



Efficient Always

CEMENT

Automating your future, **Today**

CEMENT

Cotmac provides a range of Greenfield and Brownfield automation solutions in Cement industry



- Design engineering
- Automation panels
- Hardware supply
- PCS 7
- Software development
- Installation and commissioning
- Onsite services

Automating your future, **Today**

CEMENT

Projects executed in various sections of Cement Industry are :

Grinding Unit Sections :

- Clinker Grinding
- Fresh Feed Handling
- Separator Section
- Roller Press & Recirculation
- Product Transport
- Ball Mill & Venting
- Fly Ash Feed & Extraction
- Cement Silo
- Crusher Section
- Raw Mill 1,2,3
- Bag House Section
- Kiln Section
- Clinker Transport
- Clinker Storage
- Clinker Grinding Unit
- Cement Storage & Transport
- Cement Packing & Loading

Automating your future, **Today**

CEMENT

Projects References :

- UltraTech Cement Ltd, Rawan
- Arabian Gulf Cement, Bahrain
- Star Cement, Meghalaya
- Zuari Cement, Solapur
- Lafarge Cement, Bilaspur
- Sagar Cement, Telangana
- KJS Cement, Maihar MP
- Pioneer Cement Industries LLC, UAE
(Scope : AMC - Panel Equipments)
- Lake Cement, Tanzania (Scope : System upgradation to PCS7)
- Hill Cement
- KJS Cement Phase –II
- Ratna Cement

Automating your future, **Today**

CEMENT

UltraTech Cement Ltd., Rawan – PCS7 Project

Project Scope :

- Software Development
- FAT & SAT
- Commissioning
- Report Generation

Project Details :

- Redundant Client server architecture with 6 Nos. of Clients
- Approximate 3000 I/O's +PA Instruments +2500 Smart I/O's MCC devices with SIMOCODE & Drives
- Siemens DCS PCS7 & CEMAT Library V7.1

Project Executed multiple sections :

- Crusher
- Raw Mill 1,2,3
- Bag House
- Kiln Section
- Clinker Transport

Automating your future, Today

Efficient Always

CEMENT

Lime Stone Crusher - UltraTech Cement Ltd., Rawan – PCS7 Project

2/3/2014 5:30:22 PM @(2)/PLC08_1 Programming error 34: FC1904 /966/10012/1 System 2/3/2014 5:30:31 PM

Lime Stone Crusher	RM Hopper Feed	Raw Mill 1	Raw Mill 2
Raw Mill 3	Bag House	Blending Silo	Coal Mill
Kiln Feed	Kiln	Cooler	Clinker Transport
Utilities	Plant Info	System	

SIEMENS SIMATIC PCS

CEMAT01

GROUP SEQUENCE

- LS TRANSPORT
 - LS_TRANSPORT/G01 [A] [0]
- SURGE_HOPPER_FEED
 - SRGE_HOPPER_FEED/G01 [A] [0]
- CRUSHER
 - CRUSHING_GRP/G01 [A] [0]
- SCREENING_GROUP
 - SCREENING_GRP/G01 [A] [0]
- PURGING_GROUP
 - PURGING_GROUP/G01 [A] [0]

