


Instrument Air Consumption List

CO₂ Capture Facility

Kårstø, Norway

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TAG NO.	SERVICE	TYPE	Air Consumption (normal m3/hr)		
			CONTINUOUS (NOTE 1)	INTERMITTENT (NOTE 2)	PEAK (NOTE 3)
1-BA-PV-0002	HRSG STACK CONTROL DAMPER	Modulating	2	3.5	30
1-BA-PV-0035	BLOWER 101 INLET BOX DAMPER	Modulating	2	3.5	30
1-BA-HV-0038	FLUE GAS DUCT DRAIN VALVE	On/off	1	2	30
1-BA-PV-0061	BLOWER 102 INLET BOX DAMPER	Modulating	2	3.5	30
1-BA-HV-0064	FLUE GAS DUCT DRAIN VALVE	On/off	1	2	30
1-BA-TV-0094	PROCESS WATER TO SPRAY WATER (ABS 1) TEMPERATURE VALVE	Modulating	2	3.5	30
1-BA-TV-0096	PROCESS WATER TO SPRAY WATER (ABS 2) TEMPERATURE VALVE	Modulating	2	3.5	30
1-BA-TV-0098	PROCESS WATER TO SPRAY WATER (COMMON DUCT) TEMPERATURE VALVE	Modulating	2	3.5	30
1-CN-LV-0160	ABSORBER 1 WASH WATER PUMP DISCHARGE LEVEL VALVE	Modulating	2	3.5	30
1-CN-FV-0170A	WASH WATER TO ABSORBER 1 FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0170B	WASH WATER TO ABSORBER 1 FLOW VALVE	Modulating	2	3.5	30
1-CN-LV-0260	ABSORBER 2 WASH WATER PUMP DISCHARGE LEVEL VALVE	Modulating	2	3.5	30
1-CN-FV-0270A	WASH WATER TO ABSORBER 2 FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0270B	WASH WATER TO ABSORBER 2 FLOW VALVE	Modulating	2	3.5	30
1-CN-HV-0300AA	ABSORBER 1 RICH AMINE ESD VALVE	On/off	1	2	30
1-CN-HV-0300AB	ABSORBER 1 RICH AMINE ESD VALVE	On/off	1	2	30
1-CN-HV-0300BA	ABSORBER 2 RICH AMINE ESD VALVE	On/off	1	2	30
1-CN-HV-0300BB	ABSORBER 2 RICH AMINE ESD VALVE	On/off	1	2	30
1-CN-FV-0312A	RICH AMINE PUMP 101A MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0312B	RICH AMINE PUMP 101B MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0312C	RICH AMINE PUMP 124A MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0312D	RICH AMINE PUMP 124B MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-LV-0352	RICH AMINE TO STRIPPER INLET LEVEL VALVE	Modulating	2	3.5	30
1-CN-FV-0416	SEMI-LEAN FLASH DRUM INLET FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0418A	SEMI-LEAN FLASH DRUM PUMP A MIN FLOW	Modulating	2	3.5	30
1-CN-FV-0418B	SEMI-LEAN FLASH DRUM PUMP B MIN FLOW	Modulating	2	3.5	30
1-CN-LV-0440A	ABSORBER 1 SEMI-LEAN AMINE LEVEL VALVE	Modulating	2	3.5	30
1-CN-LV-0440B	ABSORBER 2 SEMI-LEAN AMINE LEVEL VALVE	Modulating	2	3.5	30
1-CN-HV-0501A	LEAN AMINE ESD VALVE	On/off	1	2	30
1-CN-HV-0501B	LEAN AMINE ESD VALVE	On/off	1	2	30
1-CN-FV-0508A	LEAN AMINE PUMP A MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0508B	LEAN AMINE PUMP B MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-LV-0516	LEAN AMINE REJECT TO LEAN AMINE STORAGE TANK	Modulating	2	3.5	30
1-CN-FV-0518	LEAN AMINE TO CARBON FILTER FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0530A	ABSORBER 1 LEAN AMINE FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0530B	ABSORBER 2 LEAN AMINE FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0678A	REFLUX PUMP A MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0678B	REFLUX PUMP B MIN FLOW VALVE	Modulating	2	3.5	30
1-CN-FV-0682	STRIPPER REFLUX DRUM TO STRIPPER FLOW VALVE	Modulating	2	3.5	30
1-CN-LV-0686	STRIPPER REFLUX TO SURGE TANK LEVEL VALVE	Modulating	2	3.5	30
1-QG-PV-0690A	STRIPPER REFLUX DRUM PRESSURE CONTROL VALVE	Modulating	2	3.5	30
1-QG-PV-0690B	STRIPPER REFLUX DRUM VENT VALVE	Modulating	2	3.5	30
1-QG-LV-0712	COMPRESSOR SUCTION DRUM LEVEL CONTROL	Modulating	2	3.5	30
1-QG-HV-0714	CO2 TO COMPRESSOR SUCTION DRUM ON/OFF VALVE	On/off	1	2	30
1-QG-FV-0732	COMPRESSOR FIRST STAGE ANTI-SURGE VALVE	Modulating	2	3.5	30
1-QG-LV-0746	CO2 COMP 1ST STAGE INTERSTATE KNOCK-OUT DRUM LEVEL VALVE	Modulating	2	3.5	30
1-QG-FV-0762	COMPRESSOR 2ND STAGE ANTI-SURGE FLOW VALVE	Modulating	2	3.5	30
1-QG-LV-0776	CO2 COMP 2ND STAGE INTERSTATE KNOCK-OUT DRUM LEVEL GAUGE	Modulating	2	3.5	30
1-QG-HV-0779	CO2 COMP 2ND STAGE INTERSTATE KNOCK-OUT DRUM TO CO2 VENT VALVE	On/off	1	2	30
1-QG-HV-0780A	CO2 DRYER REGEN GATE VALVE A	On/off	1	2	30
1-QG-HV-0780B	CO2 DRYER REGEN GATE VALVE B	On/off	1	2	30
1-QG-HV-0780C	CO2 DRYER REGEN GATE VALVE C	On/off	1	2	30
1-QG-HV-0780D	CO2 DRYER REGEN GATE VALVE D	On/off	1	2	30
1-AB-HV-0806	LP STEAM TO LP STEAM DRAIN ON/OFF VALVE	On/off	1	2	30
1-AB-HV-0808	LP STEAM ON/OFF VALVE	On/off	1	2	30
1-AB-HV-0812	LP CONDENSATE TO LP STEAM ON/OFF VALVE	On/off	1	2	30
1-AB-TV-0814	LP CONDENSATE TO LP STEAM TEMPERATURE VALVE	Modulating	2	3.5	30
1-AB-LV-0818	LP CONDENSATE TO LP STEAM DRAIN LEVEL VALVE	Modulating	2	3.5	30
1-AB-HV-0822	LP STEAM DRAIN ON/OFF VALVE	On/off	1	2	30

