



Docking Solutions

Installation & Operation Manual





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Docking Solutions



Dock Leveller



Dock Shelter

Docking Solutions Applications:



Commercial Buildings

Warehouses

Pharma Industry

Manufacturing and Production

Logistics Park/Ports

Industrial Hall

Salient Features

DOCK LEVELLER

- The flat transitions from the platform to the telescopic lip and to the loading surface ensure safe loading.
- The telescopic lip with a robust front lip is reinforced throughout. The 12/14 mm thick running plate is made of a single piece.
- 2 hydraulic cylinders ensure the balanced, reliable and, most importantly, safe operation of the dock leveller. It comes equipped with automatic emergency-stop valves
- A high-quality running plate, 6 / 8 or 8 / 10 mm thick, with a standard rated load of 60 kN (dynamic) 150 KN (static) for HLS permanently carries goods and transport equipment

DOCK SHELTER

- Solution with telescopic link arms and a flexible front frame.
- Flops are made of top grade fabric 3 mm thick double layer elastic substrate polyester
- Enclosures that seal the perimeter of the trailer to form a seal
- Suitable for large and small vehicles protect workers and save energy with effective sealing against cold temperatures and bad weather.

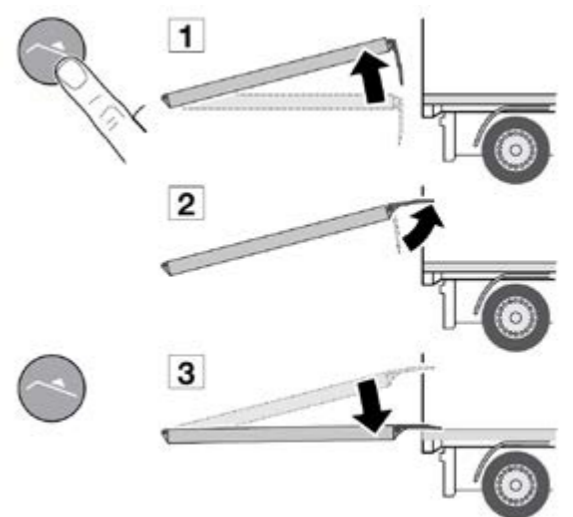
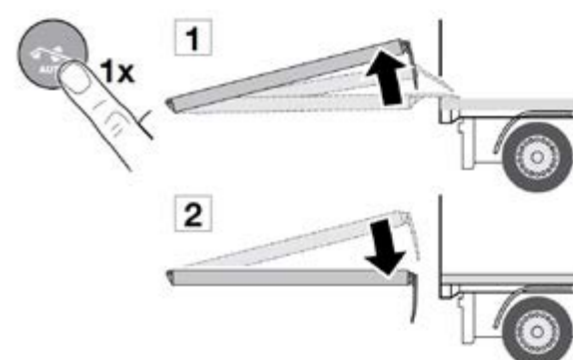
Electrical connection

Requirement of the electrical details

1. 16A, 5 Pin, Industrial type female metal clad Plug & socket 3 Phase, 440V,50Hz with Neutral & earth Provision along 4P MCB near to the controller.
2. MCB to be provided separate to each door
3. Required conduct inside the pit for laying cables from operator to controller.

Operation Procedure

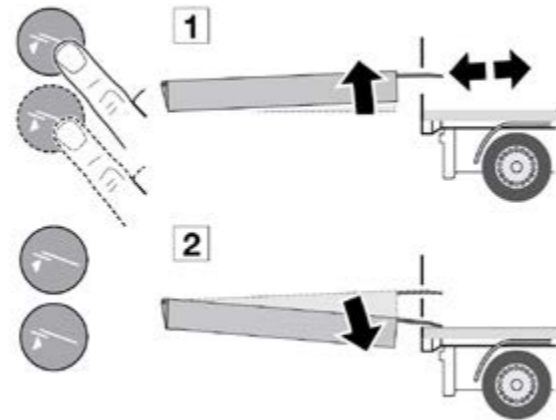
Placing dock leveller with control 420 S (swing lip)