212DSS1

212WP1 212WP2

212BF2 212FN2

212AF1 300 SP 0 RPM 0 A

212WQ1 945 SP 0 RPM 0 A

212LQ1 212LQ2

212CR1

212BF1 212DA1 800 SP 0 RPM 0 A

212SC1 212SC2

212RA1 212BC4 212RA9

212BF4 212FN4

212BF9 212FN9 212DA2

212RAA 212BCB

212VS1 212VS2

212BC3 212BC5

212MS1

212BF3 212FN3

212BCA 212BC6 212BC7 212BC8

212RA6 212RA7 212BF7 212FN7 212BF8 212FN8

212RA8 212DG1 212HP1 8 mtr

BELT WEIGHER

212BW1 244 TPH BW

LS TRANSPORT

- 212 CP1
- 212 CP2

212BC7 ZSS 212BC1 ZSS

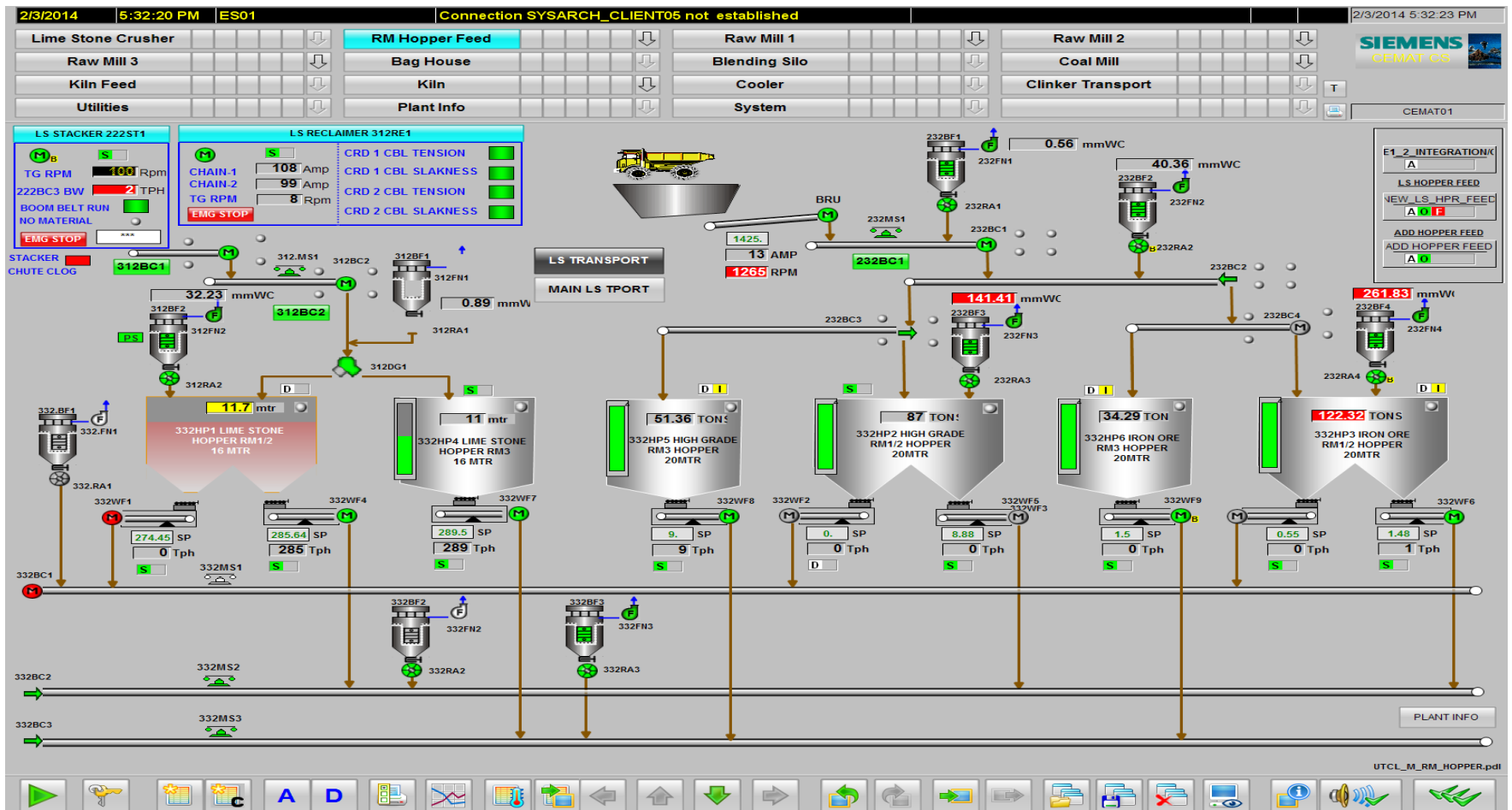
Navigation icons: Play, Stop, Home, Refresh, etc.

