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Data Sheet for Re-Grind Hydro Cyclone
Feed Slurry Pumps

02	2026-02-07	Issued For Approval				
01	2025-09-21	Issued For Approval				
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Rev.	Date	Description	Prepared By	Checked By	Approved By	Authorized By

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1	x	x	x					38							
2	x	x	x					39							
3	x	x						40							
4	x	x	x					41							
5	x	x	x					42							
6	x	x	x					43							
7	x	x	x					44							
8			x					45							
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1. REGRIND HYDROCYCLONE PUMPS

No.	Description	Units	Value
General data			
1	Quantity	#	2 Operational & 2 Standby
2	Tag No. / Location (indoors/ outdoors)	-	3-33-1501-11 ~12/Indoor 4-33-1501-11 ~12/Indoor
3	Application Description	-	Regrind hydro cyclone pump
Process / Operating Conditions			
Material Processed			
4	Ore Type	-	Copper ore
5	Fluid Type	-	Slurry
6	Ore specific gravity	t/m ³	2.9
7	Feed top size (F100)	micron	150
8	Feed F80	micron	90
9	Feed slurry temp	°C	5-60
Operating conditions			
10	Service Type	-	Continuous
11	Configuration	-	horizontal
12	Duty (from-to)	-	PB 3-33-3210-06 to CC3-33-2710-01/02 PB 4-33-3210-06 to CC 4-33-2710-01/02
13	solids feed rate per pump (design)	dtph	1628.10
14	solid feed rate per pump (nominal)	dtph	1411.02
15	Solid's content	%(m/m)	43
16	slurry density	t/m ³	1.392
17	Solid density	t/m ³	2.9
18	slurry viscosity	Pa.s	0.00162068 (WFL)
19	Slurry flowrate (design/nominal)	m ³ /h	2719.59/ 2356.98

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No.	Description	Units	Value
20	Gland seal water (Capacity / Pressure)	Lit/s @ bar	VTs
21	Slurry PH range	-	11-13
22	Feed slurry temperature	°C	5 to 60
23	Froth factor	-	NA
24	Discharge pressure	M slurry	30.35
25	Total Dynamic Head	M slurry	27.81
26	Time operation per cycle	min/Cycle	-
27	Vapor Pressure	m	0.4323
28	Min Discharge Pressure (Empty Press)	Bar	VTs
29	NPSH required (Maximum)	m	VTs (NOTE 5)
30	NPSH Available	m-H2O	9.50
31	Power absorbed	KW	292.49
32	Hydraulic power	KW	590.12
33	Installed Power	kW	710
34	Efficiency at the design point	%	60
Mechanical Information			
Technical specs			
35	Manufacturer	-	According to AVL
36	Model	-	VTs
37	Type	-	Slurry Horizontal Centrifugal Pump
38	Design pump operating speed	rpm	VTs
39	Max pump operating speed	rpm	2900 (VTC)
40	Inlet diameter	mm	DN 600 (VTC)
41	Discharge diameter	mm	DN 500 (VTC)
42	Flange specification	-	ASME B16.5 (VTC)

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No.	Description	Units	Value
43	Impeller diameter	mm	VTs
44	Number of impeller vanes	#	VTs
45	Sealing arrangement	-	Gland packing in normal execution (VTC)
Materials of construction/wear protection			
46	Casing	-	Cast iron + fully Rubber lining (VTC)
47	Impeller	-	Cast iron + fully Rubber lining (VTC)
48	Liner	-	Polyurethane or similar (VTC)
49	Shaft	-	ASTM A 276-GR. 316L (VTC)
50	Shaft Sleeve		ASTM A 276-GR. 316L (VTC)
51	Wear ring	-	SS 316L
52	Motor enclosure/frame material	-	CAST IRON
Power Transmission			
53	Transmission system	-	Pully and belt
54	Transmitted power	kw	VTs
55	Maximum driver Pully Diameter	mm	VTs
56	Drive Ratio	-	VTs
57	Driver speed	rpm	VTs
58	Transmission system	-	Pully and belt
Drive specifications			
59	Drive type	-	Direct Drive
60	Starting method	-	VFD
61	Power supply	-	3 Phase, 400±10% V , 50±5% Hz
62	Motor speed	RPM	1440@50HZ (VTC)
63	Insulation Grade	-	F
64	Temp. Class:	-	B
65	IEC Motor Protection	-	IP55