<p>Placing the platform onto the lorry loading surface</p> <ol style="list-style-type: none"> 1. Press and hold the Run bridge button, the platform will travel upwards. 2. The lip unfolds at the highest position (pressure cut-out switch is activated). 3. Release the button. <ol style="list-style-type: none"> a. When DIL switch 2 is set to ON (without hold time) The platform lowers immediately b. When DIL switch 2 is set to OFF (with hold time) The platform remains in its position for approx. one more second and is then lowered 	
<p>Returning to the home position</p> <ol style="list-style-type: none"> 1. Press the auto-return button 1x. The platform travels upwards with the duration of the set auto-return time. The swing lip is folded in at the same time. 2. The platform lowers. <ol style="list-style-type: none"> a. When DIL switch 2 is set to ON (without hold time) The platform lowers immediately b. When DIL switch 2 is set to OFF (with hold time) The platform remains in its position for approx. one more second and is then lowered <p>NOTE: Should the platform continue to travel upwards and the swing lip unfold again before the platform has lowered, the set auto-return time is too long. Return the platform to the home position by clicking on the Run bridge button and correct and check the auto-return time.</p> <p>Reduce the auto-return time on potentiometer P1 by turning it left</p>	

Placing the platform on the lorry loading surface when lorry loading surface is positioned below the home position

1. Press and hold the Extend lip button. The platform is lifted briefly (approx. 50 mm). Extend the telescopic lip until you can place it securely on the lorry loading surface (100 mm – 150 mm). The button Retract lip can be used to make corrections or to return the telescopic lip completely.
2. Release the Extend lip / Retract lip button.
 - a. When DIL switch 2 is set to ON (without hold time) The platform lowers immediately
 - b. When DIL switch 2 is set to OFF (with hold time) The platform remains in its position for approx. one more second and is then lowered

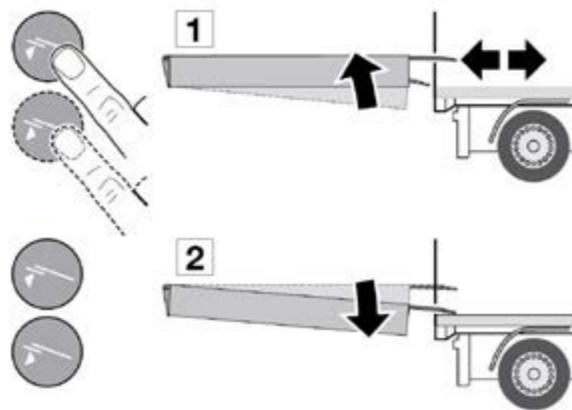
NOTE: To position the lip correctly, a clear view of the area of travel is necessary.



Correcting the lip position

1. Press and hold the Extend lip / Retract lip button. The platform is lifted briefly (approx. 50 mm) and the telescopic lip extends / retracts as long as the button is being pressed.
2. Release the Extend lip / Retract lip button.
 - a. When DIL switch 2 is set to ON (without hold time) The platform lowers immediately
 - b. When DIL switch 2 is set to OFF (with hold time) The platform remains in its position for approx. one more second and is then lowered

NOTE: To position the lip correctly, a clear view of the area of travel is necessary.



Non-use of Dock Leveller

- When not in use, make sure that the dock leveller is in the home position (zero position). That means the platform and the loading ramp are on the same height. The hinged lip is folded in completely and rests on the side support brackets. When the lip is completely folded in, the platform is supported by the support bracket on the front beam.
- Avoid any cross traffic in the vicinity of the dock leveller. For cross traffic over the dock leveller, it is essential to ensure that the dock leveller is in the home position and the maximum loading capacity is not exceeded. Do not disconnect the power, as the solenoid valve will cease to function, which can result in permanent deformation of the dock leveller if trucks roll over it in this state.

Area	Monthly	Quarterly	Half yearly
Oil – Quantity – Condition	Visual inspection		Change
Hydraulic unit Condition – Leak tightness – Corrosion – Function – Safety device	Visual inspection		
Hinges - Ease of movement		Visual inspection	
Electrical system - function of the control pane	Visual inspection		
Construction - Condition of welding's - Deformation - All securing pins present		Visual inspection	
Hoses – Condition – Fixing – Service life	Visual inspection		Change