Automating your future, Today

Efficient Always

CEMENT

RH Hopper Feed - UltraTech Cement Ltd., Rawan – PCS7 Project

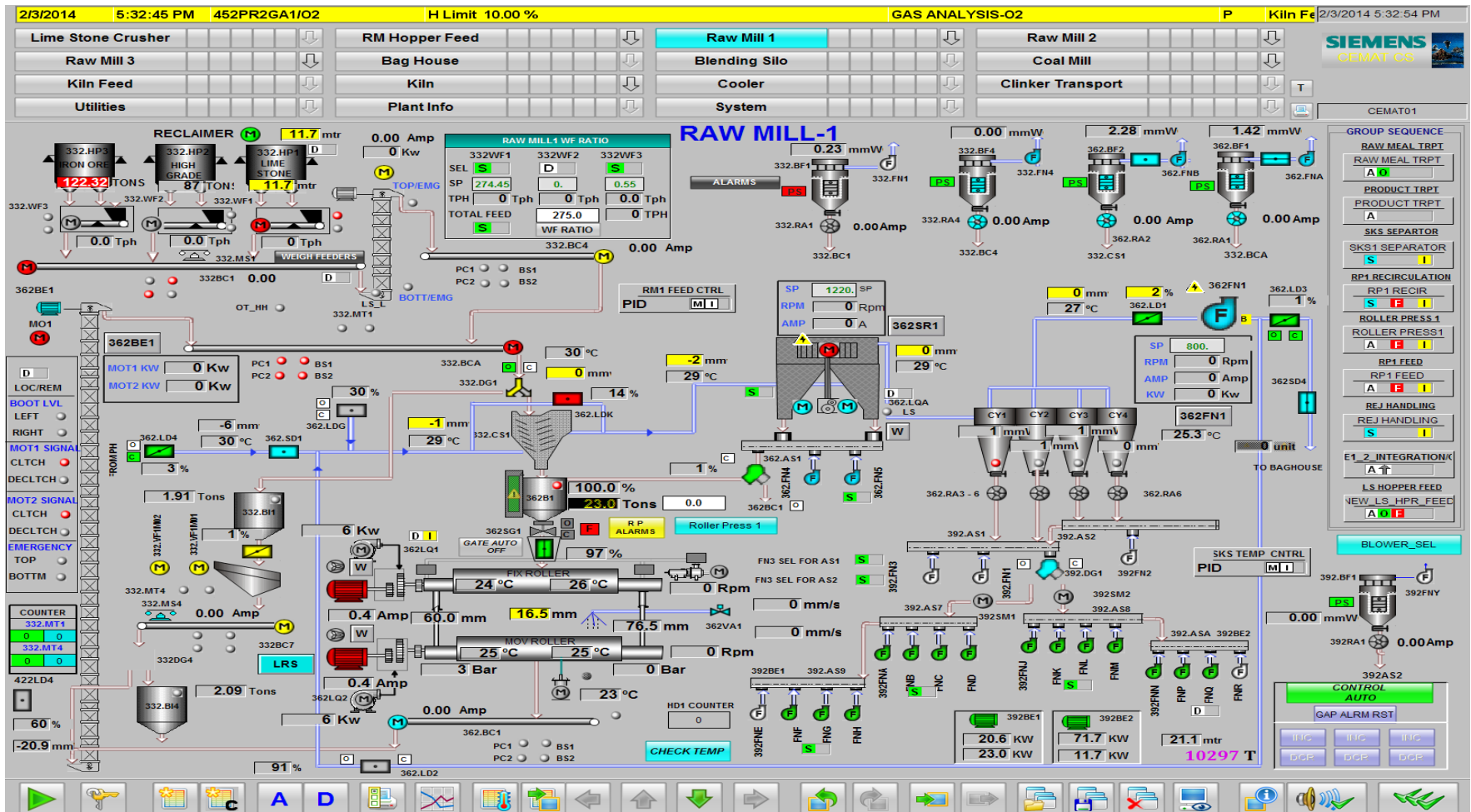


Automating your future, Today

Efficient Always

CEMENT

Raw Mill-1 - UltraTech Cement Ltd., Rawan – PCS7 Project

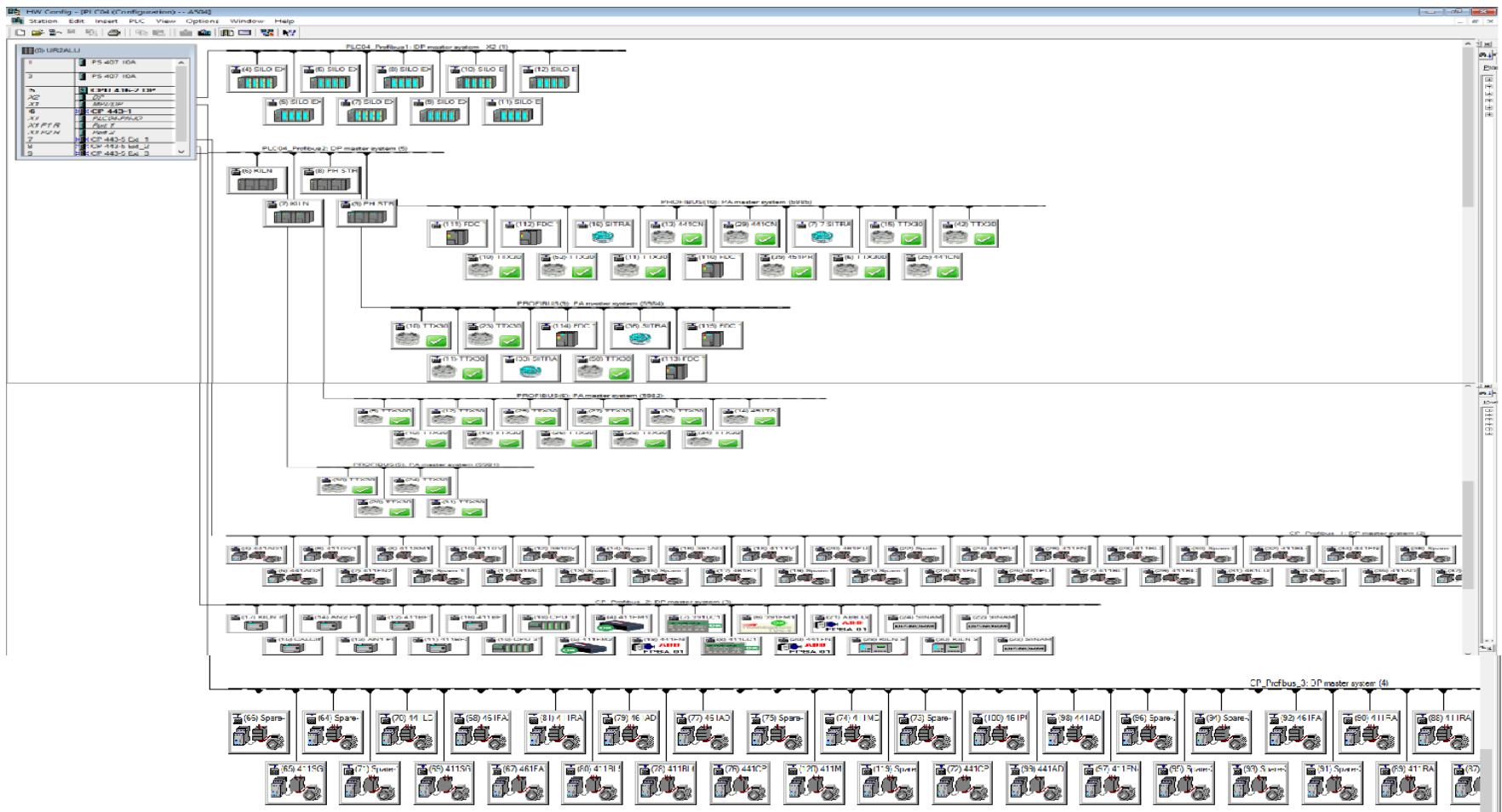


Automating your future, Today

Efficient Always

CEMENT

Hardware Configuration - UltraTech Cement Ltd., Rawan – PCS7 Project



Automating your future, **Today**

CEMENT

Arabian Gulf Cement, Bahrain - PCS7 Project

Project Scope :

- Design & Engineering
- Software Development
- FAT & SAT
- Commissioning
- Report generation

Project Details :

- Redundant Client server architecture with 3 Nos. of Clients
- Redundant controller CPU S7 410-5H
- Profibus devices such as VFD's, Energymeter etc.
- Siemens DCS PCS7 8.1 & CEMAT Library V8.1

Project Executed multiple sections :

- Clinker Storage
- Clinker Grinding Unit
- Cement Storage & Transport
- Cement Packing & Loading
- Automation for 2 nos. of Existing Mills

