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 QMS - Part III : I N S T R U C T I O N Q S A - L V / 8 0 0 1  
 ZGW - Products : ROPE WINCHES AND SLEWING GEARS Department : LV-Painting/Dispatch  
 Quality Classification : QE1 - QE3 Prepared : QS-Tobler  
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CONSERVATION INSTRUCTION FOR ROPE WINCHES AND SLEW GEARS  
 WORK INSTRUCTIONS FOR THE CONSERVATION, THE PACKAGING AND THE DISPATCH OF ZOLLERN ROPE WINCHES AND SLEW GEARS

ITEM ND.	WORKING STEPS	ACTIVITIES TO BE CARRIED OUT	ACCEPTANCE, CRITERIA AND PROCESS REGULATIONS
1.0	UNDERCOAT - PRE - TREATMENT OF RAW PARTS		( RAW PART SUPPLIERS )
1.1	BLASTING OF UNMACHINED CAST IRON, RAW STEEL AND WELDED PARTS	Blasting of all cast and welded parts in unmachined state by the cast or welded parts supplier. The flame-cut edges and the seams of the welded parts must be blasted carefully. Sharp edges are to be ground down before blasting.	Blasting according to SA 2,5 (ISO 8501-1/88) STEEL- AND WELDED PARTS : The coarseness must correspond to the coarseness scale, segment 3-4 of the type-G comparator ( Rz = min. 40 µm and max. 85 µm ) according to ISO 8503-1. CAST PARTS : The permissible coarseness acc. to DIN 4766-1 is RZ = max. 200 µm depending on cast process.
2.0	RUST PROTECTION / PRIMING OF RAW PARTS		( RAW PART SUPPLIERS )
2.1	RUST PROTECTION OF RAW CAST PARTS	Priming of all raw cast parts by the casting suppliers.	2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 1014 or other. INTERNATIONAL, Hamburg or other synthetic oil resistant paints from the raw part supplier. The compatibility with aforementioned Zollern INTERGARD 345 Primer must be warranted. Dry Film Thickness : DFT min. 50 µm Processing regulations : Producer's data sheet
3.0	CLEANING THE FINISHED PARTS		BEFORE ASSEMBLY ( ZOLLERN )
3.1	CLEANING AND DEGREASING OF THE SMALL MACHINED PARTS (up to max. 1x1x1m)	Cleaning and degreasing in the automatic pass-through washing machine. Detergent : S u r T e c 0 4 2	All machined parts must be clean, grease-free, dry and treated with temporary corrosion-protection. Washing temperature : 70 - 80°C. Detergent replacement : 1/4 - yearly
3.2	CLEANING , DEGREASING AND PHOSPHATING OF LARGE PARTS	Cleaning, de-greasing, phosphating and drying of parts (Rope drum, winch frame etc.). Degreasant : S u r T e c 0 8 6 Phosphate : S u r T e c 6 0 0	All large parts must be clean, grease-free, phosphated and dry. Composite samples of the phosphating and degreasing agents are taken every Monday acc. to the manufacturer's test instruction.

Position of Zollern Quality Plan : 8.0 Conservation and packaging

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QMS-Element according to DIN ISO 9001 : 4.15.4 - 4.15.6 Conservation, Packaging and Dispatch

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4.0	PRIMER COATING DURING / BEFORE ASSEMBLY		( ZOLLERN )
4.1	PRE-PRIMER COATING DURING THE ASSEMBLY	Manual preliminary coating with a brush during assembly - e.g. rating plate area, hollow spaces, built-on parts etc.	2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 1014 / Ivory-Colored Small, non-primed parts and areas no longer accessible after assembly are given a preliminary coating manually.
4.2	PRE-PRIMER COATING DURING THE ASSEMBLY IN THE PAINT SHOP	Preliminary coating of parts with large surfaces and pre-assembled units in the paint shop which are only partly or not at all accessible and only partly receive a top coat or none at all, e.g. ready-assembled planetary gears, cable drum interior, installation side of the flange plates, end housing, etc.	2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 1014 / Ivory-Colored Dry Film Thickness : DFT min. 140 µm Rope drum groove : No Primer Coating Evaporation drying : min. 30 Minutes / 40°C Reworking interval : min. 90 Minutes / 40°C The primer may only be applied if the background temperature of the parts is min. 3° C above the dew point ( temperature of the parts due to all day hall storage approx. 20° C ). The temperatures of the painting and drying plant are automatically system-controlled.
4.3	PRIMER COATING OF WELDED PARTS DURING THE ASSEMBLY IN THE PAINT SHOP	Zinc-Rich Primer Coating of the complete welded parts before the final assembly. ATTENTION : The grooving of the welded rope drums must be covered, they receive a Tectyl Coating!	2P-EPOXY / METALLIC ZINC-RICH : INTERZINC 5 2 Shade : Grey Dry Film Thickness : DFT min. 70 µm Rope drum groove : No Primer Coating Evaporation drying : min. 30 Minutes / 40°C Reworking interval : min. 90 Minutes / 40°C The primer may only be applied if the background temperature of the parts is min. 3°C above the dew point ( temperature of the parts due to all day hall storage approx. 20°C ).
4.4	PRE-TOP COATING IN THE PAINT SHOP	Top coat of outer visible surfaces of large parts and components which are very hard to access after assembly , e.g. winch frame, end housing etc.	2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 9002 / Grey White Dry Film Thickness : DFT min. 140 µm Evaporation drying : min. 30 Minutes / 40°C Storage space drying : min. 60 Minutes / 20°C

