









TEST PROTOCOL RO SEAWATER			
ID no.	9000010447	Model	MT 50TSRH 440V/60Hz
Order no.	20572	Customer	ENWA AB
Test conditions			
Description	value	Unit	Note
Feedwater conductivity	33200	µS/cm	
Feedwater temperature	10	°C	
Feedwater pressure	3,4	bar	
Capacity test			
Description	Result	Unit	Note
Flow rate permeat	2100	l/h	
Conductivity permeat	99,8	µS/cm	
Operational pressure	58	bar	
Power consumption FW pump	N/A	A	
Power consumption HP pump	18,2	A	
Power consumption cleaning pump	N/A	A	
Function test			
Description	Result	Limit	Note
Alarm high conductivity/ permeate to waste	OK	on/off	
Alarm low pressure	OK	0,5bar	
Overcurrent relay	OK	on/off	
General alarm (relay)	OK	No/Nc	
Automatic flush	OK		
Manual operation	OK		
Start/stop level switch	OK		
Safety valve permeate	OK	3,5 bar	Pre Set
Safety valve waste	OK	3,5 bar	Pre Set
Safety valve HP	≈ 72 ≈	Bar	Pre Set
Order specific adjustments			
Description	value	Unit	Note
Power supply	440	VAC	
Feedwater pump	<input checked="" type="checkbox"/> <input type="checkbox"/> 4,6	A (Q1)	design data on pump
High pressure pump	<input type="checkbox"/> <input checked="" type="checkbox"/> 31	A (Q2)	design data on pump
cleaning pump	<input checked="" type="checkbox"/> <input type="checkbox"/> /	A (Q3)	design data on pump

Settings				
no.	Description	set value	default	unit
T1	Delay HP pump start		5	Sec.
T2	Low pressure alarm		10	Sec.
T3	RO flush time after stop		15	Min.
T4	Prefilter backwash interval		24	H.
T5	Prefilter backwash time		12	Min.
T6	Prefilter rinse time		8	Min.
T7	High salinity alarm		5	Min.
T8	RO flush/RO stop 96H		15	Min.
T13	Low pressure alarm delay		2	Sec.
A1	Conductivity 		۳۳۳	
Preparation				
Description	chemical	result	note	
Preservation	MT5	NO		
Preservation anti-freeze	MT5+glycol	Yes		
Documentation				
Description				Note
Photo				
PLC program version	No: 531012, Rev. 6			
Electrical drawings (no.+rev.)				

Components identity	
Type	serial no.
Membranes	
SW30xLE 440i WET	F7660247
	253
	288
Pressure vessel	
PRO-8-1000-SP-1	A 132997
	A 132994
	A 133001
Control box	
MT 50T	A 1233
Feedwater pump	
Calpeda BNM 32/16B-60R	203550956
High pressure pump	
Cat Pump 3531	Japan N1104121
cleaning pump	

Location	Hising-Backa, Sweden	Test engineer	Danny Collier
Date	131202	Sign	<i>[Signature]</i>



TEST PROTOCOL RO SEAWATER			
ID no.	9000010448	Model	MT 50T 5RH 440V/60Hz
Order no.	20572	Customer	ENWA AB
Test conditions			
Description	value	Unit	Note
Feedwater conductivity	33200	µS/cm	
Feedwater temperature	9,8	°C	
Feedwater pressure	3,2	bar	
Capacity test			
Description	Result	Unit	Note
Flow rate permeat	2100	l/h	
Conductivity permeat	102	µS/cm	
Operational pressure	52	bar	
Power consumption FW pump	N/A	A	
Power consumption HP pump	17,8	A	
Power consumption cleaning pump	N/A	A	
Function test			
Description	Result	Limit	Note
Alarm high conductivity/ permeate to waste	OK	on/off	
Alarm low pressure	OK	0,5bar	
Overcurrent relay	OK	on/off	
General alarm (relay)	OK	No/Nc	
Automatic flush	OK		
Manual operation	OK		
Start/stop level switch	OK		
Safety valve permeate	OK	3,5 bar	Pre Set
Safety valve waste	OK	3,5 bar	Pre Set
Safety valve HP	≈72≈	Bar	Pre Set
Order specific adjustments			
Description	value	Unit	Note
Power supply	440	VAC	
Feedwater pump	<input checked="" type="checkbox"/> <input type="checkbox"/> 4,6	A (Q1)	design data on pump
High pressure pump	<input checked="" type="checkbox"/> <input type="checkbox"/> 31	A (Q2)	design data on pump
cleaning pump	<input checked="" type="checkbox"/> <input type="checkbox"/> —	A (Q3)	design data on pump

