

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06	Vendor
		Date: 08/28/2024
		Page 2 of 16

Tabulation of Revised Page

Sheet	Revisions						Sheet	Revisions						
	00	01	02	03	04	05		00	01	02	03	04	05	
1	x	x					31							
2	x	x					32							
3	x	x					33							
4	x	x					34							
5	x	x					35							
6	x	x					36							
7	x	x					37							
8	x	x					38							
9	x	x					39							
10		x					40							
11		x					41							
12		x					42							
13		x					43							
14		x					44							
15		x					45							
16		x					46							
17							47							
18							48							
19							49							
20							50							
21							51							
22							52							
23							53							
24							54							
25							55							
26							56							
27							57							
28							58							
29							59							
30							60							

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client	Vendor
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06	01	00
			Page 3 of 16

TABLE OF CONTENTS

1. Cu Concentrate Filter Press4

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01~06		Page 4 of 16

1. Cu Concentrate Filter Press

No.	Description	Units	Value
General data			
1	Quantity (Operational+ Standby)	#	6 (4 + 2)
2	Tag No.	-	3/4-34-2220-01~03
3	Location (indoors/ outdoors)	-	Indoor
4	Application Description	-	Copper Concentrate Filtration
5	Site Condition document	-	12002-D-PR-DOC-303-GNL-001
Process / Operating Conditions			
Operating Condition			
6	Solid Mineralogy	-	Copper Concentrate Slurry
7	Filter Type	-	Filter Press
8	Filter Model (Plate type)	-	Membrane
9	Type of Press e.g. Shriver /Minerals		VTA
10	Plate shifting	-	Automatic
11	Filter plate size	mm	2000*2000 (VTC)
12	Filter cake volume per plate	L	160 (VTC)
13	Core Blow Required - Air Requirement	Y/N Nm3/Cycle	Yes VTS
14	Cake dryer - Air Requirement	Y/N Nm3/cycle	Yes VTS VTS
15	Membrane squeeze / Media?	Y/N	Yes VTS
16	Chamber Volume (Design)	m ³	VTS
17	Chamber Volume (Maximum/Expanded)	m ³	VTS
18	Filtration Surface, Total/ Filter	m ²	VTS
19	Service	h/y	7680 (320 days/year)
20	Cake wash required	Yes/No	No

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 5 of 16

No.	Description	Units	Value
Filter Feed			
21	Feed material		The slurry of Copper Concentrate
22	Solids S.G.	t/m ³	4
23	Liquid SG	t/m ³	1
24	Feed Solids Tonnage per Hour (Nominal)	dmtph	20.18
25	Feed Solids Tonnage per Hour (Maximum)	dmtph	23.28
26	Feed Solids Tonnage per Cycle (Dry)	t/cycle	VTs
27	Feed Solids	w/w %	64.58
28	Feed Slurry Flow per Hour (Nominal)	m ³ /hr	15.90
29	Feed Slurry Flow per Hour (Maximum)	m ³ /hr	18.355
30	Feed Slurry Flow per Cycle (Filling)	m ³ /cycle	VTs
31	Feed S.G. (t/m ³)	t/m ³	1.94
32	Total Cycle Time	mins	Feeding Time: 5 Squeezing Time: 2 Air Blow Time: 4 Service Time: 4 (VTC)
33	Cycles per hour	#	VTs
34	Filtration Pressure (Slurry)	bar	VTs
35	Membrane Pressure	bar	VTs
36	Air Blow Pressure	bar	8 (VTC)
37	Particle size P (80)	micron	38
38	Max Liquor Temperature	°C	40
39	PH	pH	10-12
40	Solvent present (Y/N)	Y/N	VTs
Discharge Cake			
41	Cake Solids Tonnage (Dry)	t/cycle	VTs
42	Cake Moisture (Maximum)	w/w %	8-10
43	Cake Specific Gravity	t/m ³	2.6