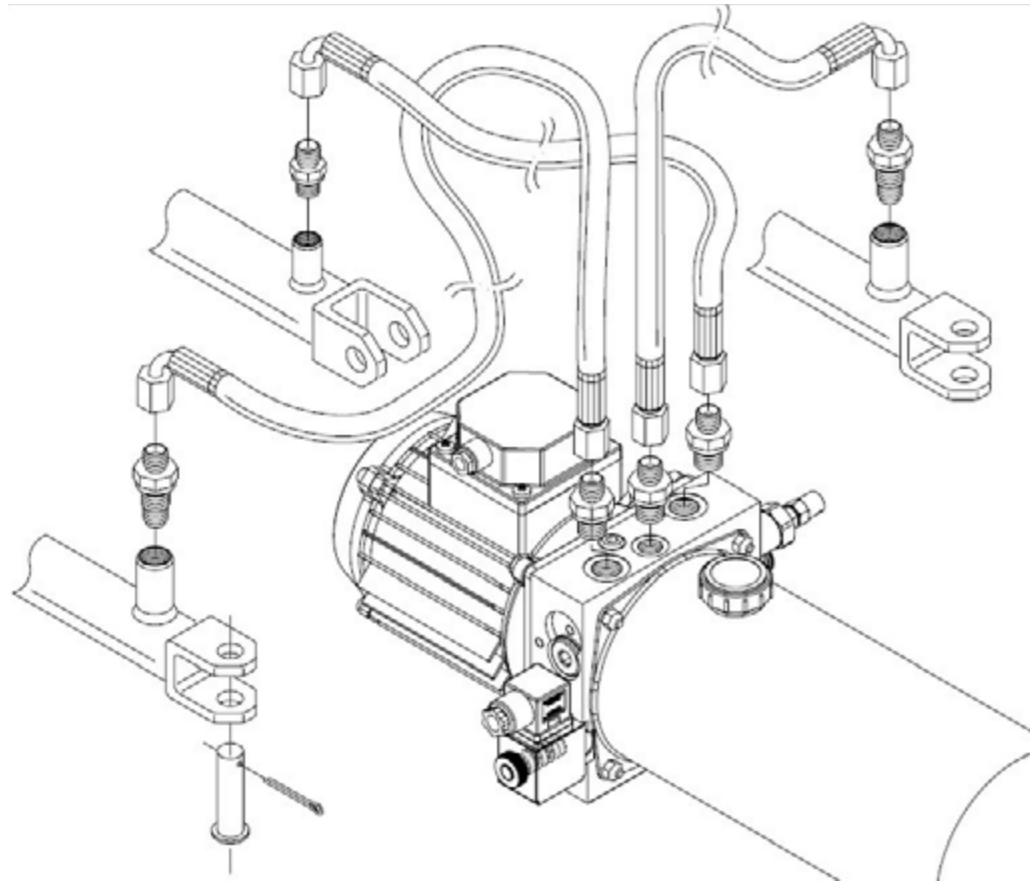
Emergency stop switch

- Inspect the condition and functioning of the emergency stop switch and the restart inhibition. Follow the separate documentation for the control. Once the power is cut by actuating the emergency stop switch, all motion is blocked in order to prevent the platform from falling. After the cause has been eliminated, the start button must be pressed in order to make the system ready for operation again. The emergency stop switch must be lockable

Electrical system

- Perform a visual inspection for mechanical damage to the electric cables and control devices. Follow the separate documentation for the control and, if appropriate, for the functional extensions of the dock leveller.

