General Data

Mass flow	(500 cbm/h) :	600	t/h
Belt width	:	1200	mm
Belt speed	:	1.20	m/s
Bulk density	(Clinker/Gypsum) :	1.2	t/cbm
Angle of surcharge, geometric	(acc. to DIN) :	15	°
specific resistant coefficient	:	0.023	
max. ambient temperature	:	40	°C
Idler spacing - Carrying belt strand	:	1.50	m
Idler spacing - Return belt strand	:	6.00	m
No. of inside/outside belt cleaners	:	2 / 1	pc.

Conveyor Route

Index	1	2	3	4	5
X-Coordinate [m]	0.00	852.00	976.72	991.00	1003.00
Y-Coordinate [m]	0.00	0.00	26.51	(27.86)	29.00

Belt Pulley Arrangement

Conveyor route index	:	1	Belt return unit	:	11
Conveyor route index	:	4	Belt take-up unit	:	23
			Take-up by	:	gravity
Conveyor route index	:	5	Drive unit	:	44
Angle of contact	:	180 °	Friction coefficient	:	0.30/0.35
Motors	:	1	Brakes/back stops	:	0/1

Feeding / Discharging of Material

Conveyor route index	:	1	Feeding rate	:	100 %
Length of loading zone	:	6.0 m	Length of skirtboards	:	6.0 m
impact idler spacing	:	0.40 m			
Conveyor route index	:	5	Discharging rate	:	-100 %

V A L U E S O F C A L C U L A T I O N

Required total motor rating	(empty: 36.4 kW):		123.8	kW
Driving power rating	(US:LS = 26.8:1):	(!)	160	kW
Exact speed	:		1.17	m/s
Synchronous motor speed	(1488):		1500	1/min
Gear reducer transmission ratio	(54.831):		56	
Driving pulley diameter	(824):		800	mm
Total conveying length	:		1005.9	m
max. angle of inclination	:		12.0	°
Average angle of inclination	(lift = 29 m):		1.66	°
lifting force of total resistance	Full load:		39.89	%
D-Factor - 1 (Additional/Main resist.)	Full load:		0.1723	
C-Factor - 1 (Minor/Main resist.)	Full load:		0.1139	
C-Factor - 1	at least by DIN/ISO:		(0.0896)	
Required belt tensile force	(acc. to DIN):		958	N/mm
Existing belt tensile force	(1200 ST ...):		1000	N/mm
belt tensions - operation	(safety (>=6.7)= 7.0)		171.6	kN
belt tensions - starting/braking	(safety (>=4.8)= 5.7)		210.8	kN
max. belt sag - carrying idlers	full load:		0.40	%
max. belt sag - carrying idlers	standstill:		0.74	%
Theoretical material throughput	(0.161 qm):		815	t/h
Utilization of (non) inclined routes	(74 % DIN):		79	%
ave. height of feeding hopper	:		193	mm
Troughing angle carrying idlers	(with 2° tilt):		30	°
Weight of material conveyed	(1.7 kW/m lift):		142.3	kg/m
Weight of belt	(rubber cover 6:4 mm):		24.0	kg/m
Weigth carrying idlers	(return idlers: 5.1 kg/m):		13.8	kg/m
troughing commencement	:	(+)	2.18	m
troughing termination	(1.37 m for lift 60 mm):		1.99	m
Prestressing	(at standstill-empty, with ballast):		1273	mm
Distance of motion of take-up pulley	(maximum):		2063	mm
additional for temperatur compensation	(dT=20 K):		241	mm
RETURN UNIT	(return pulley-Ø >=500 mm)			
Resultant radial load of return pulley	(180°):		208.5	kN
TAKE-UP UNIT	(take-up pulley-Ø >=500 mm)			
Resultant radial load of bend pulley	(108°):		117.6	kN
Resultant radial load of take-up pulley	(180°):		145.3	kN
Resultant radial load of bend pulley	(108°):		118.9	kN
DRIVE UNIT	(driving pulley-Ø >=800 mm)			

Resultant radial load of driving pulley (180°):	281.0	kN
driving torque (operation:242 kN/41.8 kNm):	58.1	kNm
hold back torque (back stop):	11.7	kNm
Resultant radial load of snub pulley (30°):	37.8	kN

S T A R T I N G B E H A V I O U R

*) with part of slope

Motor soft start, starting factor not more:	1.50	*)
Starting/operation torque (full load):	1.50	
Starting time of conveyor (full load):	6.2	sek
Braking distance of conveyor (full load):	1.9	m