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 6 of 16

No.	Description	Units	Value
44	Cake Thickness	mm	40 (VTC)
Filtrate			
45	Filtrate Clarity	ppm	100
46	Filtrate Flow (per cycle) - without cloth wash	m ³ /cycle	VTs
47	Liquor viscosity	cP	1
Mechanical Information			
Press Frame Description			
48	Pressure Rating	bar	8 bar (VTC)
49	Frame Materials of Construction		Mild Steel
50	Feed/Filtrate Port Liners Materials of Construction		Rubber lining / mild steel
51	Head/Follower Cladding Required and Type		VTs
52	Sidebar/Overhead Beam Type		Sidebar (VTC)
53	Sidebar Supports Required and Number		No
54	Shaker Mechanism Type		VTs
55	Total Pack Length	mm	VTs
56	Opening Distance	mm	VTs
57	Filter Press Overall Dimensions	mm	VTs
58	Filter Press Weight (Empty)	Kg	VTs
Shifter and power pack Description			
59	Circuit pressure		VTs
60	Oil type	-	VTs
61	Hydraulic pump type	-	VTs
62	Oil tank capacity	-	VTs
63	Shifter type	-	Side (VTC)
64	Moving Crosshead Required	Y/N	No (VTC)
65	Shifter Speed	-	VTs

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 7 of 16

No.	Description	Units	Value
66	Shifter motor torque	-	Hydraulic (VTC)
67	Cylinder + Hydraulic Power Pack Description	-	VTs
68	Number of cylinders	-	VTs
69	Cylinder Stroke	mm	VTs
70	Cylinder Load	-	VTs
71	Closing Time	seconds	VTs
72	Oil Tank Capacity	liters	VTs
Filter Plate Description			
73	Plate size	mm	2000 x 2000 (VTC)
74	Total number of plates	-	66(VTC)
75	Chamber size	mm	50(VTC)
76	Total closed pack length	mm	VTs
77	Chamber plate material	-	Polypropylene (VTC)
78	Membrane material	-	VTs
79	Feed Port Size	mm	VTs
80	Feed Port Position	-	VTs
81	Filtrate Port Size	mm	VTs
82	Filtrate Port Position	-	Edges (PI) / 4x (VTC)
Cloth Description			
83	Cloth Type		Polypropylene Multifilament (VTC)
84	Cloth Mesh	micron	4(VTC)
85	Cloth Permeability	l/min·dm ²	1,6 - 5,8 (VTC)
86	Barrel neck type		Cloth (VTC)
87	Painted Edging Type		VTs
88	Attached to plate, how		VTs
Other Ancillaries			
89	Feed Manifold	Y/N	Yes

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 8 of 16

No.	Description	Units	Value
90	Pendant Type		VTs
91	Drip Trays	Y/N	Yes
92	Drip Tray Type	-	Bomb bay door (Pneumatic)
93	Air Blow Separator	Y/N	Yes
94	Bomb Bay Doors	Y/N	Yes (VTC)
95	Cloth/Plate Wash Flow Rate	m3/hr	VTs
96	Cloth/Plate Wash Pressure	bar	VTs
97	Cloth Damage Detector System	Y/N	Yes
98	Cloth Vibrator System	Y/N	Yes
99	Cake Air Blow System Air Rate	Nm3/hr	VTs
100	Cake Air Blow System Pressure	bar	VTs
101	Air Compressor Required	Y/N	Yes
102	Air Receiver Required	Y/N	Yes
103	Feed Pump System Required	Y/N	Yes
104	High Pressure Cloth Wash Pumps Required	Y/N	Yes (Robowash(Cloth washing system) system to be added in scope)
Electrical & Instrumentation			
General Data			
105	Supply voltage	V	400 ± 10%
106	Frequency	Hz	50 ± 5%
107	Control Voltage	VAC / VDC	230 / 24
108	Instrument Voltage	VDC	24
Motor Specifications			
109	Installed Motor Power	kW	75(VTC)
110	Motor Type	-	Squirrel Cage (VTC)
111	Number of Poles	#	VTs
112	Motor Speed	rpm	VTs
113	Motor Operation	DOL/VFD	DOL
114	Rotation	CCW/CW	VTs

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 9 of 16

No.	Description	Units	Value
115	Cooling System	-	VTs
Control & Instrumentation			
116	Control Panel Required	Y/N	Yes
117	Safety Lanyard Required	Y/N	Yes
118	Light Curtain Required	Y/N	Yes
119	PLC Required (Regarding Section 7.1 of MR and as per sub-vendor list)	Y/N	Yes
120	Any sensors required	-	VTs