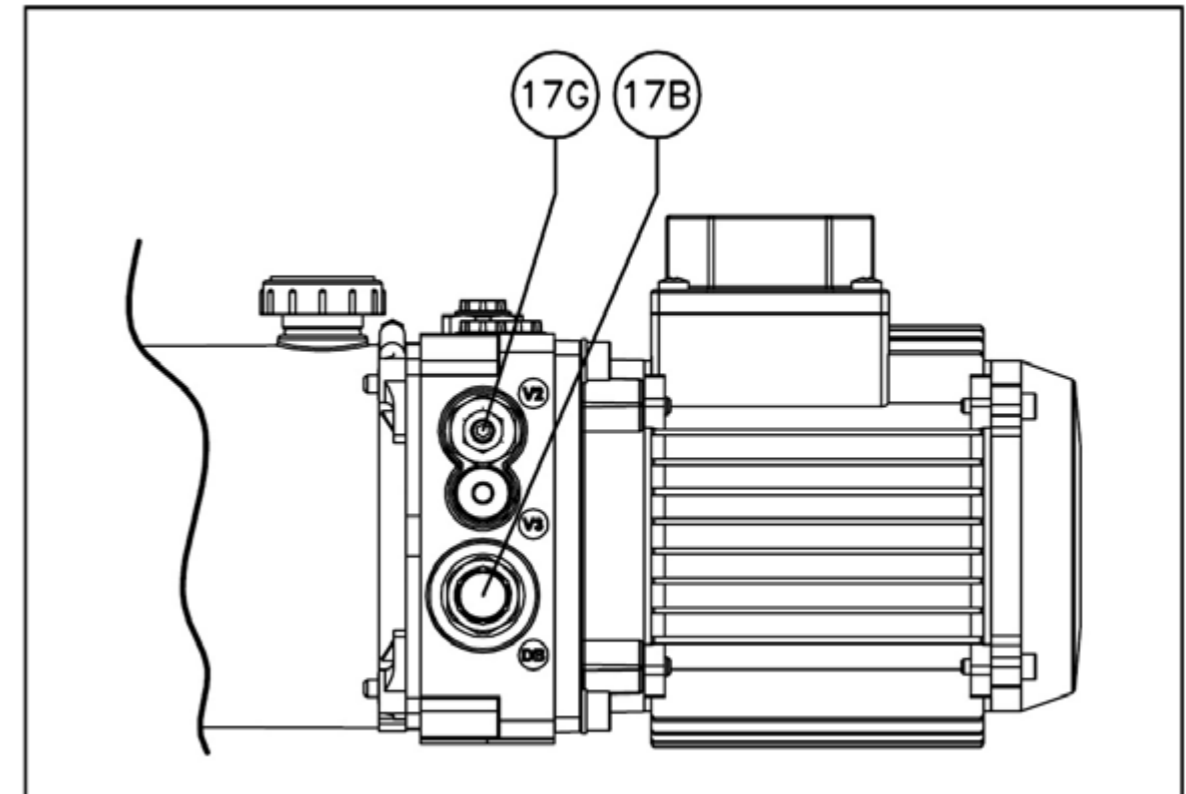
Hydraulic system



For hydraulic diagrams, see the chapter Hydraulic System Diagram

Setting the dock leveller

1. Do not disconnect the power, as the solenoid valve will cease to function.
2. If there is no tailboard slot, make sure that the hydraulic components can be reached safely.
3. Move the platform to the lowest position below level to adjust the dock leveller.
4. Set the lowering speed of the platform to max. 200 mm/s with throttle valve 17e, measured at the front side of the dock leveller (approx. 1.5 rotations at the regulator).
5. Secure all valves and check the oil level.



Troubleshooting And Remedies

Error display

Each error number is assigned to a red LED flash code. This flash code is comprised of long LED flashes corresponding to the tens position of the error number (e.g. 33) followed by a pause then a sequence of short flashes for the units position of the error number (e.g. 33). A pause follows and then the flash code is repeated.