TAG NO.	SERVICE	TYPE	Air Consumption (normal m3/hr)		
			CONTINUOUS (NOTE 1)	INTERMITTENT (NOTE 2)	PEAK (NOTE 3)
1-AB-HV-0826	TO LP STEAM DRAIN TANK ON/OFF VALVE	On/off	1	2	30
1-AB-FV-0830A	LP STEAM TO REBOILER FLOW VALVE A	Modulating	2	3.5	30
1-AB-FV-0830C	LP STEAM TO REBOILER FLOW VALVE C	Modulating	2	3.5	30
1-AB-FV-0830E	LP STEAM TO REBOILER FLOW VALVE E	Modulating	2	3.5	30
1-AB-FV-0830G	LP STEAM TO REBOILER FLOW VALVE G	Modulating	2	3.5	30
1-AB-HV-0832A	LP STEAM DRAIN ON/OFF VALVE A	On/off	1	2	30
1-AB-HV-0832C	LP STEAM DRAIN ON/OFF VALVE C	On/off	1	2	30
1-AB-HV-0832E	LP STEAM DRAIN ON/OFF VALVE E	On/off	1	2	30
1-AB-HV-0832G	LP STEAM DRAIN ON/OFF VALVE G	On/off	1	2	30
1-AB-HV-0908	HP STEAM TO RECLAIMER ESD VALVE	On/off	1	2	30
1-AB-FV-0912	HP STEAM TO RECLAIMER FLOW VALVE	Modulating	2	3.5	30
1-SC-LV-1000A	LP CONDENSATE FROM REBOILER TO BLOWDOWN TANK LEVEL VALVE A	Modulating	2	3.5	30
1-SC-LV-1000C	LP CONDENSATE FROM REBOILER TO BLOWDOWN TANK LEVEL VALVE C	Modulating	2	3.5	30
1-SC-LV-1000E	LP CONDENSATE FROM REBOILER TO BLOWDOWN TANK LEVEL VALVE E	Modulating	2	3.5	30
1-SC-LV-1000G	LP CONDENSATE FROM REBOILER TO BLOWDOWN TANK LEVEL VALVE G	Modulating	2	3.5	30
1-SC-LV-1004	SOFTENED WATER TO LP CONDENSATE BLOWDOWN TANK	Modulating	2	3.5	30
1-SC-FV-1012A	LP CONDENSATE RETURN PUMP A MIN FLOW VALVE	Modulating	2	3.5	30
1-SC-FV-1012B	LP CONDENSATE RETURN PUMP B MIN FLOW VALVE	Modulating	2	3.5	30
1-SC-LV-1030A	LP CONDENSATE RETURN TO CGPP LEVEL VALVE	Modulating	2	3.5	30
1-SC-LV-1030B	LP CONDENSATE TO SURGE TANK LEVEL VALVE	Modulating	2	3.5	30
1-SC-HV-1032	LP CONDENSATE RETURN SHUTOFF VALVE	On/off	1	2	30
1-CN-LV-1112	LEAN AMINE TO RECLAIMER LEVEL VALVE	Modulating	2	3.5	30
1-WP-FV-1310A	ABSORBER MAKEUP WATER PUMP A MIN FLOW	Modulating	2	3.5	30
1-WP-FV-1310B	ABSORBER MAKEUP WATER PUMP B MIN FLOW	Modulating	2	3.5	30
1-WP-FV-1350A	PROCESS WATER TO ABSORBER 1 FLOW VALVE	Modulating	2	3.5	30
1-WP-FV-1350B	PROCESS WATER TO ABSORBER 2 FLOW VALVE	Modulating	2	3.5	30
1-WP-TV-1360	SURGE TANK WATER TO RECLAIMER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WP-HV-1370	PROCESS WATER TO LEAN AMINE SOLVENT STORAGE TANK LEVEL VALVE	On/off	1	2	30
1-CY-HV-1413	AMINE STORAGE TANK TRUCK FILL SHUTOFF VALVE	On/off	1	2	30