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
1. General				
1.1	Equipment tag No		3-34-2220-01 to 06	
1.2	Equipment Name		Cu Concentrate Filter Press	
1.3	Application Description		Concentrate Filtering	
1.4	Quantity		6	
1.5	Equipment Supplier			
2. ELECTRICAL CHARACTERISTICS				
2.1	Cable Entry info.		Will be Informed to Vendor after contract	
2.2	Industrial Type		Heavy Duty	
2.3	Earthing System		Solidly Earthed-TN -S	
2.4	Location / Service		Outdoor	
2.5	Installation		Horizontal/Vertical	
2.6	Torque Characteristics		See Note 10	
2.7	Service Factor		1.15 (VTC)	
2.8	Motor Type		Squirrel Cage Induction Motor	
2.9	Manufacturer		As per Approved Vendor List (In otherwise acc. to project agreements)	
2.10	Stator Winding		6 lead (suitable for wye-delta starting)	
2.11	Winding Material (Stator/Rotor)		Copper (See Note 8)	

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 10 of 16

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
2.12	Winding Type (Form/Random)		Form	
2.13	Duty Cycle		S1 (Continues)	
2.14	Insulation Class / Temp. Rise		F/B (See Note 11)	
2.15	Voltage, Variations	V	400 V±5%, 3ph (VTC)	
2.16	Frequency, Variations	HZ	50HZ±2% (VTC)	
2.17	Rated Current	A	By vendor	
2.18	Number of Poles		By vendor	
2.19	Power Rating (Name Plate Rating)	kW	See Note 1, Note 2	
2.20	Absorbed Power	kW	VTs	
2.21	Power Factor	%		
	@2/4 Load		VTs	
	@3/4 Load		VTs	
	@Full Load		VTs	
	Locked Rotor		VTs	
2.22	Efficiency	%	Premium Efficiency	
	Efficiency Classification (IE Code)		Min. IE3	
	@2/4 Load		VTs	
	@3/4 Load		VTs	
	@Full Load		VTs	
	Locked Rotor		VTs	
2.23	Speed	rpm		
2.24	Starting Method		D.O.L	
2.25	Starting Current (L.R.C)	A	VTs	
2.26	Acceleration Time	Sec	VTs	
2.27	Full Load Torque	N.m	VTs	
2.28	Starting Torque	% FLT	VTs	
2.29	Max.Torque	% FLT	VTs	
2.30	Pull-Up Torque / Break Down Torque	%	VTs	
2.31	Driven load moment of inertia GD2			
	Rotor	Kg.m ²	VTs	
	Load	Kg.m ²	VTs	
2.32	Withstand Fault Current		VTs	
	Main Terminal Box	(kA) / Duration Time	VTs	
	Auxiliary Terminal Box	(kA) / Duration Time	VTs	

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 11 of 16

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
2.33	No. of Starting per Hour		(See Note 15)	
	From Cold		3 (VTC)	
	From Hot		2 (VTC)	
2.34	Time interval between two Consecutive starts			
	From Cold		VTS	
	From Hot		VTS	
2.35	Permissible locked rotor time (s)			
	@ 100% voltage		VTS	
	@ 80% voltage		VTS	
2.36	Torque-Speed Characteristics Curves (At 100% & 80% Rated Voltage)		VTS	
2.37	Current-Speed Characteristics Curves (At 100% & 80% Rated Voltage)		VTS	
2.38	Thermal Limit Curves (At 100% & 80% Rated Voltage)		VTS	
2.39	Power factor versus speed curves (At 100% & 80% Rated Voltage)		VTS	
2.40	Max Locked Rotor Current at Rated Volts (%FLA)		ACC. To IEC60034-6	
3. PROTECTION AND MEASUREMENT				
3.1	Motor Enclosure IP			
	Non-Hazardous Area		IP55 according to IEC 60034-5 (See Note 9)	
3.2	Terminal Boxes IP		IP55	
3.3	PT100 / PTCs (Thermistors) For Motor Windings		132KW < Motors → 6×PT100 (See Note 5)	
3.4	PT100 for Motor Bearing		132KW < Motors → 2×PT100 (See Note 5)	
3.5	Setpoint Data for Winding PTCs			
	Alarm	°C	130 (VTC)	
3.6	Trip	°C	150 (VTC)	
3.7	Noise Level		Less than 85 dBA @ 1m	
3.8	Safety requirements		see note 35	
3.9	Safety Sign		see note 36	
3.10	Safety Installation and operation requirements			see note 37
4. MECHANICAL CHARACTERISTIC				