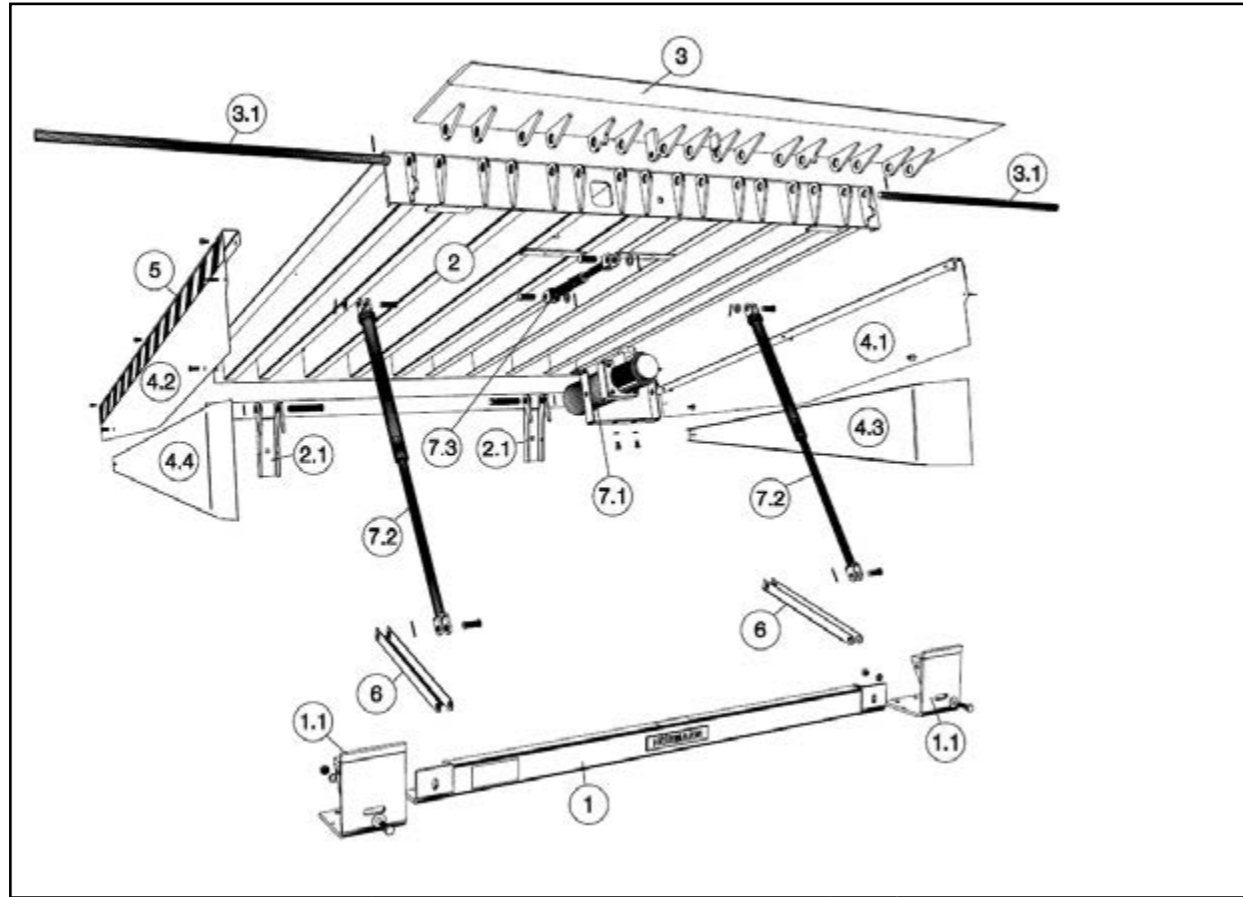
Example error number 33:

- Long on / pause / long on / pause / long on / pause = **33**
- Short on / pause / short on / pause / short on / pause = **33**
- Repetition with long on / pause / long on / pause / long on / pause etc.

Product: Dock Leveller			Model: HLS, HLS2, HLS3			Controller: 420		
Error Code	Cause Of Error Code	Trouble Shooting / Remedies						
1	Hold circuit open, plug X3 terminal 7/8	1. Plug not in the plug socket 2. Connected emergency stop switch set to O 3. No wire jumper between terminals 7/8"						
11	Dock locking active, plug X45 terminal 1/2	1. Door open end-of-travel position was not reached 2. Wheel chock was not actuated"						
21	Mains phase failure	Check on-site pre-fuse/wiring						
22	"Motor running time exceeded. Hydraulic oil temperature too high"	Allow the hydraulics to cool (until the dock unlocks)						
31	Internal system error	<ul style="list-style-type: none"> • Contact the technical service department if this error re-occurs after switching the control back on. • Exchange control unit." 						
33	Pre-contactor fault	<ul style="list-style-type: none"> • Contact the technical service department if this error re-occurs after switching the control back on. • Exchange control unit." 						
34	Main contactor fault	<ul style="list-style-type: none"> • Contact the technical service department if this error re-occurs after switching the control back on. • Exchange control unit." 						
35	24 V undervoltage	Short-circuit or overload of the 24 V supply to the control <ul style="list-style-type: none"> • Check fuse F • Disconnect any connected devices and power supply separately. 						
47	RAM test failed.	<ul style="list-style-type: none"> • Contact the technical service department if this error re-occurs after switching the control back on. • Exchange control unit." 						
48	ROM test failed.	<ul style="list-style-type: none"> • Contact the technical service department if this error re-occurs after switching the control back on. • Exchange control unit." 						

