

4.5 Lieferungen

4.5.1 Econvert IRC®-Reaktor 07324

Post	Sub group	Name	Description	Tag	Material	Brand/supplier	Dimensions	Quantity
Econvert-IRC®	Tanks	IRC tank	▪ Design based on NEN-EN-14015-2004 ▪ Build according to: GMP ▪ Windspeed: 22 m/s ▪ Windload: 0,31 kN/m² ▪ Snowload: 0,34 kN/m² ▪ Earthquake load: 0,20 m/s² ▪ Man hole (above both settlers) ▪ Man hole (ground level) ▪ Required nozzles ▪ Flanges according DIN ▪ Supports for internals	IR1-T01	1.4362 (DX-2304)		cyl. height 27 m, diameter 7,3 m Waterlevel: 24 m Volume: 1004 m ³	3
		Standpipe	▪ Design based on NEN-EN-14015-2004 ▪ Build according to: GMP ▪ Windspeed: 22 m/s ▪ Windload: 0,31 kN/m² ▪ Snowload: 0,34 kN/m² ▪ Earthquake load: 0,20 m/s² ▪ Man hole (ground level) ▪ Required nozzles ▪ Flanges according DIN ▪ Supports for internals	IR1-T02	1.4362 (EDX-2304)		cyl. height 22,5 m, diameter 1,4 m Waterlevel: 21 m Volume: 32 m ³	2
	General	Earthing	-	-	-		-	3
		Equipontential bonding	-	-	-		-	3
		Stairs and Platforms	Cage ladder from top of reactor down to manholes including plat-forms	-	Steel galvanized		30	2
			Winding stairs	-	Steel galvanized		-	1
			Footbridge L=7,5m between reactors	-	Steel galvanized		-	2
		Compensators	Compensator pressure side circulation pump	-	Steel coated - EPDM	Klinger o.e.	DN250 - PN10	3
			Compensator suction side circulation pump	-	Steel coated - EPDM	Klinger o.e.	DN300 - PN10	3

Internals	Settlers closed IR	Top settler: ▪ Gas hoods: 4 rows ▪ Overflow weirs: 2 ▪ Connection to vent piping: 1 ▪ Downer connection to degassing tank: 1 Down settler: ▪ Gas hoods: 5 rows ▪ Connection to riser: 2 General: ▪ Gas collection chamber: incl. ▪ Gas guiding sheets: incl.	-	PPC		7,3 m	3
		Settler frames for both settlers	-	Steel coated		7,3 m	3
	Degassing tank open	Open degassing tank for closed IR reactor	-	PE		3,0m	3
		Gastankframe	-	Steel coated		7,3 m	3
	Risers	-	-	PE		DN250	6
	Downer	-	-	PE		DN400	3
		Downer holder	-	Steel coated		-	6
		Downer top piece	-	PE		DN400	3
		Downer U-bolt	-	AISI 316L		DN400	3
		Sliding sleeve downer (down)	-	PP		DN400	3
	Mixingcone	-	-	AISI 316L		-	3
	Sludge roofs	Sludge roof plates	-	AISI 316		07.3m	3
		Sludge roof supports	-	Steel coated		07.3m	3
	Influent piping in tank	-	-	AISI 316L		DN200	3
	Effluent piping	piping inside tank	-	PE		DN400	3
		piping support	-	PE		DN400	3
	Gaspipe from gastank to settler	-	-	-		DN80	6
	Sludge extraction	Sludge extraction	IR1V170-IR1V177	PE		-	24
	Sludge in	-	-	-		-	3
	Sprayer 1 1/4" MP 500 60°	-	IR1N01-IR1N02	PP	BETE o.e.	BSP1, 1/4"	6
	Standpipe connection	-	-	Steel galvanized		-	2
	Mounting material	-	-	-		-	3
	Nitrogen piping	Supply nitrogen to control valve downer	-	PE		-	3
		Supply nitrogen to downer	-	PE		-	3
	Anti foam spray piping	-	-	PE/SS		DN40	3
	Valves	Butterfly valve lugtype resilient seated	IR1CV120	CI-SS-NBR	EBRO o.e.	DN400	3
		Actua. BF pneu. Double acting	IR1CV120	-	EBRO o.e.	DN400	3
		Under/overpressure valve 45 mbar	IR1-PRV01	SS-SS-PTFE	Groth o.e.	DN50	3
	Sensors	Biogas flowmeters			E+H Prosonic B200	DN 150	3