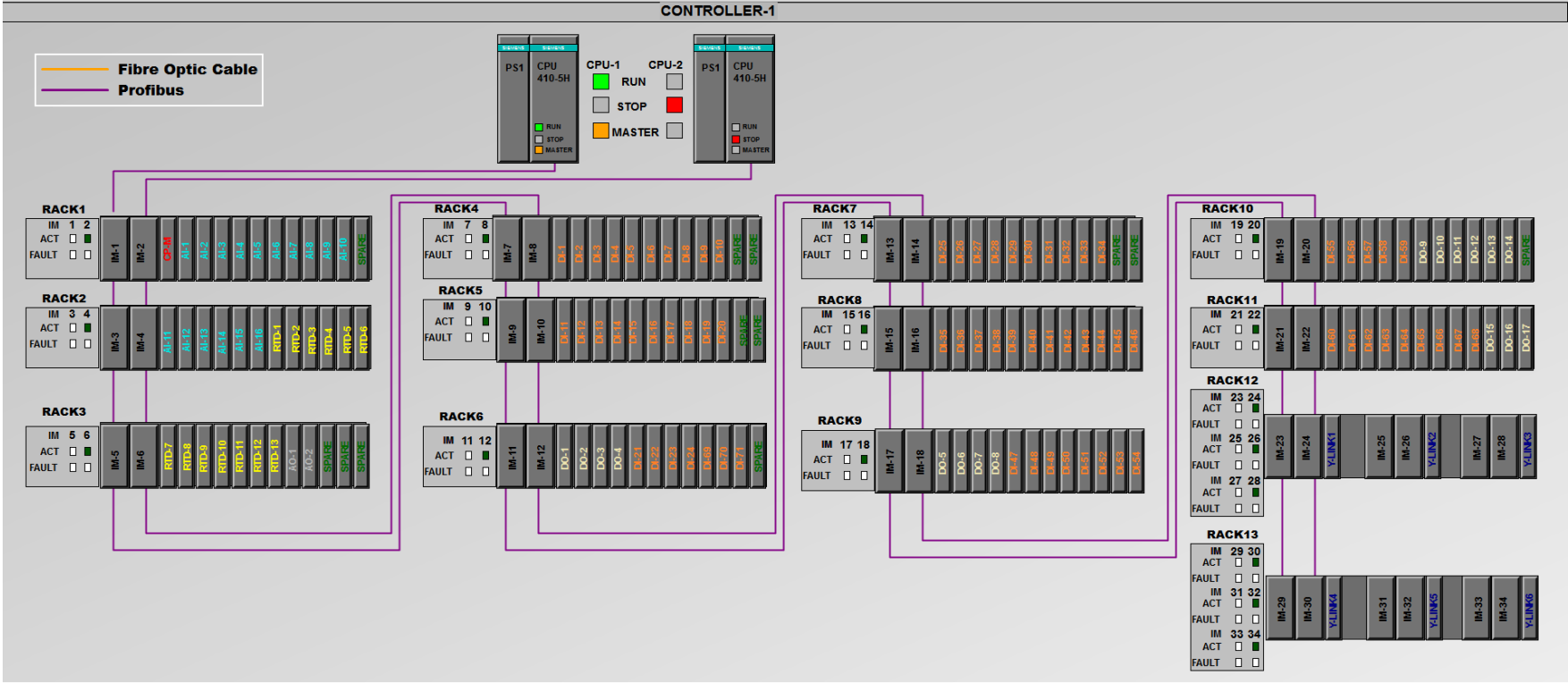
CEMENT

System Architecture - Arabian Gulf Cement, Bahrain - PCS7 Project

11/01/18 6:22:09 PM P_AS3/@(6)/DO-12_1	Module 0/0/0: Withdrawn	P	INCOMMER	11/11/2018 1:57:36 PM
11/01/18 6:22:09 PM MCC2_CS_MAMCC2_CS_MA	UNHEALTHY			
11/01/18 6:22:09 PM P_AS3/@(6)/DI-52_1	Module 0/0/0: Withdrawn			

CGM 1 CGM 2 CGM 3 PACKING PLANT BULK LOADING
 PLANT OVERVIEW MFM METER REPORT **SYSTEM**

SUDARSHAN-PC
 Administrator



Show/Hide Tag [Navigation icons: Home, Back, Forward, Refresh, Print, Copy, Paste, Undo, Redo, Zoom, etc.]

CEMENT

Clinker Storage - Arabian Gulf Cement, Bahrain - PCS7 Project

11/01/18	6:22:09 PM	P_AS3I@6/DO-12_1	Module 0/0/0: Withdrawn
11/01/18	6:22:09 PM	MCC2_CS_MA/MCC2_CS_MA	UNHEALTHY
11/01/18	6:22:09 PM	P_AS3I@6/DI-52_1	Module 0/0/0: Withdrawn

CGM 1

CGM 2

CGM 3

PACKING PLANT

BULK LOADING

PLANT OVERVIEW

MFM METER

REPORT

SYSTEM

MCC1 ● C2 MAIN DRIVE CURRENT 0.00 0.00 A TOTAL SP 80 TPH TOTAL FEED 0.00 TPH TOTAL PV 0.00 TPH SBL001_II 0.00 A 615BL002_II 0.00 A 615FN001_II 0.00 4 5 CP PRESSURE 0.00 0.00 0.00

RECIPE SELECTED		RECIPE DISABLE	
RECIPE RUNTIME(HRS)		HRS	
MATERIAL	CLINKER	LIMESTONE	GYP SUM
SP (%)	100.0	0.0	0.0
WF RATIO 511WF001 511WF002 511WF003			
TREND			

D GYPSUM WF
D LIMESTONE WF

ADDITIVES CONVEYING TO HOPPER N1_11_4	CLINKER CONVEYING TO HOPPER N1_10_4
A M P	A M P

TRANSPORT FROM FEED HOPPERS TO MILL N_1_9_2	WF-RATIO
A M P	A M P

LIC_C41	85.0
0.0 TPH	0.0 %
M E	

Automating your future, Today

Efficient Always

CEMENT

Cement Grinding Unit - Arabian Gulf Cement, Bahrain - PCS7 Project

The screenshot displays a comprehensive PCS7 control interface for a Cement Grinding Unit. At the top, a status bar shows the current date and time (11/01/18, 6:22:09 PM) and system information (Module 0/0/0: Withdrawn, UNHEALTHY). Below this is a navigation menu with buttons for 'CGM 1', 'CGM 2', 'CGM 3', 'PACKING PLANT', and 'BULK LOADING'. The main control area features a detailed process flow diagram with various equipment and their associated parameters. Key components include silos (e.g., 511.WF001, 511.WF002, 511.WF003), mills (e.g., 561.BM001), and conveyors (e.g., 561.AS001, 561.AS002). The interface shows real-time data for various parameters such as flow rates (TPH), pressures (mbar), temperatures (°C), and RPMs. A 'DUST MONITOR BLOWER OFF' warning is visible in the center. The right-hand sidebar contains a 'SELECTED SILO' list with status indicators for various silos and transport systems. The bottom of the interface features a toolbar with various control icons and a 'Show/Hide Tag' button.

