

	Project: Bahabad Pelletizing Project						نام پروژه:		
	Doc Name: Calculation Book for 850BC01						نام مدرک:		
	Doc Code:					کد مدرک:	Date:		تاریخ:
	Project Code	Originator	Classification	Doc. No.	Serial No.	Rev.			
	BPP	PA	M21	850BC01	0001	00	Page:		صفحه:
						1 of 1		شرکت آهن و فولاد غدیر ایرانیان Iranian Ghadir Iron & Steel Co.	

Title:

عنوان:

Calculation Book for 850BC01

Equipment Name	Belt Conveyor 850BC01
Equipment Code	850BC01
Manufacturer	RASTAPAD

00	1401.11.23	Calculation Book for 850BC01	H.J.	A.D.	S.M.
Rev.	Revision Date	Description	Compiled	Checked	Approved



Project 4 MTPY BAHABAD PELLETIZING PLANT PROJECT (PAMIDCO)
Location BAHABAD, YAZD, IRAN
Description

Date 2/12/2023
File Pamidco (1401.11.18).an2x
Engineer H.H.Jedi
Company RASTAPAD
Case Name Base

2

General

Belt Width	mm	1200
Belt Speed	m/sec	2.50
Load	mtph	1700
Ambient Temp	° C	-18
Total Mass	kg	122019
Total HS Inertia	kg-m ²	31
Calculation Method		CEMA Standard (5th)
Friction Force	kN	22.8
Lift Force	kN	36.8
Misc Drag	kN	2.9
Friction Factors		
Equivalent DIN f		0.0276

Idlers

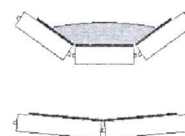
Specification	
Description	
Estimated No of Idlers	
Belt Width	mm
No of Rolls	
Angle	deg
Roll Diameter	mm
Type	
Rotating Weight	kg
Bearing Type	
Rating	N
Max Actual Load	N
Max Calc Load	N
RPM	
Min L10 Life	hr
Ave L10 Life	hr
Vert. Misalign	mm
Drag - Ai	
Kx Multiplier	
Ky Multiplier	
Kt Multiplier	

Carry

ISO-HD	
6205-133-3-H	
320	
1200	
3	
35.0	
133	
Fixed	
19.2	
Ball	
4089	
2093	
2874	
359	
120286	
151515	
3.175	
13.73	
1.00	
1.00	
1.36	

Return

ISO-HD	
6205-133-2-	
104	
1200	
2	
10.0	
133	
Fixed	
17.5	
Ball	
4601	
727	
796	
359	
8054240	
8161507	
3.175	
9.15	
1.00	
1.00	
1.36	



Profile

Horizontal Length	m	318
Vertical Lift	m	20



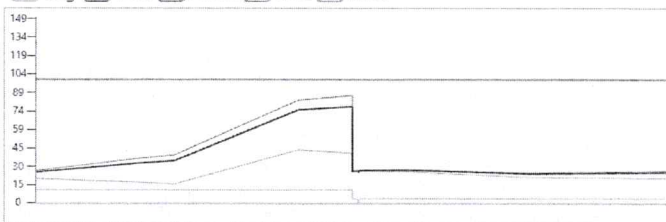
Takeup

Type		Auto
Tension	kN	30.9
No of Pulleys		1
Weight	kg	6299
Selected Due To		Run Slip
Approx. Carriage Travel Due To		(Refer To Belt Manufacturer)
Permanent	m	2.35
Total	m	2.75

Belt

Type		Fabric-ISO
Description		5/EP1000
Cover Gauge	mm	6.0 x 3.0
Rating	kN / (N/mm)	120 / 100
Safety/DesignFactor		10.01
Elastic Modulus	N/mm	13563
Weight	kg/m	24.7
Apparent Length	m	655
Max Run Ten	kN / N/mm / %	93.7 / 78 / 78
Max Accel Ten	kN / N/mm / %	104.6 / 87 / 87
Max Decel Ten	kN / N/mm / %	52.6 / 44 / 44

☐ Sag ☐ Run ☐ Accel ☐ Belt ☐ Drift



Comments:



