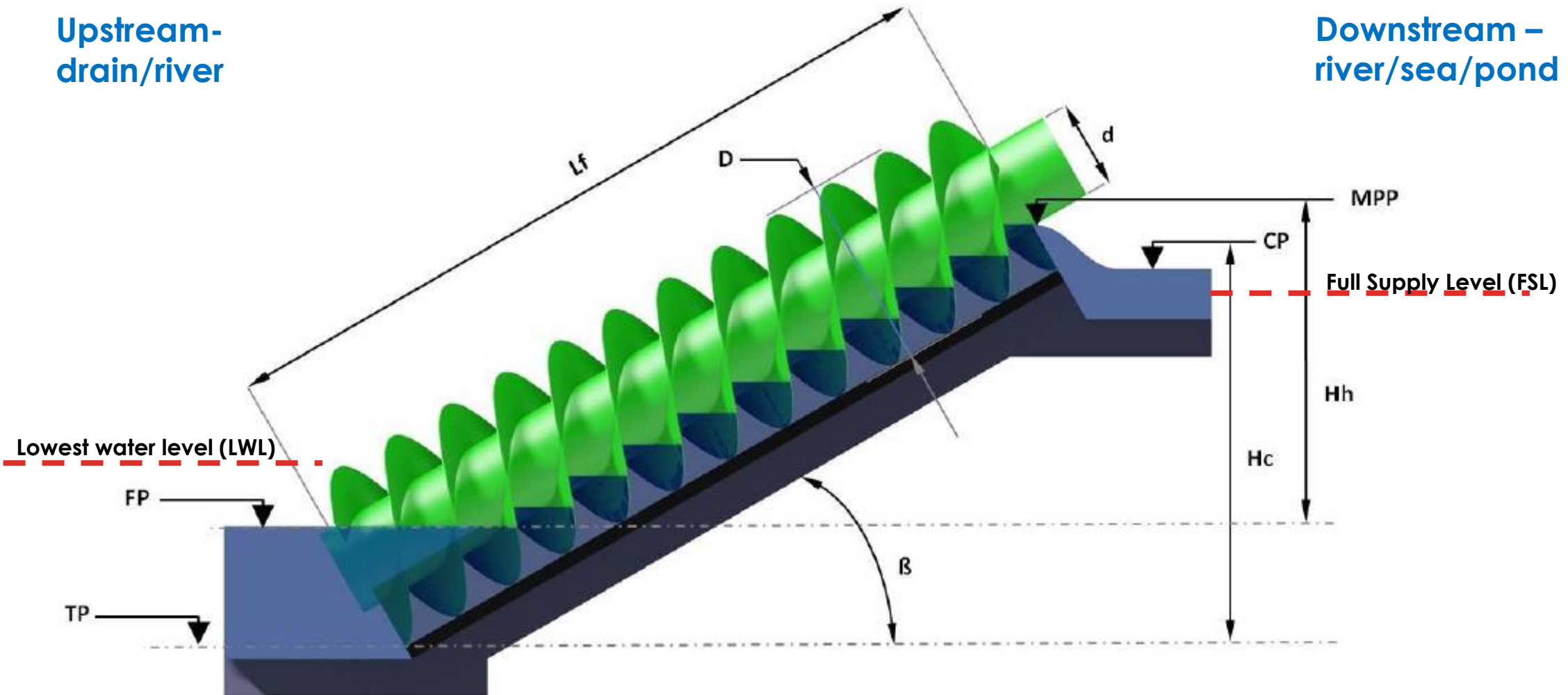


For Irrigation/intake/water supply application

DESIGN PARAMETER

Upstream-
drain/river

Downstream –
river/sea/pond





GUIDELINE TABLE

DIAMETER (mm)	30°		35°		38°	
	CAPACITY (l/s)	MAX HEAD (m)	CAPACITY (l/s)	MAX HEAD (m)	CAPACITY (l/s)	MAX HEAD (m)
400	24	2.7	18	3.1	16	3.4
500	39	2.9	31	3.4	28	3.6
600	62	3.6	48	4.2	42	4.5
700	88	4.0	68	4.7	61	5.1
800	148	3.7	116	4.3	84	4.7
900	188	4.3	152	5.1	128	5.6
1000	250	4.0	195	4.8	166	5.2
1100	305	4.7	245	5.6	207	6.0
1200	380	4.4	300	5.2	250	5.7
1400	530	5.5	430	6.5	362	7.1
1600	720	5.4	585	6.4	495	7.0
1800	980	5.3	770	6.3	650	6.9
2000	1240	5.4	980	6.5	870	7.1
2200	1530	5.7	1220	6.9	1040	7.5
2400	1920	5.1	1500	6.2	1280	6.8
2600	2300	5.8	1810	6.9	1530	7.6
2800	2740	6.1	2150	7.4	1820	8.1
3000	3230	6.0	2520	7.3	2160	8.0
3200	3750	>6.0	2950	>7.3	2480	>8.0
3400	4300	>6.0	3350	>7.3	2870	>8.0
3600	4920	>6.0	3850	>7.3	3300	>8.0
3800	5620	>6.0	4400	>7.3	3750	>8.0
4000	6350	>6.0	4950	>7.3	4250	>8.0
4500	8300	>6.0	6500	>7.3	5600	>8.0
5000	10600	>6.0	8300	>7.3	7100	>8.0