Automating your future, Today

Efficient Always

CEMENT

Monitoring Screen - KJS Cement Ltd., Maihar MP- PCS7 Project

1/31/2023 5:44:00 PM PLC08_Program/@(11)/DP_DP master 1: Failure

LIME CRUSH	RAW MAT PREBLEND	RAW MILL	RAW MAT TRANS	RAW SILO & KILN FEED
PH & KILN	COOLER & ESP	CLINKER TRANSP	COAL FIRING	COAL TRANSP
COAL MILL	ADDITIVE TRANSP	ADDITIVE TRANSP	CEMENT MILL	CEMENT SILO
CEM BAG HOUSE	PROCESS PARAMETERS	BAG HOUSE	TOTALIZER	PACKER 1 & 2
CLINKER GRINDING	NEW CEMENT SILO	NEW FLY ASH SILO	EMS	SYSTEM
BALL MILL	FLY ASH FEED	ROLLER PRESS	OVERVIEW	

HPR WT: 436 TON, Gypsum: 102 TON, Additive: 128 TON, DFA: 48 TONS
 TOTAL FEED SP: 220 TON, TOTAL FEED: 214 TON
 OPC WF RATIO: 2.708%, PPC WF RATIO: 9.9%
 ACTUAL: 139 TPH, 0 TPH, 7 TPH, 68 TPH