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Gearbox Output Version	-	Hollow Shaft with Shrink Disc
Output Speed Request	rpm	30
Backstop	-	YES
Brake	-	YES
High Speed Coupling Type	-	Fluid Coupling
Assembly Design	-	RU/LU/RD/LD
Baseplate	-	YES
SF Calculation Type	-	Installed Power
SF Request (On installed power)	-	more than 1.5
Inverter / Soft Starter	-	NA
Continuous Duty	hours/day	24
Start Stop / Hour	/Hour	*6 - 14*
MOTOR		
Manufacturer	-	SIEMENS
Motor Type	-	Low Voltage Squirrel-Cage Induction Motor
Motor Definition	-	1LE5603-3BB43-4AB3-Z B02+L51
Motor Efficiency Class	-	IE3
Rated Power	kW	200
Rated Speed	rpm	1492
Line Voltage	V	400V
Line Frequency	Hz	50
Insulation Class	-	F
Duty	-	S1 %100
IEC Frame Size	-	355L
IEC Design Version	-	IMB3
Frame Material	-	Cast Iron
Direction of Rotation	-	CW/CCW
Temperature Class	-	B
Motor Option: Brake	-	NO
Motor Option: 3xPTC Thermistor	-	YES : 3 x PTC
Motor Option: Space Heater	Q02	NO
Motor Option: Insulated Bearing NDE	L51	YES
Motor Option: Inspection Certificate	B02	YES
Cooling Method	-	IC 411 (Self Ventilated)
HIGH SPEED COUPLING - HYDRAULIC (FLUID)		
Manufacturer	-	TRANSFLUID
Coupling Type	-	Hydraulic Coupling with Double Delay Chamber
Coupling Definition	-	KRG 27 CC F500 95 90 OR SP
Delay Chamber	-	Double Delay



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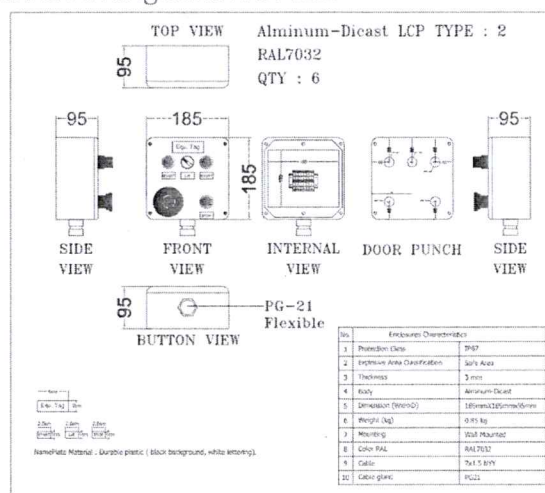
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Rated Power	kW	200
Ass./Reass. Without Move Shaft	-	YES
Fusible Safety Plug 140'C	-	YES
Brake Disc/Drum	-	YES
Oil Type	-	ISO HM 32 (SAE 10W)
Weight	kg	265.00
SPEED REDUCER		
Manufacturer	-	BONFIGLIOLI or SEW
Type	-	Helical-Bevel
Gearbox Definition	-	HDO 160 3 40.70 S L 2 VP B3 FAN A CCW DS CC
Gearbox / Motor Transmission	-	Through Hydraulic Coupling
Gearbox Input Speed	rpm	1492.00
Actual Ratio	i	40.70
Requested Output Speed	rpm	30
Output Speed Difference	%	4.1%
Number of Stages	-	3.00
Mechanical Efficiency	%	94%
Service Factor based on Installed Power	-	1.42
Service Factor based on Absorbed Power	-	1.71
Service Factor Requirement Check (Based on Absorbed Power)	-	OK
Direction of Rotation	-	CCW
Output Shaft Type	-	Hollow Shaft with Shrink Disc
Output Shaft Diameter x Length	mm	(215 H7 x 210 H7) x 870
Mounting Position	-	B3 Horizontal
Assembly Design	RU/LU/RD/LD	RU/LU/RD/LD SHOULD BE DEFINED
Nominal Thermal Capacity (Ambient Temperature of @40°C @n1:1500rpm) (Air velocity ≥ 1.4 m/s)	kW	NOK
Casing Material	-	Cast Iron
Lubrication Method	-	Splash
Oil Capacity	L	135.00
Oil Type	-	Synthetic Shell Omala S4 WE 320
Option: Inspection Certificate	CC	YES
Option: Backstop	CW/CCW	YES
Option: Double Oil Seals	DS	YES