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 12 of 16

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
4.1	Motor Mounting		VTs	
4.2	Enclosure/Frames		Cast Iron	
4.3	Frame Reference		VTs	
4.4	Frame Earth Bus		Required	
4.5	Cooling Method		Cooling Method For Motor: TEFC (IC411) Cooling Method For VFD Motor: (min. IC416) (See Note 6)	
4.6	Rated Power for VFD Motor's External Fan	KW	VTs □400V □ 230V	
4.7	Fan material		Non-Sparking Design/ Corrosion Resistance/ Bi-directional/ Brass/Bronze/Aluminium	
4.8	Bearing Type and Material (For DE & NDE)		Anti-Friction type VTC	
4.9	Max. Bearing Housing vibration velocity	mm/s	Acc. to IEC 60034-14	
4.10	Max. Shaft vibration Displacement	mmills p-p	Acc. to IEC 60034-14	
4.11	Bearing Life		Not less than 50,000 hours VTA (See Note 16)	
4.12	Lubricating			
	Grease/Oil/ Other		Grease with premium grade (For outdoor services it shall be selected based on the Minimum ambient temp.)	
	Self / Forced		Self- Lubricated	
	Grease Relief Port (For regreasable Bearings)		Required	
	Bearing Lubrication Interval (Hour)		VTs	
4.13	Power Terminal Box			
	Type		VTs	

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev	Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client 01	Vendor 00
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06		Page 13 of 16

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
	Cable Box Entry		ISO Metric Threaded	
	Location From DE (TOP/LHS/RHS)		(See Note 12)	
	Direction of Cable Entrance		(See Note 12)	
	Internal ground Stud		Yes	
4.14	Terminal Box for PTC/PT100 Sensors		Yes	
	Location From NDE (LHS/RHS)		VTs	
	Direction of Cable Entrance		Bottom	
4.15	Terminal Box for Space Heater		Required	
	Location From DE (LHS/RHS)		RHS	
	Direction of Cable Entrance		Bottom	
	Space Heater		230VAC	
4.16	Base Plate		VTs	
4.17	Outline Dimension	mm	VTs	
4.18	Motor Weight	kg	VTs	
4.19	Lifting Eye		(See Note 13)	
4.20	Nameplate		Stainless Steel	
4.21	Painting Colour		(See Note 17)	

Notes:

1. Rated Power shall be delivered at site condition or height & temperature de-rating factor shall be considered for sizing of the motor.
2. Rated Power shall be calculated as below:

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev		Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client	Vendor	Page 14 of 16
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06	01	00	

$P = (\text{Required Mechanical power}) * (\text{API factor})$

Required Mechanical power <22KW → API factor = 1.25

22KW ≤ Required Mechanical power <55KW → API factor = 1.15

55KW ≤ Required Mechanical power → API factor = 1.1

MV Motors shall have a 1.0 service factor (SF) when operated at rated voltage and frequency.

3. For the motor starting method please refer to the related mechanical datasheet and process viewpoint. (D.O.L or V.F.D)
4. All motors controlled by VFD shall be equipped with insulated bearings at both drive and non-drive ends.
5. For greater than 132 KW motor (controlled by /without VFD or where specifically requested), shall have six (two per phase) PT100 on stator windings and two PT100 sensors for bearing. Six stator resistance temperature detectors (RTD5) shall be provided for each motor. The RTDs shall be embedded in the stator windings and terminated in a separate (IP55) terminal box. The RTDs shall be 100 ohms, three lead, and platinum.
6. For motor driven by VFD and rated power above 160KW, IC416 shall be considered. For motors that feed by VFD, the cooling fan shall be driven by a separate motor.
7. Exterior surface finish shall be the manufacturer's standard corrosion-resistant paint system.
8. The rotor cage shall be made of brazed copper or copper alloy shall be free from excessive inherent axial thrust, and shall be laminated.
9. Motors to be used in hazardous areas shall be totally enclosed fan cooled (TEFC), IP65, explosion proof as per area classification. On explosion-proof motors, means shall be provided for withdrawing end plates and cartridge housing (where fitted) in a manner that shall avoid damage to explosion-proof flanges. Motors to be used in non-hazardous areas, outdoors in non-process, shall be totally enclosed fan cooled (TEFC) with a degree of protection IP55 according to IEC 60034-5. In non-hazardous areas, indoors in non-process areas, standard industrial-type motors, with the degree of protection IP55 according to IEC 60034-5 shall be used.
10. Motors shall have equivalent NEMA design B torque characteristics for normal operating conditions. For high starting torque applications, motors shall have an equivalent NEMA Design C characteristic. Motors for use with VFDs shall have IEC "N" (NEMA Design B)