4.5.2 Econvert Dsulph® 1.0-20

Post	Sub group	Name	Description	Tag	Material	Brand/supplier	Dimensions	Quantity
Econvert-Dsulph® 1.0-20	Tanks	Reactor	Reactor tank	DS1R01	PE/GRP		cyl. height 5 m, diameter 2,8 m Waterlevel: 3 - 4 m Volume: 20 m³	2
			▪ Design: based on EN 13121 ▪ Build according to: GMP ▪ Windspeed: 23 m/s ▪ Windload: 0,31kN/m² ▪ Snowload: 0,34 kN/m² ▪ Earthquake load: 0,20 m/s² ▪ Inspection hole (roof) ▪ Man hole (ground level) ▪ Required nozzles ▪ Flanges according DIN ▪ Supports for internals					
			Pump compartment	-	-		-	2
			Sulfur settler	DS1R01	PE		-	2
			Reactor anti-foam sprayer	DS1N04	PP	BETE o.e.	BSP1 1/4"	2
			Foamspray pipe inside reactor	DS1R01	PE		DN40	2
			Foamspray pipe to reactor	02-04-04-I2SS02	AISI 316		DN40	2
			Foamspray pipe on skid	02-04-04-I2SS02	AISI 316		DN40	2
			Top railing Reactor	-	Steel galvanized		d=2,8	2
			Cage ladder reactor	-	-		5m	2
			Tank Insulation reactor	DS1R01	50 mm hard foam			2
		Scrubber	Scrubber column	DS1SC01	PE		cyl. height 14 m, diameter 1,0 m Waterlevel: 3-4 m	2
			Scrubber insulation	DS1SC01	50 mm hard foam		-	2
			Demister	-	-		50x50cm	2
			Demister holder	-	PE		-	2
			Round grid for support packing material	-	GVK		-	2
			Packing material, PP Raflux-ringen 38mm	-	PP	RVT GmbH o.e.	1x4m	7
			Demister spray nozzle	DS1N01	PP	BETE o.e.	BSP 3/8"	2
			Anti foam spray nozzle	DS1N03	PP	BETE o.e.	BSP1, 1/4"	2
			Frame Skid	-	AISI 304		-	2
		Ankering Reactor and scrubber	Chemical anchors	-	AISI 316	Hilti o.e.	-	2
	Pumps	Recirculation pump	Centrifugal pump	DS1P01	PP-PP	Affetti o.e.	90m³/h - 20mwc	2
		Sulphur sludge pump	Hose pump	DS1P02	CI-EPDM	Verder o.e.	153-610 l/h	2
		Drip tray for proces liquid pump	-	-	AISI 316		-	2

	Aeration reactor	Aeration blower	Rotary lobe blower. Noise emission: ± 73 dB(A), free field measurement, at 1 m. from the contour of the unit, without radiated noise from the pipe (tolerance ± 2 dB), noise measurement acc. DIN EN ISO 2151.	DS1K01	-	Aerzen o.e.	370m ³ /h - 4,5mwc	2
			Blower housing for outside installation - GM7L GM10S	DS1K01	-	Aerzen o.e.		2
		Aerators	Flexcaps	-	-	Mooers o.e.	-	30
	General	Heat exchanger	Pipe heat-exchanger	DS1W02	AISI 316		20 kW	2
		Sieve	Softened water line	10406	-		DN32	2
			Fresh water line	10405	-		DN32	2
		Compensators	pressure side circulation pump	02-04-02-I2SS02	Steel coated - EPDM	Klinger o.e.	DN100 - PN10	2
			suction side circulation pump	02-04-01-I2SS02	Steel coated - EPDM	Klinger o.e.	DN200 - PN10	2
	Dosing	Dosing equipment	Storage vessel nutriënts 100L	-	-		100L	2
			Suction pipe (NaOH or Nutrient)	-	-	Prominent o.e.	-	2
			Dosing cabinet, For indoor installation	DS1CD02	PVC/EPDM or PP/FKM	Prominent o.e.		1
				DS1CD01	PVC/EPDM or PP/FKM	Prominent o.e.		1
			ECTFE insertpart for 546 (DN15/DN10)with hose connection 6x9	-	-	Makronyl o.e.	9mm	2
			MAK-2dose endconnecting for 9mm with 1/4" hole	-	-	Makronyl o.e.	9mm	2
			MAK-2dose hoses HDPE-PTFE DN6x9mm Acids	-	-	Makronyl	9mm	80 m
			MAK-2dose injection piece with injection valve	-	FPM	Makronyl o.e.	9mm	2
		Sensors	Level switch Nutrimix storage tank L	CD1LS03	-	BAMO o.e.	-	2
			Level switch caustic soda dosing cabinet	CD2LS02	-	BAMO o.e.	-	2
			Level switch Nutrimix dosing cabinet	CD1LS01	-	BAMO o.e.	-	2
			Level switch Nutrimix storage tank LL	CD1LS04	-	BAMO o.e.	-	2
			Level switch leak detection Nutrimix storage vessel	CD1LS05	-	BAMO o.e.	-	2
			Biogas flowmeters in distribution line to Dsulph scrubber			E+H Prosonic B200	DN 150	2