Product: Dock Leveller			Model: HLS, HLS2, HLS3			Controller: 460S		
Error Code	Cause Of Error Code	Trouble Shooting / Remedies						
1	Wheel chock not in use	Apply the wheel chock Apply/check signal to X44 / terminal 3."						
2	No Door open door end-of-travel position signal	Open door. Apply/check signal to X45 / terminal 2."						
3	"• Dock seal / shelter not programmed • Dock seal / shelter not present"	Set dock seal/shelter in program menu 01.						
4	Leveller not in home position	Press the Auto-return button.						
5	No lorry registration	Register lorry. Apply/check signal to X44 / terminal 2."						
6	Pump travel time limit	Pump gets too warm Allow the pump to cool.						
7	External Emergency stop	Emergency stop on X3 / terminal 7 was actuated Release emergency stop."						
8	Hold circuit open	Hold circuit on X1 / terminal 1 / 2 is open Close hold circuit."						
40	General system error	Exchange circuit board.						
41	Unable to reach platform home position	Check sensor on X43 / terminal 2.						
42	Undervoltage	Check power supply.						
43	Pump runs longer than 60 seconds at a time.	Button sticking Contactor contacts stick"						
44	Door end-of-travel position was not reached	Check sensors on X70 / terminal 2 / 3.						

Spares Parts



1	Front beam	4.3	Foot guard plate, bottom right	7.5	Locking pin
1.1	Support bracket	4.4	Foot guard plate, bottom left	8	Hose
2	Platform	5	Marker stripes	9	Coupling
2.1	Hinged foot	6	Maintenance support	10	Coupling with hose safety device
3	Hinged lip	7.1	Hydraulic unit	11	2/2-way valve
3.1	Hinge axle	7.2	Main cylinder	12	Solenoid valve
4.1	Foot guard plate, top right	7.3	Hinged-lip cylinder		
4.2	Foot guard plate, top left	7.4	Cylinder axle		