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev		Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client	Vendor	Page 15 of 16
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06	01	00	

torque characteristics unless specifically noted otherwise. Motor-driven equipment with a torque curve varying as the square of the speed shall, as a minimum, have a starting torque complying with design "N" as per IEC 60034-12. Motor-driven equipment with a constant torque shall, as a minimum, have a starting torque complying with design "H" as per IEC 60034-12.

- 11.in the case of Using VFD Insulation class of windings shall be class H with temperature rise limited to the temperature of class B insulation, according to IEC standard.
- 12.Motors shall have terminal boxes suitable for accepting cables from any of the four directions at right angles in the plane of the terminal box. The main terminal box shall be positioned on the right-hand side when viewed from the driving end.
- 13.All motors shall have forged lifting eyes or lugs. Motors above 20kg weight shall be provided with lifting lugs or hooks or in special cases, lifting equipment set.
- 14.Installation, Operation & Maintenance Instruction, Dimensional Outline Drawing, Certified Test Report & Written Statement shall be prepared by Vendor.
- 15.Motors shall be designed for at least the number of direct on line starts per hour as specified in the IEC Standards. Motors with the capability of at least 5 starts per hour, direct on line, are preferred. Bidders shall include starts per hour information for all motors in the proposal and include it in motor protection.
- 16.Bearing life, in belt drive applications, with loading in accordance with the data provided, shall be rated for 50,000 hours and 100,000 hours for direct drive applications.
- 17.Finishing paint shall be RAL7032 or the manufacturer's standard and in accordance with the painting schedule which shall be prepared by the manufacturer and shall be sent to the buyer for approval.
- 18.The vendor shall provide and issue the important data required to design the related structure/foundation.
- 19.The vendor should use ASME B16.5 nozzle flange standard Tie in/Out points and ASME B16.47B for sizes larger than 26 inches.
- 20.The type, SCH, rating, and standard of flanges must be specified.
- 21.The size of the nozzles must be mentioned in the inch unit.
- 22.NDE: Non-Drive End
- 23.DOL: Direct On-Line

	Document Number: 12002-D-ME-DSH-303-DWT-401	Rev		Date: 08/28/2024
Class: FA	Library Code: 303-E03-2220-00-ME-DSH-401-01	Client	Vendor	Page 16 of 16
	Document Title: Data Sheet for Filter press (FP) 3-34-2220-01-06	01	00	

24.V: Vertical Mounted

25.RHS: Right Hand Side

26.H: Horizontal Mounted

27.LRC: Locked Rotor Current

28.API: American Petroleum Institute

29.TEFC: Totally Enclosed Fan Cooled

30.FLT: Full Load Torque

31.VFD: Variable Frequency Drive

32.VTS: Vendor to Specify

33.VTC: Vendor to Confirm

34.Suitable de-rating for the motors needs to be applied due to site elevation.

35.Regarding the safety requirements, refer to the MSDS document with document number 12002-D-SF-DSH-303-GNL-021 and follow it.

36.The Safety Sign & Escape Route Layout for Dewatering Building document number 12002-D-SF-LAY-303-DWT-140 shall be referred to and followed.

37.MAINTENANCE & INSTALLATION & OPERATION safety requirements should be specified by the vendor.

38.Supplier shall provide all of the documents, such as general arrangement (GA), etc.

39.The standard of nozzles must be according to ASME B16.5 & B16.47.

40.For Orientation & direction of nozzles, shall be approved with Piping department of client.

41.Design 3D model in PDMS (version 12.1).