532M1: 30 AMP, 532M2: 30 AMP, 532DG1: 31 AMP, 532BC1: 46 AMP, 532BC2: 19 AMP, 532CR1: 46 AMP, 532V1: 105 AMP, 532V2: 104 AMP, 532V3: 19 AMP, 532V4: 196 kW, 532V5: 23 kW, 532V6: 24 kW, 532V7: 24 kW, 532V8: 24 kW, 532V9: 43 kW, 532V10: 42 kW, 532V11: 32.9 °C, 532V12: 16 AMP, 532V13: 38 %, 532V14: 32 °C, 532V15: 25 °C, 532V16: 21 °C, 532V17: 29 °C, 532V18: 35 °C, 532V19: 34 °C, 532V20: 29 °C, 532V21: 36 °C, 532V22: 32 °C, 532V23: 29 °C, 532V24: 20 °C, 532V25: 21 °C, 532V26: 24 °C, 532V27: 25 °C, 532V28: 17 °C, 532V29: 23 mm/s, 532V30: 2.0 mm/s, 532V31: 21 °C, 532V32: 34 °C, 532V33: 31 °C, 532V34: 5.8 BAR, 532V35: 33 mmW, 532V36: 71 mmW, 532V37: 521, 532V38: 532 RPM, 532V39: 39 AMP, 532V40: 1427, 532V41: 0, 532V42: 31 °C, 532V43: 24 °C, 532V44: 25 °C, 532V45: 17 °C, 532V46: 2.3 mm/s, 532V47: 2.0 mm/s, 532V48: 21 °C, 532V49: 21 °C, 532V50: 34 °C, 532V51: 24 °C, 532V52: 25 °C, 532V53: 17 °C, 532V54: 2.3 mm/s, 532V55: 2.0 mm/s, 532V56: 21 °C, 532V57: 21 °C, 532V58: 34 °C, 532V59: 24 °C, 532V60: 25 °C, 532V61: 17 °C, 532V62: 2.3 mm/s, 532V63: 2.0 mm/s, 532V64: 21 °C, 532V65: 21 °C, 532V66: 34 °C, 532V67: 24 °C, 532V68: 25 °C, 532V69: 17 °C, 532V70: 2.3 mm/s, 532V71: 2.0 mm/s, 532V72: 21 °C, 532V73: 21 °C, 532V74: 34 °C, 532V75: 24 °C, 532V76: 25 °C, 532V77: 17 °C, 532V78: 2.3 mm/s, 532V79: 2.0 mm/s, 532V80: 21 °C, 532V81: 21 °C, 532V82: 34 °C, 532V83: 24 °C, 532V84: 25 °C, 532V85: 17 °C, 532V86: 2.3 mm/s, 532V87: 2.0 mm/s, 532V88: 21 °C, 532V89: 21 °C, 532V90: 34 °C, 532V91: 24 °C, 532V92: 25 °C, 532V93: 17 °C, 532V94: 2.3 mm/s, 532V95: 2.0 mm/s, 532V96: 21 °C, 532V97: 21 °C, 532V98: 34 °C, 532V99: 24 °C, 532V100: 25 °C, 532V101: 17 °C, 532V102: 2.3 mm/s, 532V103: 2.0 mm/s, 532V104: 21 °C, 532V105: 21 °C, 532V106: 34 °C, 532V107: 24 °C, 532V108: 25 °C, 532V109: 17 °C, 532V110: 2.3 mm/s, 532V111: 2.0 mm/s, 532V112: 21 °C, 532V113: 21 °C, 532V114: 34 °C, 532V115: 24 °C, 532V116: 25 °C, 532V117: 17 °C, 532V118: 2.3 mm/s, 532V119: 2.0 mm/s, 532V120: 21 °C, 532V121: 21 °C, 532V122: 34 °C, 532V123: 24 °C, 532V124: 25 °C, 532V125: 17 °C, 532V126: 2.3 mm/s, 532V127: 2.0 mm/s, 532V128: 21 °C, 532V129: 21 °C, 532V130: 34 °C, 532V131: 24 °C, 532V132: 25 °C, 532V133: 17 °C, 532V134: 2.3 mm/s, 532V135: 2.0 mm/s, 532V136: 21 °C, 532V137: 21 °C, 532V138: 34 °C, 532V139: 24 °C, 532V140: 25 °C, 532V141: 17 °C, 532V142: 2.3 mm/s, 532V143: 2.0 mm/s, 532V144: 21 °C, 532V145: 21 °C, 532V146: 34 °C, 532V147: 24 °C, 532V148: 25 °C, 532V149: 17 °C, 532V150: 2.3 mm/s, 532V151: 2.0 mm/s, 532V152: 21 °C, 532V153: 21 °C, 532V154: 34 °C, 532V155: 24 °C, 532V156: 25 °C, 532V157: 17 °C, 532V158: 2.3 mm/s, 532V159: 2.0 mm/s, 532V160: 21 °C, 532V161: 21 °C, 532V162: 34 °C, 532V163: 24 °C, 532V164: 25 °C, 532V165: 17 °C, 532V166: 2.3 mm/s, 532V167: 2.0 mm/s, 532V168: 21 °C, 532V169: 21 °C, 532V170: 34 °C, 532V171: 24 °C, 532V172: 25 °C, 532V173: 17 °C, 532V174: 2.3 mm/s, 532V175: 2.0 mm/s, 532V176: 21 °C, 532V177: 21 °C, 532V178: 34 °C, 532V179: 24 °C, 532V180: 25 °C, 532V181: 17 °C, 532V182: 2.3 mm/s, 532V183: 2.0 mm/s, 532V184: 21 °C, 532V185: 21 °C, 532V186: 34 °C, 532V187: 24 °C, 532V188: 25 °C, 532V189: 17 °C, 532V190: 2.3 mm/s, 532V191: 2.0 mm/s, 532V192: 21 °C, 532V193: 21 °C, 532V194: 34 °C, 532V195: 24 °C, 532V196: 25 °C, 532V197: 17 °C, 532V198: 2.3 mm/s, 532V199: 2.0 mm/s, 532V200: 21 °C, 532V201: 21 °C, 532V202: 34 °C, 532V203: 24 °C, 532V204: 25 °C, 532V205: 17 °C, 532V206: 2.3 mm/s, 532V207: 2.0 mm/s, 532V208: 21 °C, 532V209: 21 °C, 532V210: 34 °C, 532V211: 24 °C, 532V212: 25 °C, 532V213: 17 °C, 532V214: 2.3 mm/s, 532V215: 2.0 mm/s, 532V216: 21 °C, 532V217: 21 °C, 532V218: 34 °C, 532V219: 24 °C, 532V220: 25 °C, 532V221: 17 °C, 532V222: 2.3 mm/s, 532V223: 2.0 mm/s, 532V224: 21 °C, 532V225: 21 °C, 532V226: 34 °C, 532V227: 24 °C, 532V228: 25 °C, 532V229: 17 °C, 532V230: 2.3 mm/s, 532V231: 2.0 mm/s, 532V232: 21 °C, 532V233: 21 °C, 532V234: 34 °C, 532V235: 24 °C, 532V236: 25 °C, 532V237: 17 °C, 532V238: 2.3 mm/s, 532V239: 