**This is guideline table. Any design please consult us for advice*



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SCREW PUMP TEST AT FACTORY

No.	Activity	Acceptance Criteria	Verifying Documents	Lantec		The Contractor		The Client	
				Action	Sign	Action	Sign	Action	Sign
1	Design documents and/or drawings review and approvals.	Purchase order documents	Purchase order Approved GA drawing	H		NA		NA	
2	Check of production drawings.	Approved GA drawing Internal production drawings	NA	I		NA		NA	
3	Inspection and measurements check on materials produced in prefab state before welding.	Dimensions and tolerances on shop drawings	Material certificate for tube and plates and purchase orders	R		RA		RA	
4	Dimensional check after welding and visual inspection.	Dimensions and tolerances on shop drawings	Measurement reports	I		RA		RA	
5	Visual inspection of blasting.	Swedish standard SA2.5	NA	I		RA		RA	
6	Coating – visual and thickness.	Coating schedule	Measurement report	IR/H		RA		RA	
7	Motor.	Purchase order	Datasheet / typical test report	R		RA		RA	
8	Gearbox.	Purchase order	Drawing / certificate	R		RA		RA	
9	Visual and dimensional control of assembly parts.	GA drawing Production drawings	NA	I		I		I	

Abbr.

I inspection

IR inspection report required

H hold point (production may not proceed before inspection is carried out)

R review

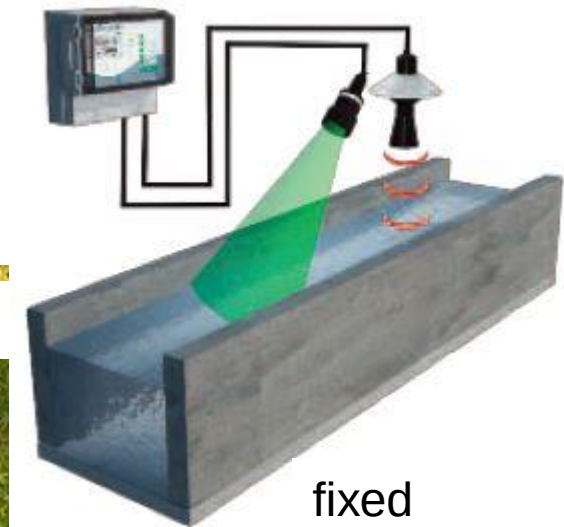
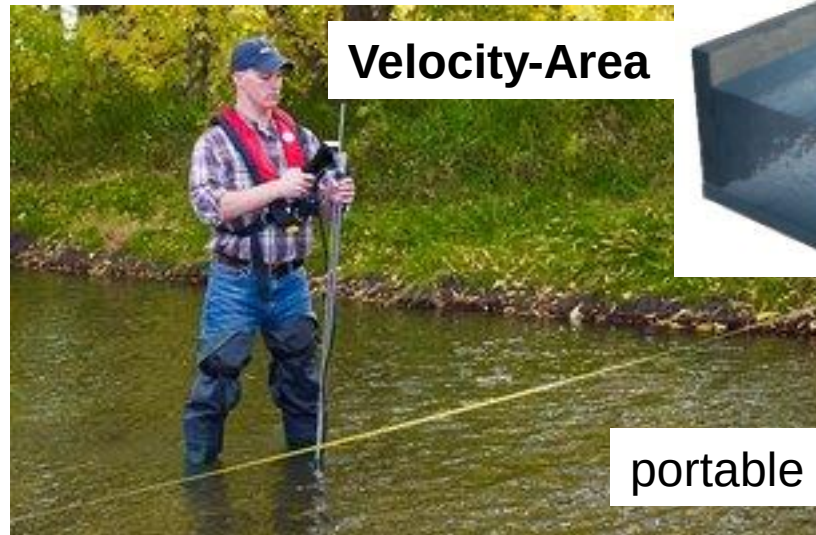
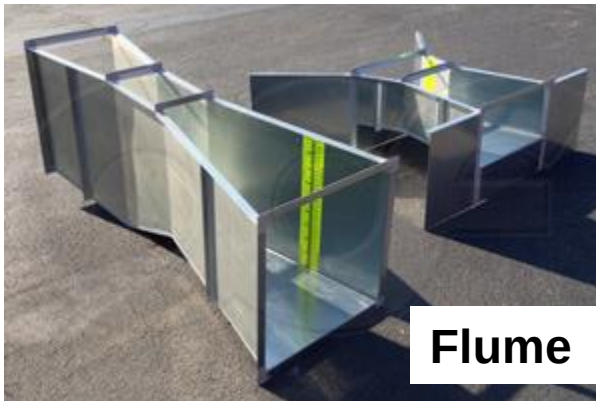
RA review and acceptance of documents

na not applicable

SCREW PUMP TEST AT SITE

1. Safe and efficient operation on the pump
2. Correct functioning of the controls and other devices
3. Capacity (optional, upon request and discharge feasibility)

