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(AG) 3-34-2401-01,02

01	08/282024	Issued For Approval				
00	07/13/2024	Issued For Review				
Rev.	Date	Description	Prepared By	Checked By	Approved By	Authorized By

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Tabulation of Revised Page

Sheet	Revisions						Sheet	Revisions						
	00	01	02	03	04	05		00	01	02	03	04	05	
1	x	x					38							
2	x	x					39							
3	x	x					40							
4	x	x					41							
5	x	x					42							
6	x	x					43							
7	x	x					44							
8	x	x					45							
9		x					46							
10		x					47							
11		x					48							
12		x					49							
13		x					50							
14		x					51							
15		x					52							
16		x					53							
17							54							
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1. Data Sheet for Filter Press Feed Tank Agitator 4

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1. DATA SHEET FOR FILTER PRESS FEED TANK AGITATOR

No.	Description	Units	Value
General data			
1	Quantity	#	1 Operational & 1 Standby
2	Tag No. / Location (indoors/ outdoors)	-	3-34-2401-01,02 /Indoor
3	Application Description	-	Filter press feed tank Agitator
Process / Operating Conditions			
Material Processed			
4	Ore Type	-	Copper ore
5	Fluid Type	-	Slurry
6	Ore specific gravity	t/m ³	4
7	Feed top size (F100)	micron	90
8	Feed F80	micron	38
9	Feed slurry temp	°C	5-60
Operating conditions			
10	Solid Contents	%(m/m)	65
11	Flow Rate to Vessel (Nom. / Max.)	m ³ /h	63.63-73.42
12	Maximum Particle Size	micron	90
13	Operating Pressure	kPag	Ambient
14	Slurry Viscosity	mPa.s	TBA
15	Solids Description	Abrasive / Sticky / Fluffy	Abrasive
16	Operating Temperature	°C	Ambient
17	Operating Slurry pH	-	10-12
18	Operating Density	m ³ /h	1.95

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No.	Description	Units	Value
19	Blending	Yes/No	No
20	Dissolving	Yes/No	No
21	Solid Suspension	Yes/No	Yes
22	Emulsify	Yes/No	No
23	Heat Transfer	Yes/No	No
24	Gas Dispersion	Yes/No	No
Mechanical Information			
	Technical specs		
25	Tank Diameter	mm	6500(VTC)
26	Tank Height (Total incl. freeboard)	mm	6000(VTC)
27	Freeboard Height	mm	500(VTC)
28	Shell/bottom thickness	mm	10 (VTC)
29	Inlet Type	-	Top (VTC)
30	Outlet Type	-	Bottom (VTC)
31	Tank Volume (To overflow)	m ³	199 (VTC)
32	Live volume	m ³	166(VTC)
33	Agitator mounting	-	VTs
34	Baffles Qty.	-	VTs
35	Liquid Height in Vessel: Max	mm	5500(VTC)
36	Liquid Height in Vessel: Min	mm	1255(VTC)
37	Liquid Height in Vessel: Normal Operating	mm	3500(VTC)
Mixer Details			
38	Mixer Position	Top/ Side	Top (VTC)
39	Mixer Location in Vessel		Central (VTC)

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No.	Description	Units	Value
61	Guide Bearing Required	Yes/No	NO (VTC)
62	Shaft Coupling Type	-	VTs
Material of Construction			
63	Base Plate	-	Carbon Steel
64	Coupling	-	Carbon Steel
65	Shaft	-	Carbon Steel
66	Impellers	-	Carbon Steel
67	Shaft Coating	-	Rubber
68	Impellers Coating	-	Rubber (VTC)
Weights			
69	Refer to Drawing Number	#	VTs
70	Empty mass	kg	VTs
71	Operating mass	kg	VTs
Electrical			
72	Supply voltage	V	400±5
73	Frequency	Hz	50±2
Motor Specification			
74	Motor type	-	VTs
75	Motor manufacturer	-	As per AVL
76	Installed motor power	kW	37 (VTC)
77	Number of poles	-	4
78	Motor speed	rpm	1470
79	Motor operation	-	Continuous
80	Rotation (CCW/CW)	-	CW
81	Cooling system	-	VTs