1-CY-FV-1436A	LEAN AMINE SOLVENT FILL PUMP A MIN FLOW	Modulating	2	3.5	30
1-CY-FV-1436B	LEAN AMINE SOLVENT FILL PUMP B MIN FLOW	Modulating	2	3.5	30
1-CY-LV-1440	LEAN AMINE SOLVENT FILL VALVE	Modulating	2	3.5	30
1-WL-TV-1562	FROM ABSORBER 2 TO WASH WATER COOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-TV-1574	FROM ABSORBER 1 TO WASH WATER COOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-TV-1580	FROM LEAN AMINE COOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-TV-1592	FROM STRIPPER CONDENSER TEMP. CONTROL TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-PV-1597	SEA WATER HEAT EXCHANGER BACKPRESSURE VALVE	Modulating	2	3.5	30
1-WL-TV-1616	FROM CO2 COOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-TV-1626	FROM CO2 COMPRESSOR 2ND STAGE INTERCOOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-WL-TV-1636	FROM CO2 COMPRESSOR 1ST STAGE INTERCOOLER TEMPERATURE VALVE	Modulating	2	3.5	30
1-XW-HV-2110	RETURN TO LEAN AMINE SOLVENT TANK ON/OFF VALVE	On/off	1	2	30
1-XW-HV-2112	RICH AMINE PUMP SUCTION (ABS 1) ON/OFF VALVE	On/off	1	2	30
1-XW-HV-2114	RICH AMINE PUMP SUCTION (ABS 2) ON/OFF VALVE	On/off	1	2	30
1-SB-HV-2300	FUEL GAS TO AUX BOILER SHUTOFF VALVE	On/off	1	2	30
1-SB-HV-2302	FUEL GAS SAFE VENT ON/OFF VALVE	On/off	1	2	30
1-SB-PV-2303	FUEL GAS TO AUX. BOILER BURNER PRESSURE VALVE	Modulating	2	3.5	30
1-SB-HV-2304	AUX. BOILER STEAM ON/OFF VALVE	On/off	1	2	30
1-SB-HV-2306	AUX. BOILER STEAM DRAIN ON/OFF VALVE	On/off	1	2	30
1-SB-FV-2316	STEAM DRUM TO AUX. BOILER STEAM VENT FLOW VALVE	Modulating	2	3.5	30
1-SB-LV-2320	LP CONDENSATE TO DEAERATOR LEVEL VALVE	Modulating	2	3.5	30
1-SB-LV-2322	DEAERATOR LEVEL VALVE	Modulating	2	3.5	30
1-SB-LV-2344	STEAM DRUM INLET LEVEL VALVE	Modulating	2	3.5	30
1-SB-LV-2346	MUD DRUM OUTLET LEVEL VALVE	Modulating	2	3.5	30
1-SB-TV-2352	AUX. BOILER BLOWDOWN TANK TO DRAIN TEMPERATURE VALVE	Modulating	2	3.5	30
1-WR-LV-2400	POTABLE WATER SUPPLY T WASTE WATER DRAIN LEVEL VALVE	Modulating	2	3.5	30
1-WR-HV-2402	POTABLE WATER SUPPLY T WASTE WATER DRAIN ON/OFF VALVE	On/off	1	2	30
1-WR-HV-2404	SOFTENED WATER VESSEL ON/OFF VALVE	On/off	1	2	30
1-WR-LV-2408	SOFTENED WATER STORAGE TANK LEVEL VALVE	Modulating	2	3.5	30
1-WR-LV-2420	BRINE SOLUTION TANK INLET LEVEL VALVE	Modulating	2	3.5	30