	Machinery containers	Container	Container (steel construction, coated) equipped with: - Opening for forklift in bottom - 1x single door - 1x double door - Insulation (PIR walls/PU floor and ceiling) - Concrete bonded floor slab with drain hole including watertight floor finish with skirting board - LED light - Electrical sockets - Fan	-	-		20ft	2
		Aircondition	- Airco: 1x carrier unit, model 42QHS012 R32 capaciteit 2.4kW. - Frame airco voor buiten unit + doorvoer naar binnen unit + montage punten binnen unit.	-	-		-	2

4.5.3 Abluftbehandlungsanlage Dsulph

Post	Sub group	Name	Description	Tag	Material	Brand/supplier	Dimensions	Quantity
Piping	incl. sup-ports	Foam Trap	-	-	-		-	1
		Active carbon filter	• SS 316 filter • Insulated with armaflex • Including heating spiral • Including initial filling	-	-		2 m³ activated carbon	1
	Blower	Air blower	Capacity 900 m³/h, with EX - drive, 3,0 kW - 1.400 min⁻¹	-	-		-	1

4.5.4 Kondensatfalle

Post	Sub group	Name	Description	Tag	Material	Brand/supplier	Dimensions	Quantity
Condensate pit with pump	Piping	Hose for connection submersible pump	-	-	-		-	1
	Pumps	Submersible pump	Condensate pump	BT1P01	SS-PP	Homa o.e.	12,5m³/h - 10,5mwc	1
	Tanks	Tank	PE tank for in-ground installation (excluding static calculation) including service hatch (only to be opened in case of calamities or maintenance)	BT1CP01	HDPE		1x3m max (D*H)	1

4.5.5 Rohrleitungen und Isolierung

Post	Sub group	Name	Description	Tag	Material	Brand/supplier	Dimensions	Quantity
Piping	IR®-Reaktor	Circulation piping	Circulation piping pressure side till flowmeter	02-04-00-I2SS02	AISI 316		DN250	3
			Circulation piping suction side	02-03-00-I2SS02	AISI 316		DN300	3
			Pipe supports	02-07-00-I2SS02	AISI 316/Steel galvanized		DN300	3
			Influent piping from flowmeter till reactor	02-05-00-I2SS02	AISI316		DN250	3
		Effluent from reactor to stand-pipe	-	02-06-00-I2SS02	AISI 316 / PE		DN350	3
		Effluent from standpipe	From EG1V165 to EG1CV167, which is as close as possible to the stand-pipe	02-07-00-I2SS02	AISI 316		DN300	3
		Balance pipe	-	11-09-00-I2SS02	AISI 316 / PE		DN250	3
		Biogas piping	till flowmeter incl. by-pass	11-08-00-I2SS02 part 1	AISI 316		DN150	3
			Biogas piping from top downwards till 3 m above ground level	11-08-00-I2SS02 part 2	AISI 316		DN150	3
			Biogas piping from IRC-reactors to Dsulph	11-08-00-I2SS02 part 3	AISI 316		DN250	1
	Econvert Dsulph	Aeration piping	Aeration goosneck	12-12-01-I2SS02	AISI 316		DN100	2
			Aeration header	12-12-01-I2SS02	AISI 316		DN200/DN80(3)	2
			Aeration strands	DS1R01	PE		DN80(3)	2
			Blind flange aeration strands flush	DS1V521	AISI 316		DN80	2
				DS1V522	AISI 316		DN80	2
				DS1V523	AISI 316		DN80	2
				DS1V524	AISI 316		DN80	2
		Circulation lines	Circulation from scrubber to reactor	02-03-01-I2SS02	AISI 316		DN150	2
			Circulation piping pressure side	02-04-02-I2SS02	AISI 316		DN100	2
			Circulation piping pressure side on skid	02-04-02-I2SS02	AISI 316		DN100	2
			Circulation piping suction side	02-04-01-I2SS02	AISI 316		DN200	2
			Circulation piping suction side on skid	02-04-01-I2SS02	AISI 316		DN200	2
		Biogas piping	Till 3 meter (or higher) above ground level ending flanges (by-pass valve also on 3 meter)	11-01-00 & 12-02-01-I2SS02	AISI 316		DN250	2
		Process water	Skid to settler	02-04-03-I2SS02	AISI 316		DN32	2