2.0 mm/s, 532V240: 21 °C, 532V241: 21 °C, 532V242: 34 °C, 532V243: 24 °C, 532V244: 25 °C, 532V245: 17 °C, 532V246: 2.3 mm/s, 532V247: 2.0 mm/s, 532V248: 21 °C, 532V249: 21 °C, 532V250: 34 °C, 532V251: 24 °C, 532V252: 25 °C, 532V253: 17 °C, 532V254: 2.3 mm/s, 532V255: 2.0 mm/s, 532V256: 21 °C, 532V257: 21 °C, 532V258: 34 °C, 532V259: 24 °C, 532V260: 25 °C, 532V261: 17 °C, 532V262: 2.3 mm/s, 532V263: 2.0 mm/s, 532V264: 21 °C, 532V265: 21 °C, 532V266: 34 °C, 532V267: 24 °C, 532V268: 25 °C, 532V269: 17 °C, 532V270: 2.3 mm/s, 532V271: 2.0 mm/s, 532V272: 21 °C, 532V273: 21 °C, 532V274: 34 °C, 532V275: 24 °C, 532V276: 25 °C, 532V277: 17 °C, 532V278: 2.3 mm/s, 532V279: 2.0 mm/s, 532V280: 21 °C, 532V281: 21 °C, 532V282: 34 °C, 532V283: 24 °C, 532V284: 25 °C, 532V285: 17 °C, 532V286: 2.3 mm/s, 532V287: 2.0 mm/s, 532V288: 21 °C, 532V289: 21 °C, 532V290: 34 °C, 532V291: 24 °C, 532V292: 25 °C, 532V293: 17 °C, 532V294: 2.3 mm/s, 532V295: 2.0 mm/s, 532V296: 21 °C, 532V297: 21 °C, 532V298: 34 °C, 532V299: 24 °C, 532V300: 25 °C, 532V301: 17 °C, 532V302: 2.3 mm/s, 532V303: 2.0 mm/s, 532V304: 21 °C, 532V305: 21 °C, 532V306: 34 °C, 532V307: 24 °C, 532V308: 25 °C, 532V309: 17 °C, 532V310: 2.3 mm/s, 532V311: 2.0 mm/s, 532V312: 21 °C, 532V313: 21 °C, 532V314: 34 °C, 532V315: 24 °C, 532V316: 25 °C, 532V317: 17 °C, 532V318: 2.3 mm/s, 532V319: 2.0 mm/s, 532V320: 21 °C, 532V321: 21 °C, 532V322: 34 °C, 532V323: 24 °C, 532V324: 25 °C, 532V325: 17 °C, 532V326: 2.3 mm/s, 532V327: 2.0 mm/s, 532V328: 21 °C, 532V329: 21 °C, 532V330: 34 °C, 532V331: 24 °C, 532V332: 25 °C, 532V333: 17 °C, 532V334: 2.3 mm/s, 532V335: 2.0 mm/s, 532V336: 21 °C, 532V337: 21 °C, 532V338: 34 °C, 532V339: 24 °C, 532V340: 25 °C, 532V341: 17 °C, 532V342: 2.3 mm/s, 532V343: 2.0 mm/s, 532V344: 21 °C, 532V345: 21 °C, 532V346: 34 °C, 532V347: 24 °C, 532V348: 25 °C, 532V349: 17 °C, 532V350: 2.3 mm/s, 532V351: 2.0 mm/s, 532V352: 21 °C, 532V353: 21 °C, 532V354: 34 °C, 532V355: 24 °C, 532V356: 25 °C, 532V357: 17 °C, 532V358: 2.3 mm/s, 532V359: 2.0 mm/s, 532V360: 21 °C, 532V361: 21 °C, 532V362: 34 °C, 532V363: 24 °C, 532V364: 25 °C, 532V365: 17 °C, 532V366: 2.3 mm/s, 532V367: 2.0 mm/s, 532V368: 21 °C, 532V369: 21 °C, 532V370: 34 °C, 532V371: 24 °C, 532V372: 25 °C, 532V373: 17 °C, 532V374: 2.3 mm/s, 532V375: 2.0 mm/s, 532V376: 21 °C, 532V377: 21 °C, 532V378: 34 °C, 532V379: 24 °C, 532V380: 25 °C, 532V381: 17 °C, 532V382: 2.3 mm/s, 532V383: 2.0 mm/s, 532V384: 21 °C, 532V385: 21 °C, 532V386: 34 °C, 532V387: 24 °C, 532V388: 25 °C, 532V389: 17 °C, 532V390: 2.3 mm/s, 532V391: 2.0 mm/s, 532V392: 21 °C, 532V393: 21 °C, 532V394: 34 °C, 532V395: 24 °C, 532V396: 25 °C, 532V397: 17 °C, 532V398: 2.3 mm/s, 532V399: 2.0 mm/s, 532V400: 21 °C, 532V401: 21 °C, 532V402: 34 °C, 532V403: 24 °C, 532V404: 25 °C, 532V405: 17 °C, 532V406: 2.3 mm/s, 532V407: 2.0 mm/s, 532V408: 21 °C, 532V409: 21 °C, 532V410: 34 °C, 532V411: 24 °C, 532V412: 25 °C, 532V413: 17 °C, 532V414: 2.3 mm/s, 532V415: 2.0 mm/s, 532V416: 21 °C, 532V417: 21 °C, 532V418: 34 °C, 532V419: 24 °C, 532V420: 25 °C, 532V421: 17 °C, 532V422: 2.3 mm/s, 532V423: 2.0 mm/s, 532V424: 21 °C, 532V425: 21 °C, 532V426: 34 °C, 532V427: 24 °C, 532V428: 25 °C, 532V429: 17 °C, 532V430: 2.3 mm/s, 532V431: 2.0 mm/s, 532V432: 21 °C, 532V433: 21 °C, 532V434: 34 °C, 532V435: 24 °C, 532V436: 25 °C, 532V437: 17 °C, 532V438: 2.3 mm/s, 532V439: 2.0 mm/s, 532V440: 21 °C, 532V441: 21 °C, 532V442: 34 °C, 532V443: 24 °C, 532V444: 25 °C, 532V445: 17 °C, 532V446: 2.3 mm/s, 532V447: 2.0 mm/s, 532V448: 21 °C, 532V449: 21 °C, 532V450: 34 °C, 532V451: 24 °C, 532V452: 25 °C, 532V453: 17 °C, 532V454: 2.3 mm/s, 532V455: 2.0 mm/s, 532V456: 21 °C, 532V457: 21 °C, 532V458: 34 °C, 532V459: 24 °C, 532V460: 25 °C, 532V461: 17 °C, 532V462: 2.3 mm/s, 532V463: 2.0 mm/s, 532V464: 21 °C, 532V465: 21 °C, 532V466: 34 °C, 532V467: 24 °C, 532V468: 25 °C, 532V469: 17 °C, 532V470: 2.3 mm/s, 532V471: 2.0 mm/s, 532V472: 21 °C, 532V473: 21 °C, 532V474: 34 °C, 532V475: 24 °C, 