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Weight (without oil)	kg	3175.00
BACKSTOP		
Manufacturer	-	STIEBER
Backstop Definition	-	RSCI-90
Torque On Backstop	Nm	5100.00
Nominal Torque	Nm	5600.00
BRAKE		
Manufacturer	-	GALVI
Brake Type	-	Failsafe Shoe Brake DIN 15435 With Counter Spring
Brake Code	-	N(NV). 500.HYD.201/06
Min-Max Braking Torque	Nm	350 - 5220
Brake Drum Diameter	mm	Ø500
Weight (approx.)	kg	161.00
BASEPLATE		
Manufacturer	-	BONFIGLIOLI
Baseplate/Torque Arm Definition		HDO 1603+355L
Special Swing Base	-	Yes
Coupling Cover	-	Yes
Torque Arm Support on Baseplate	-	Yes

4.3. Wiring, Data sheet & Arrangement of LCB





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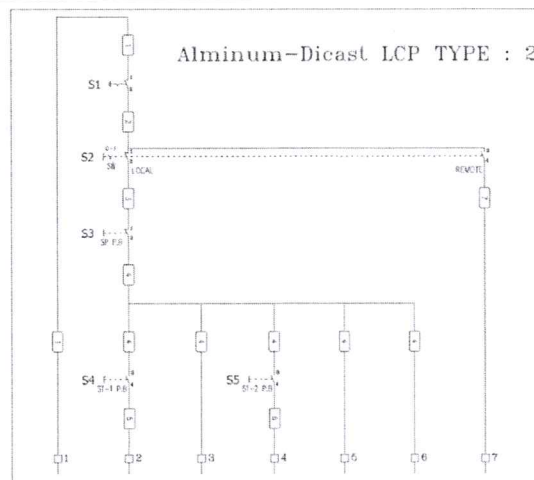
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No.	TAG	LABE ON DOOR	DISCRIPTION	MANUFACTURE	ORDER-CODE	QTY
1	S1	EMERGENCY STOP	22mm,0-1 Emergency Stop Red ,Metallic,Round,1NC	Schneider	XB4BS442	1
2	S2	LOCAL-REMOTE	22mm,0-1 Selector Black ,Metallic,Round,1NO+1NC	Schneider	XB4BD21	1
3	S3	STOP	22mm,Stop Red,Metallic,Round,1NC	Schneider	XB4BA42	1
4	S4	START	22mm,Start Green,Metallic,Round,1NO	Schneider	XB4BA31	1
5	S5	START	22mm,Start Green,Metallic,Round,1NO	Schneider	XB4BA31	1
6	T	TERMINAL	Gray,2.5mm2,220VAC	RAAD	RTP2.5	7
7						
8						
9						
10						

4.4. Belt Feeder

No.	Item	Description
1	Name	Belt Feeder
2	Tag No	210BC04
3	Qty	1
4	Density	2.050 ton/m3
5	Design Mass Capacity	700 ton/h
6	Belt Width	1000 mm
7	Belt Speed	0.9 m/s
8	Drive Unit	7.5kW, 400V, 1450 / IP55
9	Transmission ratio	26.6 RPM
10	Belt Type	EP315
11	Belt Loop Length	15 m
12	Thickness of Top cover	4 mm
13	Thickness of Bottom cover	2 mm
14	Drum Head Diameter	315 mm
15	Drum Head Shaft Material	CK45
16	Drum Head Bearing	22222 EK
17	Drum Head Sleeve	H322
18	Drum Head Housing	SNL 512-619
19	Drum Head Qty	1
20	Drum Tail Diameter	250 mm
21	Drum Tail Shaft Material	CK45



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22	Drum Tail Bearing	22222 EK
23	Drum Tail Sleeve	H322
24	Drum Tail Housing	SNL 512-619
25	Drum Tail Qty	1
26	Troughing Idler Diameter	133 mm
27	Troughing Idler Type	PSV2
28	Troughing Idler Length C-C	1158 mm
29	Troughing Idler Shaft Diameter	25
30	Troughing Idler Bearing	6205
31	Impact Idler Diameter	133/89 mm
32	Impact Idler Type	PSV2
33	Impact Idler Length C-C	1158 mm
34	Impact Idler Shaft Diameter	25
35	Impact Idler Bearing	6205
36	Return Idler Diameter	133 mm
37	Return Idler Type	PSV2
38	Return Idler Length C-C	1158
39	Return Idler Shaft Diameter	28
40	Return Idler Bearing	6205
41	Horn	1
42	Misalignment Switch	4
43	Pull Rope Switch	2
44	Speed Switch	1
45	Total Weight	5200 Kg