			On skid	02-04-03-I2SS02	AISI 316		DN32	2
		Softened water	on skid	04-11-01-I2SS02	AISI 316		DN32	2
			distribution system	04-11-01-I2SS02	AISI 316		DN25 - DN32	2
		Fresh water	On skid	04-10-01-I2SS02	AISI 316		DN32	2
			distribution system		AISI 316		DN25 - DN32	2
		Sludge	from settler cone to pump	21-08-01-I2SS02	AISI 316		DN32	2
			On skid	21-08-01-I2SS02	AISI 316		DN32	2
		Measuring loop on skid	-	??	AISI 316		DN25	2
	Exhaust air treatment	incl. supports	-	-	-		-	1
	Insulation	IR®-Reaktor	Circulation piping	Circulation piping pressure side till flowmeter	02-04-00-I2SS02	Rockwool-Al	DN250	3
				Circulation piping suction side	02-03-00-I2SS02	Rockwool-Al	DN300	3
				Pipe supports	02-07-00-I2SS02	Rockwool-Al	DN300	3
				Influent piping from flowmeter till reactor	02-05-00-I2SS02	Rockwool-Al	DN250	3
		Biogas piping	till flowmeter incl. by-pass	11-08-00-I2SS02 part 1	Rockwool-Al		DN150	3
			Biogas piping from top downwards till 3 m above ground level	11-08-00-I2SS02 part 2	Rockwool-Al		DN150	3
			Biogas piping from IRC-reactors to Dsulph	11-08-00-I2SS02 part 3	Rockwool-Al		DN250	1
	Econvert Dsulph	Circulation piping	Circulation from scrubber to reactor	02-03-01-I2SS02	Rockwool-Al		DN150	2
			Circulation piping pressure side	02-04-02-I2SS02	Rockwool-Al		DN100	2
			Circulation piping pressure side on skid	02-04-02-I2SS02	Rockwool-Al		DN100	2
			Circulation piping suction side	02-04-01-I2SS02	Rockwool-Al		DN200	2
			Circulation piping suction side on skid	02-04-01-I2SS02	Rockwool-Al		DN200	2
		Sludge	On skid	21-08-01-I2SS02	Rockwool-Al		DN32	2
			from settler cone to pump					
		Process water	Skid to settler	02-04-03-I2SS02	Rockwool-Al		DN32	2
			On skid	02-04-03-I2SS02	Rockwool-Al		DN32	2

		Fresh water	On skid	04-10-01-I2SS02	Rockwool-Al		DN50	2
			distribution system	04-10-01-I2SS02	Rockwool-Al		DN50	2
		Aeration goosneck insulation part	personnel protection up until a heigh of 2,5m - insulation	12-12-01-I2SS02	Rockwool-Al		DN100	2
		Foam spray	To reactor	02-04-04-I2SS02	Rockwool-Al		DN40	2
			On skid	02-04-04-I2SS02	Rockwool-Al		DN40	2
		Softened water	On skid	04-11-01-I2SS02	Rockwool-Al		DN32	2
			distribution system	04-11-01-I2SS02	Rockwool-Al		DN32	2