532V476: 25 °C, 532V477: 17 °C, 532V478: 2.3 mm/s, 532V479: 2.0 mm/s, 532V480: 21 °C, 532V481: 21 °C, 532V482: 34 °C, 532V483: 24 °C, 532V484: 25 °C, 532V485: 17 °C, 532V486: 2.3 mm/s, 532V487: 2.0 mm/s, 532V488: 21 °C, 532V489: 21 °C, 532V490: 34 °C, 532V491: 24 °C, 532V492: 25 °C, 532V493: 17 °C, 532V494: 2.3 mm/s, 532V495: 2.0 mm/s, 532V496: 21 °C, 532V497: 21 °C, 532V498: 34 °C, 532V499: 24 °C, 532V500: 25 °C, 532V501: 17 °C, 532V502: 2.3 mm/s, 532V503: 2.0 mm/s, 532V504: 21 °C, 532V505: 21 °C, 532V506: 34 °C, 532V507: 24 °C, 532V508: 25 °C, 532V509: 17 °C, 532V510: 2.3 mm/s, 532V511: 2.0 mm/s, 532V512: 21 °C, 532V513: 21 °C, 532V514: 34 °C, 532V515: 24 °C, 532V516: 25 °C, 532V517: 17 °C, 532V518: 2.3 mm/s, 532V519: 2.0 mm/s, 532V520: 21 °C, 532V521: 21 °C, 532V522: 34 °C, 532V523: 24 °C, 532V524: 25 °C, 532V525: 17 °C, 532V526: 2.3 mm/s, 532V527: 2.0 mm/s, 532V528: 21 °C, 532V529: 21 °C, 532V530: 34 °C, 532V531: 24 °C, 532V532: 25 °C, 532V533: 17 °C, 532V534: 2.3 mm/s, 532V535: 2.0 mm/s, 532V536: 21 °C, 532V537: 21 °C, 532V538: 34 °C, 532V539: 24 °C, 532V540: 25 °C, 532V541: 17 °C, 532V542: 2.3 mm/s, 532V543: 2.0 mm/s, 532V544: 21 °C, 532V545: 21 °C, 532V546: 34 °C, 532V547: 24 °C, 532V548: 25 °C, 532V549: 17 °C, 532V550: 2.3 mm/s, 532V551: 2.0 mm/s, 532V552: 21 °C, 532V553: 21 °C, 532V554: 34 °C, 532V555: 24 °C, 532V556: 25 °C, 532V557: 17 °C, 532V558: 2.3 mm/s, 532V559: 2.0 mm/s, 532V560: 21 °C, 532V561: 21 °C, 532V562: 34 °C, 532V563: 24 °C, 532V564: 25 °C, 532V565: 17 °C, 532V566: 2.3 mm/s, 532V567: 2.0 mm/s, 532V568: 21 °C, 532V569: 21 °C, 532V570: 34 °C, 532V571: 24 °C, 532V572: 25 °C, 532V573: 17 °C, 532V574: 2.3 mm/s, 532V575: 2.0 mm/s, 532V576: 21 °C, 532V577: 21 °C, 532V578: 34 °C, 532V579: 24 °C, 532V580: 25 °C, 532V581: 17 °C, 532V582: 2.3 mm/s, 532V583: 2.0 mm/s, 532V584: 21 °C, 532V585: 21 °C, 532V586: 34 °C, 532V587: 24 °C, 532V588: 25 °C, 532V589: 17 °C, 532V590: 2.3 mm/s, 532V591: 2.0 mm/s, 532V592: 21 °C, 532V593: 21 °C, 532V594: 34 °C, 532V595: 24 °C, 532V596: 25 °C, 532V597: 17 °C, 532V598: 2.3 mm/s, 532V599: 2.0 mm/s, 532V600: 21 °C, 532V601: 21 °C, 532V602: 34 °C, 532V603: 24 °C, 532V604: 25 °C, 532V605: 17 °C, 532V606: 2.3 mm/s, 532V607: 2.0 mm/s, 532V608: 21 °C, 532V609: 21 °C, 532V610: 34 °C, 532V611: 24 °C, 532V612: 25 °C, 532V613: 17 °C, 532V614: 2.3 mm/s, 532V615: 2.0 mm/s, 532V616: 21 °C, 532V617: 21 °C, 532V618: 34 °C, 532V619: 24 °C, 532V620: 25 °C, 532V621: 17 °C, 532V622: 2.3 mm/s, 532V623: 2.0 mm/s, 532V624: 21 °C, 532V625: 21 °C, 532V626: 34 °C, 532V627: 24 °C, 532V628: 25 °C, 532V629: 17 °C, 532V630: 2.3 mm/s, 532V631: 2.0 mm/s, 532V632: 21 °C, 532V633: 21 °C, 532V634: 34 °C, 532V635: 24 °C, 532V636: 25 °C, 532V637: 17 °C, 532V638: 2.3 mm/s, 532V639: 2.0 mm/s, 532V640: 21 °C, 532V641: 21 °C, 532V642: 34 °C, 532V643: 24 °C, 532V644: 25 °C, 532V645: 17 °C, 532V646: 2.3 mm/s, 532V647: 2.0 mm/s, 532V648: 21 °C, 532V649: 21 °C, 532V650: 34 °C, 532V651: 24 °C, 532V652: 25 °C, 532V653: 17 °C, 532V654: 2.3 mm/s, 532V655: 2.0 mm/s, 532V656: 21 °C, 532V657: 21 °C, 532V658: 34 °C, 532V659: 24 °C, 532V660: 25 °C, 532V661: 17 °C, 532V662: 2.3 mm/s, 532V663: 2.0 mm/s, 532V664: 21 °C, 532V665: 21 °C, 532V666: 34 °C, 532V667: 24 °C, 532V668: 25 °C, 532V669: 17 °C, 532V670: 2.3 mm/s, 532V671: 2.0 mm/s, 532V672: 21 °C, 532V673: 21 °C, 532V674: 34 °C, 532V675: 24 °C, 532V676: 25 °C, 532V677: 17 °C, 532V678: 2.3 mm/s, 532V679: 2.0 mm/s, 532V680: 21 °C, 532V681: 21 °C, 532V682: 34 °C, 532V683: 24 °C, 532V684: 25 °C, 532V685: 17 °C, 532V686: 2.3 mm/s, 532V687: 2.0 mm/s, 532V688: 21 °C, 532V689: 21 °C, 532V690: 34 °C, 532V691: 24 °C, 532V692: 25 °C, 532V693: 17 °C, 532V694: 2.3 mm/s, 532V695: 2.0 mm/s, 532V696: 21 °C, 532V697: 21 °C, 532V698: 34 °C, 532V699: 24 °C, 532V700: 25 °C, 532V701: 17 °C, 532V702: 2.3 mm/s, 532V703: 2.0 mm/s, 532V704: 21 °C, 532V705: 21 °C, 532V706: 34 °C, 532V707: 24 °C, 532V708: 25 °C, 532V709: 17 °C, 532V710: 2.3 mm/s, 532V711: 2.0 mm/s, 532V71