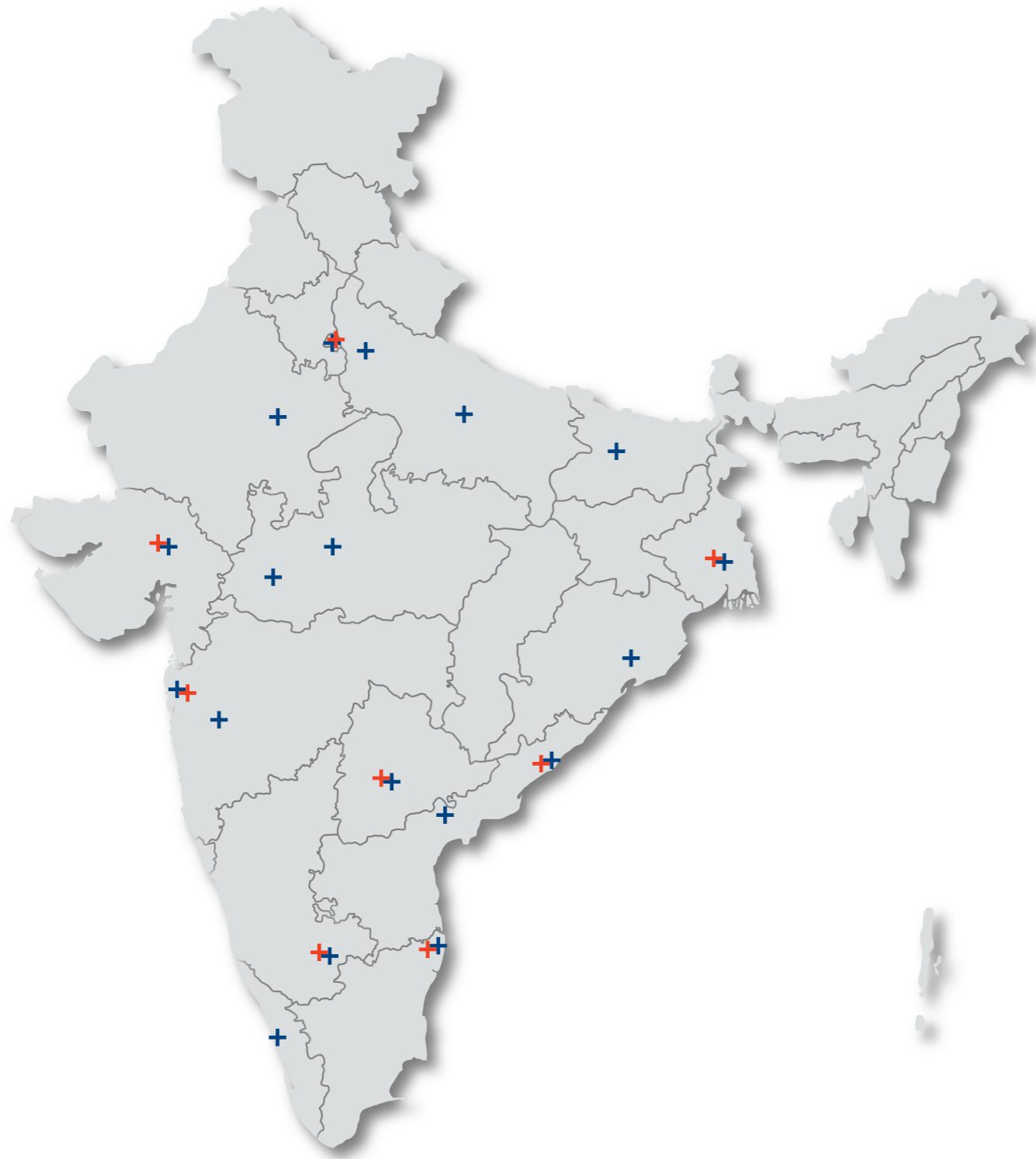
S.No.	German Article No.	SAP Item Code	UOM	Technical Spare Description
DOCK LEVELLER - HLS SPARE PARTS				
1	308477 308475	311193	EA	Front Beam - HLS
2	308484 308486	311194	EA	Rear Frame - HLS
3	308513	311195	EA	Front beam bracket for Both LH and RH - HLS
4	NA	311196	EA	Front beam bracket - HLS
5	307316 307318 307324 307326	311197	EA	Lip HLS
6	308862	311198	EA	Foot guard left - HLS
7	308859	311199	EA	Foot guard right - HLS
8	308872 308873 308870	311200	EA	Service stand / Maintenance supports HLS
9	307393	311201	EA	Axis - HLS
10	309049	311204	EA	Gap seal assembly - DL size
11	308888 308889	312056	EA	"Main cylinder HLS (One side only) "
12	308892	311202	EA	Hydraulic unit bracket - HLS
13	437130 311434	312057	EA	Relay circuit board PR1 in housing, With All Accessories
14	637256 637421	311205	EA	Cable set for motor & solenoid- 7.5 mtr
15	637479 637256	311203	EA	Cable set for motor & solenoid- 12 mtr
16	NA	310404	EA	Dockleveller mounting kit - HLS
17	NA	311830	EA	"Buffer with all Accessories (One side only) "
18	308766	311206	EA	Warning tape yellow-black
19	NA	310706	EA	Bollards
20	307392	310428	EA	Lip cylinder EPL20-150/330 SINGLE ACTING RAL 7024 - HLS
21	307691	310430	EA	"Hydraulic hose 8L L1500 2xM14x1,5 (Main cylinder) - HLS"
22	308890	310429	EA	"Hydraulic hose 8L L500 2xM14x1,5 HLS (Lip Cylinder)"
23	308891	310426	EA	Hydraulic unit 0.75kw 230v3f/400 v3f 50 hz
24	11054676	311207	EA	Hosebrakevalve 0.95 mm
25	307401	311278	EA	Solenoid valve coil 24 V bosch (square) Old
26	2000079	312058	EA	Solenoid valve coil 24 V bosch (round) New
27	310090	300159	EA	5l oil tank for bosch assembly
28	636868	310409	EA	Controller 420 S energy-efficient and Auto-return function
29	636911	310416	EA	Complete control in housing with main switch 460 S, energy efficient
30	637791	311724	EA	Keypad 420s with Auto-return button
31	638069	311718	EA	DISPLAYCIRCUITBOARD 445 S/T, 460 S/T, A/B 445, A/B 460, B 460 FU, 445 R, 460 R and 360
32	635256	311425	EA	Main switch top part
33	638172	311521	EA	Main switch 3 phase
34	636869	311376	EA	636869 CONTROL UNIT 420T
35	1004634	300102	EA	Axis D28 L1095 S235JRG2

36	NA	311209	Ltrs	Oil Hydr Shell Tellus T15 S2 V 15 (No of DL's x 5 Ltrs)
37	178929	310022	EA	178929 WheelChockwithSensor
38	155372	310021	EA	155372 WheelChock
39	NA	310705	EA	Wheel guide
40	637793	310488	EA	637793CIRCUITBOARD 460 T
41	1004209	310366	EA	BBP - Bumper protection plate DB15/20
42	637257	310487	EA	637257CONNECTION UNIT WHEEL CHOCK
43	NA	310425	EA	1018150 DOCKLIGHT DL1300 300W