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ITEM NO.	WORKING STEPS	ACTIVITIES TO BE CARRIED OUT	ACCEPTANCE, CRITERIA AND PROCESS REGULATIONS
5.0	CLEANING OF END PRODUCTS	AFTER ASSEMBLY	( ZOLLERN )
5.1	COVERING OF FREE CONNECTION OPENINGS	Covering of gear connection openings after greasing of inner spaces.	All gear connection openings ( e.g. drive motor flange ) are to be fitted with water proof covers.
5.2	OVERALL CLEANING OF ROPE WINCHES AND SLEWING GEARS CPL.	Cleaning, degreasing, phosphating and drying of ready-assembled and detached rope winches and slewing gears in high-pressure cleaning plant.	The rope winches and slewing gears must be grease-free, dust-free and dry. Degreasing and phosphating agents with test of mixture, as described in item 3.3.
6.0	PRIMER OF END PRODUCTS	AFTER ASSEMBLY	( ZOLLERN )
6.1	PREPARATION AND COVERING BEFORE PRIMING.	Covering and if necessary degreasing of flange / centr. surfaces. ATTENTION : The grooving of the welded rope drums must be covered, they receive a Tectyl Coating!	Cleanly cover centring and flanging areas with metal, cardboard or paper rings. Grease output gear and cover ready for dispatch with oiled paper. The customer-specific requirements must always be fulfilled..
6.2	PRIMER COATING	Priming of the ready-assembled rope winche and slew gear units. The large parts already treated with primer, such as the winch frames, are only primed on the transitions and connections to other parts / components.	- 2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 1014 / Ivory-Colored Dry Film Thickness : DFT min. 140 µm - PRIMER OF WELDED PARTS : SEE POSITION 4.3 Rope drum groove : No Primer Coating Evaporation drying : min. 30 Minutes / 40°C Reworking interval : min. 90 Minutes / 40°C The primer may only be applied if the background-temperature of the parts is min. 3°C above the dew point ( temperature of the parts due to all day hall storage approx. 20°C ). The temperatures of the painting and drying plant are automatically system-controlled.

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7.0	TOP COAT OF END PRODUCTS AFTER ASSEMBLY		( ZOLLERN )
7.1	COVERING BEFORE TOP COATING	Covering of the screw contact surfaces.	Clearly cover screw contact areas with metal, cardboard or paper rings.
7.2	TOP OR INTERMEDIATE COATING	Top coating/Intermediate coating of primed end products. Second coating of the unmachined steel parts and third coating of unmachined cast surfaces.	2P-EPOXY / ZINC PHOSPHATE : INTERGARD 3 4 5 Shade : RAL 9002 / Gry White Dry Film Thickness : DFT min. 140 µm Dry Film Thickness of rope drum groove : DFT max. 50 µm Evaporation drying : min. 30 minutes / 40°C Storage space drying : min. 60 minutes / 20°C Ready for assembly : after 20 hours / 20°C Dried through : after 7 days / 20°C
8.0	TOTAL PAINT FILM THICKNESS AND VISUAL INSPECTION		( ZOLLERN )
8.1	PAINT DRY FILM THICKNESS TESTS	Documented random or full test (generally with outside acceptances) in test report QSP-LV/8001 of the Dept. LV.	DRY FILM THICKNESSES WINCHES / SLEW GEARS : DFT total min. 2 8 0 µm WELDED PARTS : DFT total min. 2 1 0 µm ROPE DRUM GROOVE : DFT total max. 1 2 0 µm
8.2	CORROSION PROTECTION - MARINE ATMOSPHERE	Category for corrosion-resisting quality and protection time acc. ISO 12944-5.	CORROSION CATEGORY : minimal C 5 - M M PROTECTION TIME : minimal 5 - 15 Years
8.3	CONSERVATION OF THE PAINT-FREE MACHINED SURFACES.	Greasing or oiling of the fitting surfaces and unprimed paint-free machining surfaces.	Unprimed paint-free machining surfaces must be sprayed with the long-term anti-corrosive "LPS3" or treated with another conservation agent acc. customer's requirements.
8.4	FINAL VISUAL INSPECTION, COMPLETENESS CHECK AND DELIVERY RELEASE.	Final visual inspection of the cpl. conservation, packing list and delivery release by sticker with product- / customer data.	The required conservation according to customer order must be observed. Packed and marked parts to be delivered before assembly according to scope of delivery list.

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9.0	PACKAGING AND DISPATCH		( ZOLLERN)
9.1	FASTENING OF ROPE WINCHES AND SLEWING GEARS.	Fastening on pallet. Avoid paint damage!	Safe fastening so that no slipping is possible on the pallet even in extreme traffic situation (secure with wedges, pieces of wood etc.)
9.2	PACKING THE ROPE WINCHES AND SLEWING GEARS.	Packing on the pallet and completeness-inspection of the additional devices and single parts	Heat-seal SW and DW from above with waterproof foil on the pallets. Ensure openings are facing downwards to prevent condensation!
9.3	SHIPPING DOCUMENTS	Creation and provision of shipping documents.	The shipping documents must that the dispatched units and their destination can be clearly identified both by own personnel and by the driver / forwarder.
9.4	DISPATCH	Ordering means of transport.	It must be ensured that appropriate means of transport suitable for the sensitivity of ZGW-products are available, above all "UNDER COVER"

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