Method options:





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SCREW PUMP MAINTENANCE

Item	Component	Remarks
1	Lower bearing	Lower bearing is maintenance free. It is recommended to check every 2-5 years.
2	Upper bearing	Upper bearing to re-grease monthly. Refill using lubricating nipple.
3	Gearbox	It is recommended to check oil level monthly. Oil needs to be changed after 10,000 operating hours or at least once every 2 years.
4	Electric motor	It is recommended to re-grease after 8,000 operating hours.
5	Vbelt (if applicable)	It is recommended to make visual check monthly. Belt needs to be changed after 25,000 operating hours.



SCREW PUMP MAINTENANCE COMPARISON

Submersible pump

[illegible]

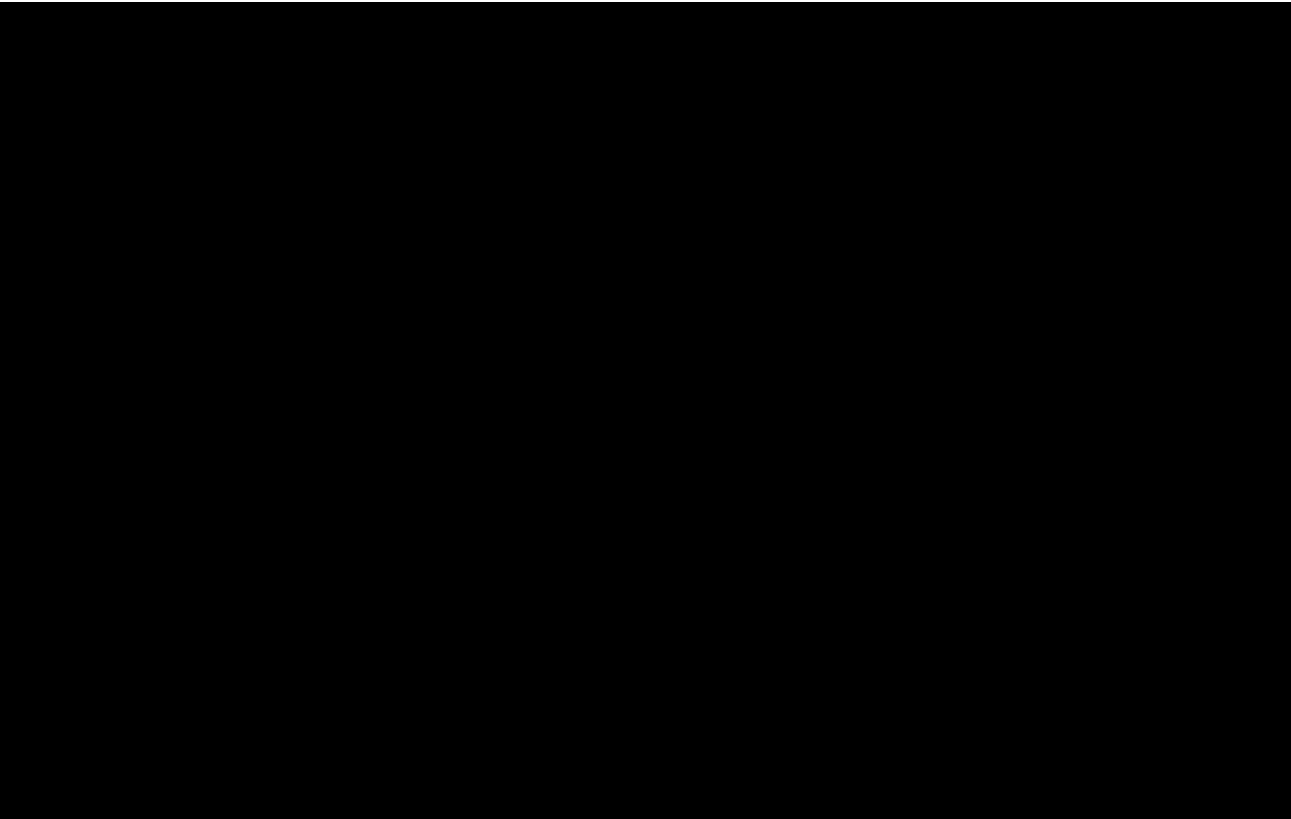
Screw pump

[illegible]



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SCREW PUMP OPERATION



Concrete trough type screw pump
Sg Kerandang, Terengganu.



Compact type screw pump
Sg Rasau, Selangor.

Thank you

Contact Us

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