

Multiple Rope Concept vs. Nivatec Guide Rail System

technical and commercial aspects

Item	Feature or Issue	multiple rope	Nivatec	Remarks
1	Guide Rail	no guide rail	extruded aluminum guide rail	the guide rail allows lowering and raising of the system even under adverse weather conditions possible (wind)
2	Rolling Carriage	not available	standard	the rolling carriage allows a secure lowering and raising of the mast crown on the guide rail and prevents it from swaying even under adverse weather conditions (wind)
3	Emergency Brake	not possible	double safety brake	if rope not under tension the safety brake is activated immediately and clamp firmly with the guide rail
4	Mast Head	multiple pulleys for ropes and electrical cables	only one pulley for rope	multiple pulleys for rope and electrical cables bear a considerable risk for entanglement. Electrical cables and ropes may jump out and block the system or twist cables and ropes
5	Wind	lowering difficult or impossible, as mast crown sways	the guide rail allows secure lowering and raising of mast crown	the rolling carriage is securely guided on the guide rail and prevents the mast crown from swaying while travelling downwards or upwards
6	Lowering / Lifting	3 operators required, under windy conditions not possible Time up to 20 minutes, winch or motor has to be attached and detached	1 operator required, under windy conditions possible. Time: 8 minutes	The guide rails allows operation under windy conditions and prevents the crown from swaying and hitting or damaging the mast The integrated winch of the Nivatec system allows immediate lowering of the system with a lightweight control unit
7	Mast Crown	crown has to be balanced, design options are limited	no balance necessary, free in design	The Nivatec system allows almost all variations of crown design (asymmetric, circular, rectangular or even V-shape)
8	Crown on Mast Top	Locking clamps do not function when crown hangs oblique due to different rope lengths.	securely connected to mast head. Guide rail and rolling carriage assure the crown to hang level	The Nivatec latching device assures firm connection of the mast crown to the mast head.
9	Cables	Electrical cables are hanging and moving inside and outside the mast and are likely to entangle with the rope. Exposed to additional load when crown is lowered during windy conditions.	no moving electrical cables - all electrical cables are firmly fixed in conduit tubes inside the mast	no moving electrical cables as Nivatec uses contact blocks on carrier and mast head for energy and signal transmission. No entanglement between electrical cables and ropes possible
10	Wear and tear of electrical cables	electrical cables will wear and tear by being moved over pulleys	no wear and tear	Contact blocks prevents the use of pulleys and eliminates the risk of electrical cables jumping out from pulleys

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11	Number of electrical cables	limited by the number of pulleys at mast head	electrical cabling concept with up to 80 contacts possible	If the ballast is on the ground level a greater number of contacts and electrical cables are required
12	Signal cable	requires additional pulley on mast top, wear and tear due being moved	easy to integrate	signal cables are securely placed in conduit tubes inside the mast. Signals can be transmitted over contact blocks.
13	CCTV Cameras & Antennas	difficult to integrate, requires additional cables	easy to integrate, camera can be mounted onto lowerable mast crown	Nivatec contact blocks allow the transmission of signals and energy. Maintenance of camera at bottom level possible
14	CCTV Camera on mast crown	derogation of picture due to vibration	high picture quality, no vibration	The Nivatec Mast Crown is firmly latched to the mast head. No vibration or shaking assure a stable picture.
15	Rope	length of each rope will differ over time, crown will hang oblique	single rope and guide rail assure permanent horizontal positioning of crown. No rope greasing required	Nivatec single rope design has 6-fold security and emergency brake. Guide rail and rolling carriage assure smooth lowering and raising of the mast crown
16	Rope failure	mast crown hangs oblique, difficult or impossible to lower, damages on mast likely	crown will hang level on the guide rail, no damages on mast	emergency brake and guide rail will hold the mast crown securely, firm and level
17	Contact blocks	not available	standard feature	secure contact, no disorder of cables in mast bottom during operation, entangling or twisting of electrical cables not possible. Up to 80 nos. Contacts.
18	Winch and Motor inside of mast	not available	standard	Handling of mobile winches is cumbersome, time consuming and requires additional staff.
19	CE - Declaration		EU-Declaration of conformity	fulfillment of the fundamental requirements for safety and health of the EU-directives for machinery.
20	System Maintenance		not required, including masthead pulley, winch and rolling carriage	pulley is running on long life bearings. The Nivatec system does not require any greasing