24	637791	311724	EA	Keypad 420s with Auto-return button
25	638069	311718	EA	DISPLAYCIRCUITBOARD 445 S / T, 460 S / T, A / B 445, A / B 460, B 460 FU, 445 R, 460 R and 360
26	635256	311425	EA	Main switch top part
27	638172	311521	EA	Main switch 3 phase
28	636869	311376	EA	636869CONTROLUNIT420T
29	NA	311209	Ltrs	Oil Hydr Shell Tellus T15 S2 V 15 (No of DL's x 5 Ltrs)
30	178929	310022	EA	178929 WheelChockwithSensor
31	155372	310021	EA	155372 WheelChock
32	NA	310705	EA	Wheel guide
33	637793	310488	EA	637793CIRCUITBOARD 460 T
34	1004209	310366	EA	BBP - Bumper protection plate DB15/20
35	637257	310487	EA	637257CONNECTION UNIT WHEEL CHOCK
36	NA	310425	EA	1018150 DOCKLIGHT DL1300 300W

S.No.	German Article No.	SAP Item Code	UOM	Technical Spare Description
DOCK LEVELLER - HLS2 HLS SPARE PARTS				
1	"307316 307318 307324 307326"	312099	EA	LIP HLS2 405
2	"310608 310609"	312100	EA	Hinged lip hinge axles, for hinge strips 10 mm thick, set of 2 (incl. tension pin)
3	"307337 307349 307355"	312101	EA	Foot guard plates, set for left
4	"307344 307352 307355"	312102	EA	Foot guard plates, set for right
5	307361	312103	EA	Maintenance support L950 complete set (one side)
6	"307390 307664"	312104	EA	"Main cylinder HLS 2 (one side only) "
7	309049	311204	EA	Gap seal assembly - DL size
8	437130 311434	312057	EA	Relay circuit board PR1 in housing, With All Accessories
9	637256 637421	311205	EA	Cable set for motor & solenoid- 7.5 mtr
10	637479 637256	311203	EA	Cable set for motor & solenoid- 12 mtr
11	NA	311830	EA	"Buffer with all Accessories (One side only) "
12	308766	311206	EA	Warning tape yellow-black
13	NA	310706	EA	Bollards
14	307392	312105	EA	Lip Cylinder
15	307691	310430	EA	Hydraulic hose 8L L1500 2xM14x1,5 (Main cylinder)
16	307091	312106	EA	1000548Hydraulic hose L3000 HLS 2 (LIP)
17	308891	310426	EA	hydraulic unit 0.75 kw 230 v3f/400 v3f 50 hz
18	11054676	311207	EA	Hosebrakevalve 0.95 mm
19	307401	311278	EA	Solenoid valve coil 24 V bosch (square) Old
20	2000079	312058	EA	Solenoid valve coil 24 V bosch (round)new
21	310090	300159	EA	5l oil tank for bosch assembly
22	636868	310409	EA	Controller 420 S energy-efficient and Auto-return function
23	636911	310416	EA	Complete control in housing with main switch 460 S, energy efficient

S.No.	German Article No.	SAP Item Code	UOM	Technical Spare Description
DOCK LEVELLER - MLS / MRS HLS SPARE PARTS				
1	"2011368 2011369 308800 308801"	311882	EA	Rear hinge MLS / MRS with anchors
2	308790	311911	EA	Locking bracket Complete set MLS / MRS
3	308805	312109	EA	Locking bracket support Complete set MLS / MRS
4	"181282 181283 181287 181288"	311922	EA	Platform MLS / MRS NW 1250 RAL 5002
5	2011386	311888	EA	Rear hinge axles MLS / MRS NW 1250
6	"2011356 2011361"	312089	EA	Lip MLS / MRS
7	2011388	312090	EA	Lip hinge axles Complete set NW 1250 MLS / MRS
8	2011378 A	312091	EA	Buffer support bracket MRS Left
9	2011378 B	312092	EA	Buffer support bracket MRS Right
10	"2011381 2011383"	312093	EA	Lip keeper MRS V Complete set
11	308798	312094	EA	Foot guard plate Complete set (L+R)
12	2011377	312095	EA	Galvanized maintenance supports Complete set
13	"308814 2000031"	312097	EA	Gas spring Complete set 700 N for NW 1250
14	"2011392 2011394 308816"	312096	EA	Pull rod D30 L = 1350 & Link Chain
15	2011395	312098	EA	Pull rod holder MLS complete
16	308766	311206	EA	Warning tape yellow-black



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