Settings			
no.	Description	set value	default unit
T1	Delay HP pump start		5 Sec.
T2	Low pressure alarm		10 Sec.
T3	RO flush time after stop		15 Min.
T4	Prefilter backwash interval		24 H.
T5	Prefilter backwash time		12 Min.
T6	Prefilter rinse time		8 Min.
T7	High salinity alarm		5 Min.
T8	RO flush/RO stop 96H		15 Min.
T13	Low pressure alarm delay		2 Sec.
A1	Conductivity 		و و و و 
Preparation			
Description	chemical	result	note
Preservation	MT5	NO	
Preservation anti-freeze	MT5+glycol	Yes	
Documentation			
Description		Note	
Photo			
PLC program version	No: 531012, Rev 6.		
Electrical drawings (no.+rev.)			

Components identity	
Type	serial no.
Membranes	
SW 30 XLE 440i wet	F 7660257
	265
	289
Pressure vessel	
PRO-8-1000-SP-1	A 135183
	A 135186
	A 135184
Control box	
MT 50T	A 1235
Feedwater pump	
Calpeda BNM 32/16B-60-R	2013550958
High pressure pump	
Lot Pump 3531	Japan 71303026
cleaning pump	
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Location	Hisings-Backa, Sweden	Test engineer	Danny Collier
Date	131202	Sign	Danny Collier

TEST PROTOCOL RO SEAWATER			
ID no.	900001044q	Model	MT 50T SRH 440V/60Hz
Order no.	20572	Customer	ENWA AB
Test conditions			
Description	value	Unit	Note
Feedwater conductivity	37000	µS/cm	
Feedwater temperature	23	°C	
Feedwater pressure	3,2	bar	
Capacity test			
Description	Result	Unit	Note
Flow rate permeat	2100	l/h	
Conductivity permeat	183	µS/cm	
Operational pressure	57	bar	
Power consumption FW pump	N/A	A	
Power consumption HP pump	18,3	A	
Power consumption cleaning pump	N/A	A	
Function test			
Description	Result	Limit	Note
Alarm high conductivity/ permeate to waste	OK	on/off	
Alarm low pressure	OK	0,5bar	
Overcurrent relay	OK	on/off	
General alarm (relay)	OK	No/Nc	
Automatic flush	OK		
Manual operation	OK		
Start/stop level switch	OK		
Safety valve permeate	OK	3,5 bar	Pre Set
Safety valve waste	OK	3,5 bar	Pre Set
Safety valve HP	≈72≈	Bar	Pre Set
Order specific adjustments			
Description	value	Unit	Note
Power supply	440	VAC	
Feedwater pump	<input checked="" type="checkbox"/> <input type="checkbox"/> Δ 4,6	A (Q1)	design data on pump
High pressure pump	<input type="checkbox"/> <input checked="" type="checkbox"/> Δ 31	A (Q2)	design data on pump
cleaning pump	<input checked="" type="checkbox"/> <input type="checkbox"/> Δ ✓	A (Q3)	design data on pump

Settings				
no.	Description	set value	default	unit
T1	Delay HP pump start		5	Sec.
T2	Low pressure alarm		10	Sec.
T3	RO flush time after stop		15	Min.
T4	Prefilter backwash interval		24	H.
T5	Prefilter backwash time		12	Min.
T6	Prefilter rinse time		8	Min.
T7	High salinity alarm		5	Min.
T8	RO flush/RO stop 96H		15	Min.
T13	Low pressure alarm delay		2	Sec.
A1	Conductivity 		۳۳۳	
Preparation				
Description	chemical	result	note	
Preservation	MT 5	NO		
Preservation anti-freeze	MT 5+glycol	Yes		
Documentation				
Description				Note
Photo	/			/
PLC program version	no 531012, Rev. 6			
Electrical drawings (no.+rev.)				

Components identity	
Type	serial no.
Membranes	
SW30XLE 440i wet	F7660286
	295
	299
Pressure vessel	
PRO-8-1000-SP-1	A 132999
	A 133004
	A 133003
Control box	
MT 50T	A 1255
Feedwater pump	
Calpeda BNM 32/16B-60R	2013550960
High pressure pump	
Cot Pump 3531	Japan 71303022
cleaning pump	

Location	Hisings-Backen, Sweden	Test engineer	Danny Collier
Date	131202	Sign	<i>Danny Collier</i>