TAG NO.	SERVICE	TYPE	Air Consumption (normal m3/hr)		
			CONTINUOUS (NOTE 1)	INTERMITTENT (NOTE 2)	PEAK (NOTE 3)
1-WR-LV-2430	SOFTENED WATER TO SURGE WATER TANK	Modulating	2	3.5	30
1-QG-FV-2514	COMPRESSOR 3RD STAGE ANTI SURGE VALVE	Modulating	2	3.5	30
1-QG-HV-2516	CO2 COMPRESSOR 3RD STAGE OUTLET ESD VALVE	On/off	1	2	30
1-QG-PV-2546	CO2 SURGE DRUM VENT VALVE	Modulating	2	3.5	30
1-QG-FV-2556A	CO2 COMPRESSOR SENDOUT PUMP A MIN FLOW	Modulating	2	3.5	30
1-QG-FV-2556B	CO2 COMPRESSOR SENDOUT PUMP B MIN FLOW	Modulating	2	3.5	30
1-QG-HV-2558	CO2 TO STORAGE ESD VALVE	On/off	1	2	30
1-QG-LV-2564	CO2 TO STORAGE LEVEL VALVE	Modulating	2	3.5	30
1-QG-LV-2572	LP CONDENSATE TO CO2 COMP 1ST STAGE STEAM GEN LEVEL CONTROL	Modulating	2	3.5	30
1-QG-PV-2578	COMPRESSOR 1ST STAGE STEAM GEN PRESS CTRL VALVE	Modulating	2	3.5	30
1-QG-LV-2582	LP CONDENSATE TO CO2 COMP 2ND STAGE STEAM GEN FLOW VALVE	Modulating	2	3.5	30
1-QG-PV-2588	COMPRESSOR 2ND STAGE STEAM GEN. PRESSURE VALVE	Modulating	2	3.5	30
1-QG-LV-2592	LP CONDENSATE FROM FLASH TANK LEVEL VALVE	Modulating	2	3.5	30
1-QG-PV-2598	COMPRESSOR 3RD STAGE STEAM GEN PRESS CTRL VALVE	Modulating	2	3.5	30
1-QG-PV-laterA	CO2 VENT DRUM TO ABSORBER 1 VENT VALVE	Modulating	2	3.5	30
1-QG-PV-laterB	CO2 VENT DRUM TO ABSORBER 2 VENT VALVE	Modulating	2	3.5	30

Plant Totals:	230	412	4020
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Notes:

- 1) Continuous is minimum possible flow with on/off valves not stroking and modulating valves in service.
- 2) Intermittent is typical sizing flow rates assuming time averaged stroking activity.
- 3) Peak consumption assumes every valve strokes at max rate simultaneously. Possible for a brief duration (a few seconds) on emergency shutdown.
- 4) This list is preliminary for FEED study and needs to be updated based on final design and actual equipment purchased during EPCI stage.