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No.	Description	Units	Value
82	Colour	-	VTs

ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
1. General				
1.1	Equipment tag No		AG3-34-2401-01 /Indoor	
1.2	Equipment Name		Filter press feed tank Agitator	
1.3	Application Description	-	SLURRY PUMP	
1.4	Quantity		1	
1.5	Equipment Supplier		VTs	
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/Indoor Area	
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)	
2.12	Winding Type (Form/Random)		Form	
2.13	Duty Cycle		S1 (Continuous)	

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ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
2.14	Insulation Class / Temp. Rise		F/B (See Note 11)	
2.15	Voltage, Variations	V	400V±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		DOL (VTC)	
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	

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ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
	Main Terminal Box	(kA) / Duration Time	VTs	
	Auxiliary Terminal Box	(kA) / Duration Time	VTs	
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	

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ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
3.2	PT100 / PTCs (Thermistors) For Motor Windings		A) $45KW \leq Motors \leq 132KW \rightarrow 3 \times PTC$ B) $132KW < Motors \rightarrow 6 \times PT100$ (See Note 5)	
3.3	PT100 for Motor Bearing		$132KW < Motors \rightarrow 2 \times PT100$ (See Note 5)	
3.4	Setpoint Data for Winding PTCs			
	Alarm	°C	130 (VTC)	
	Trip	°C	150 (VTC)	
3.5	Noise Level		Less than 85 dBA @ 1m	
3.6	Safety requirements		see note 29	
3.7	Safety Sign		see note 30	
3.8	Safety Installation and operation requirements		see note 31	
4. MECHANICAL CHARACTERISTIC				
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	

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ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
4.9	Max. Bearing Housing vibration velocity	^m m/sec	Acc. to IEC 60034-14	
4.10	Max. Shaft vibration Displacement	^m mills p-p	Acc. to IEC 60034-14	
4.11	Bearing Life		Not less than 50,000 hours VTC (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	
	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	

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ITEM	Description	UNIT	PURCHASER'S REQUIREMENTS	VENDOR'S RESPONSE
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	m	VTS	
4.18	Motor Weight	kg	VTS	
4.19	Lifting Eye		(See Note 13)	
4.20	Name plate		Stainless Steel	
4.21	Painting Colour		(See Note 17)	

Notes:

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

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

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.

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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 is 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 motor that feed by VFD, cooling fan shall be driven by 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 and 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 cartridges housing (where fitted) in a manner which shall avoid damage to explosion proof flanges. Motors to be used in non-hazardous area, outdoor in non-process, shall be totally enclosed fan cooled (TEFC) with degree of protection IP55 according to IEC 60034-5. In non-hazardous area, indoor in non-process area, standard industrial type motors, with degree of protection IP55 according to IEC 60034-5 shall be used.
10. Motors shall have an 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) 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-

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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 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. 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 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 manufacturer's standard and in accordance with the painting schedule which shall be prepared by manufacturer and shall be sent to the buyer for approval.
18. Vendor shall provide and issue the important data required to design the related structure / foundation.
19. NDE: Non-Drive End
20. DOL: Direct On-Line
21. V: Vertical Mounted
22. RHS: Right Hand Side
23. H: Horizontal Mounted
24. LRC: Locked Rotor Current
25. API: American Petroleum Institute

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26. TEFC: Totally Enclosed Fan Cooled

27. FLT: Full Load Torque

28. VFD: Variable Frequency Drive

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

30. The Safety Sign and Escape Route for Outdoor Area On Dewatering Area document number 12002-D-SF-LAY-303-DWT-139 shall be referred to and followed.

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

32. VTS: Vendor to Specify

33. VTC: Vendor to Confirm

34. TBA: To be Announced