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No.	Description	Units	Value	
66	Ambient Temperature (Max/Min)	° C	Indoor	+40/+5
67			Outdoor	+40/-25 (Note 6)
68	Altitude above sea level	m	2500 (Note 6)	
Bearing details				
69	Motor end bearing type	-	VTS	
70	Pump end bearing type	-	VTS	
71	Lubrication type	-	VTS	
Piping details				
72	Pipe diameter (Suction /Discharge)	mm	DN 710 / DN 610	
73	Static head (Suction/discharge)	m	3/25 (WFL)	
74	Total pipe length (Suction/discharge)	m	3/84 (WFL)	
75	90 deg bends (Suction/discharge)	Qty	0/6 (WFL)	
76	45 deg bends (Suction/discharge)	Qty	0/2 (WFL)	
77	T pieces (Suction/discharge)	Qty	0/2 (WFL)	
Dimensions & Masses				
78	Total length (l)	m	VTS	
79	Total width (b)	m	VTS	
80	Total height (h)	m	VTS	
81	Total weight	kg	VTS	

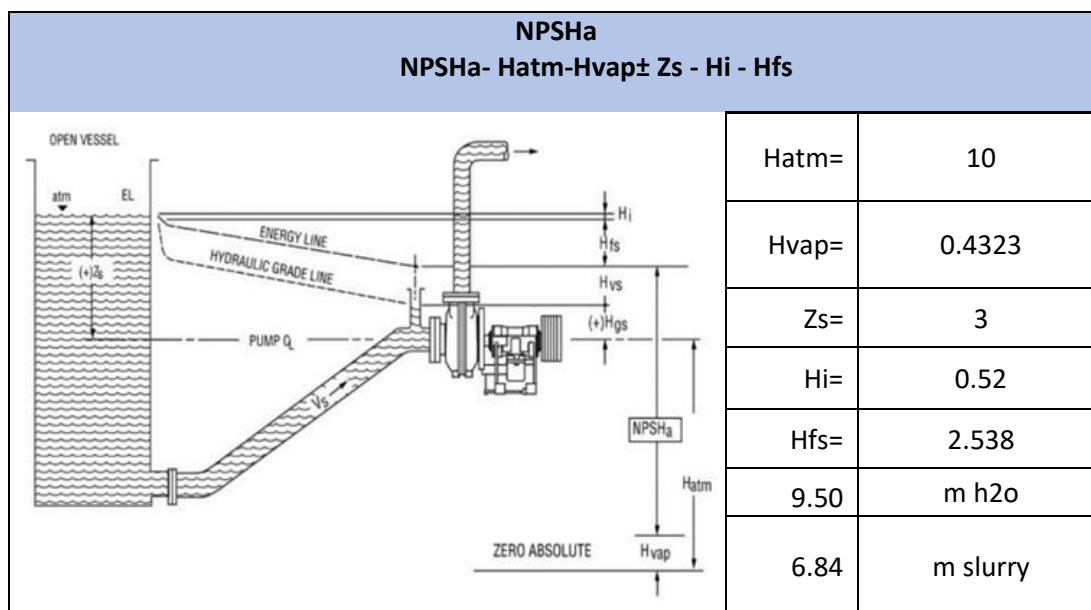
Notes:

1. VTS: Vendor to Specify
2. VTC: Vendor to Confirm
3. WFL: Will Be Finalized Later
4. For LV & MV motor data sheet please refer to: 12002-D-EL-DSH-303-GNL-038
5. $NPSH_a - NPSH_r \geq 1.5$
6. For Site Condition information, Please See the Doc.:12002-D-PR-DOC-303-GNL-001

2. CALCULATIONS:

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2.1. NPSHA CALCULATION:



2.2. HYDRAULIC POWER CALCULATION :

$$\begin{aligned} \text{Absorbed power} &= Q \cdot \rho \cdot g \cdot H / 3600 \\ &= 2719.6 \times 1.392 \times 9.81 \times 30.35 / 3600 = 313.089 \text{ kw} \end{aligned}$$

Assumed pump efficiency equal to 60% so :

Pump Hydraulic power is : absorbed power / pump efficiency =

$$313.09 / 0.6 = 521.81$$

Assumed electro motor efficiency equal to 95% and shaft efficiency 98% and NEMA service factor 1.15 so installed power is obtained from following equation:

$$\begin{aligned} \text{Installed power: hydraulic power} \times 1.15 / (\text{motor efficiency} \times \text{shaft efficiency}) &= \\ 521.81 \times 1.15 / (0.95 \times 0.98) &= 644 \end{aligned}$$

So nominal power is 710 kw