How to select – Table

Criterium equipment	Soil condition	Seastate and weather	Site conditions	Logistics	Production processing	Other
Cutter suction dredgers	• Hard to soft material • Cohesive material can block the cutter • Max.diameter limited by cutter and/or pump • Rock cutting with large types	• Positioning cutterhead strongly influenced by waves • Floating pipline limited by waves and current • Sensitive to strong current	• Max.dredging depth ca. 30m, limited by reaction rces on ladder • Uwp makes pumpprocess independent from dredging depth • Moderate to good selectivity and accuracy	• Hydraulic transport • Suitable for long distances • Piipeline and/or wires can hinder shiptraffic	• Production depending on pump and cuttercapacity, pump distance and pipe diameter, large range of possiblities	• Very large range of capacities available
Wheeldredger	• Wide range of soil conditions, less suitable for hard material • Well suitable for cohesive material • No blockage pump by large stones	• Strongly influenced by waves for positioning wheel often spudcarrier • Floating pipeline limited by waves and current • Sensitive to strong current	• Max.dredging depth ca.45 m, limited by reaction forces on ladder • Uwp makes pumpprocess independent from dredging depth • Good selectivity and accuracy	• Hydraulic transport • Suitable for long distances • Piipeline and/or wires can hinder shiptraffic	• Production depending on pump and wheelcapacity, pump distance and pipe diameter • With constant production rate and high concentration suitable for feeding treatment plant (mining)	• Large range of capacities available
Trailing suction Hopper dredger	• Loose gravel, sand and silt easily handled • Clay or cemented sand with jets or knives on draghead	• Very suitable to work in rough sea and currents • Self- propelled	• Dredging depth > 70m for largest tshd • Uwp makes pumpproces independent from dredging depth • Moderate selectivity and accuracy	• Suitable for long distances • Several unloading options possible (dumping, pumping ashore) • High mobility • Limited by draught	• Production depending on pump and draghead capacity, pipe diameter and sailing distance • Large capacities can be transported in hopper • Overflow losses during loading	• Very large range of capacities available
Plain suction dredgers	• Uncohesive sand, gravel • Waterjets required for fines or very course material • Interlayers of clay or cemented sand cause problems	• Suitable for moderate waves; new swell compensating system offers new possibilities • Floating pipeline limited by waves and current • Sensitive to strong current	• Max. Dredging depth ca. 50m, no cutting forces on ladder • Uwp makes pumpproces independent from dredging depth • Non selective, crater-like bottom profile	• Hydaulic transport • Suitable for long distances • Pipeline and/or wires can hinder shiptraffic	• Production depending on pump capacity, pump distance, pipe diameter and breaching capacity soil • High concentration possible in easily breaching material	

How to select - Table

Criterium equipment	Soil condition	Seastate & weather	Site conditions	Logistics	Production - processing	Other
Crawlcat	• Non-cohesive soil, clay and silt with bottom disc cutter • Resuspension of silt by tracks • Not suitable for hard materials	• Indepenent of waves and current by spuds, limited by small size of equipment	• Max. Dredging depth ca. 10m • Excellent selectivity and accuracy	• Hydraulic transport • Suitable for long distances • Pipeline can hinder shiptraffic • Very high mobilty	• Pump installation equal to small cutter suction dredger, production idem	• Bottom pressure of tracks adjustable with pontoon draught
Bucket ladder dredger	• Large number of soil types incl. Soft rock • Sticky clay gives problems with unloading bucket • Fines can be washed out of the bucket • Large boulders possible	• Strongly influenced by waves • Sensitive for strong current	• Nominal dredging depth to 25m, to 50m built for minning projects • Good selectivity and accuracy	• Transport by barges or flaoting belt conveyor; latter can hinder ship traffic • Wires can do the same	• Production depending on bucket volume and chain speed • Material relatively “dry” and flow continuous • Suitable to feed treatment plant	• New type of chain causes less noise and less energy
Clamshell dredger or grab dredger	• Uncohesive sand, gravel • Interlayers of clay or cemented sand cause problems • Fines can be washed out of the bucket • Hydraulic clamshell shows better performance	• Positioning grab influenced by waves and current • Floating conveyor very sensitive to current	• Dredging depth “unlimited” > 100m • Low selectivity and accuracy	• Transport by barges or floating belt conveyor; latter can hinder ship traffic • Wires can do the same • Slurryfication and pumping ashore also possible	• Production depending on clamshell capacity and fill factor, production reduces with increasing depth • Material relatively “dry” • Suitable to feed treatment plant aboard	
Backhoe dredger	• All soil conditions, incl. Rock • Sticky clay cause problems with unloading • Fines can be washed out of the bucket • Large boulders possible	• Independent of waves and current by spuds • Limitation by ability of barges to moor alongside	• Dredging depth to 25m with limited excavation power or small buckets • Very high selectivity and accuracy	• Transport by barges, sometimes with floating belt conveyor • No hinderance of ship traffic	• Production depending on bucketvolume and cycle time (dredging depth) • Material relatively “dry”	