

CONSOLIS GROUP

Key figures

Consolis operates over **110 plants** in **23 countries** with **8,100 persons** and net sales of **1,6 billion US dollars**.

IMPLEMENTING
CONCRETE SOLUTIONS
FOR THE WORLD



PT. BONNA INDONESIA

- ✓ Part of Consolis Group (leading European manufacturer of precast concrete)
- ✓ Over 115 years of experience
- ✓ Over 1000 products/solutions
- ✓ Bonna water solutions for Power Plants

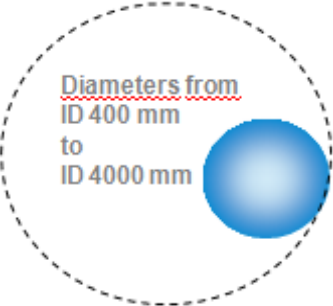
BONNA INDONESIA – ENERGY INFRASTRUCTURE SOLUTIONS

POWER PLANTS : large diameter cooling water systems



Pipe of 3.2 m diameter for transportation of fresh and waste-water

**PREFABRICATED
CONCRETE
PRODUCTS**



Bonna® Pipe is complying with
EN 639 - 641 and AWWA C300

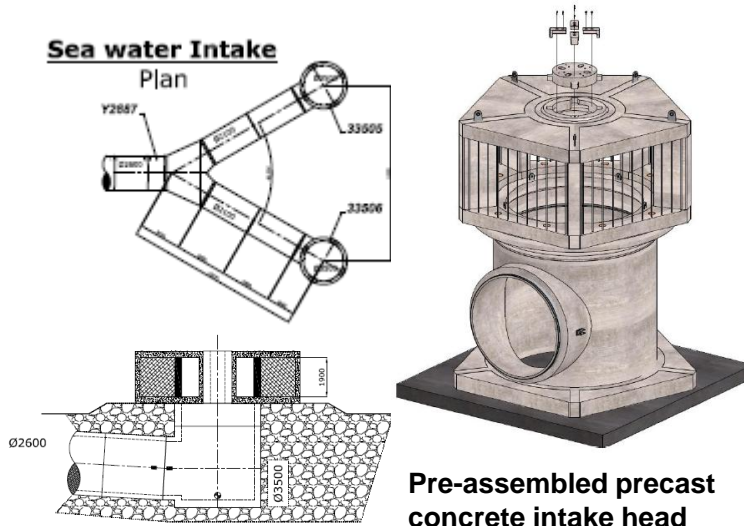


WATER SUPPLY : pressure pipeline mains



BONNA® pipes - CUSTOM-MADE integrated SOLUTIONS for power plants

COOLING WATER SYSTEMS (CWS) for
CONVENTIONAL / NUCLEAR POWER STATIONS



SEAWATER INTAKE & OUTFALL

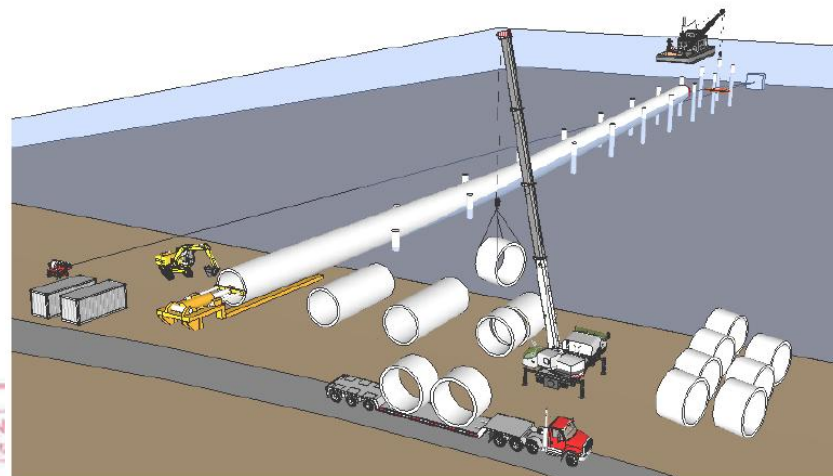


BONNA SERVICES - DESIGN, INSTALLATION & TECHNICAL ASSISTANCE

INLAND PIPELINE



OFFSHORE PIPELINE



Approved
Approved as N
submital Reqt

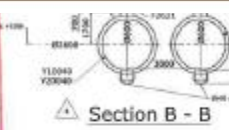
Approved
submital Reqt

THIS APPROVAL DOES NOT
RELEASE THE CONTRACTOR
FROM THE WHOLE
RESPONSIBILITY AND
OBLIGATION TO COMPLETE ALL
WORKS AS PER THE CONTRACT.

Civil Engineering Department
Civil Engr. Section

LEADER
ENGINEER

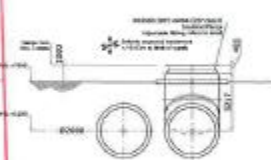
DATE 13 FEB 2012



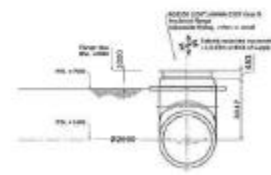
Section B - B



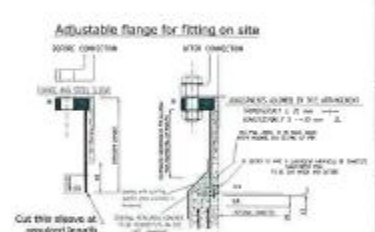
Section E - E



Section C - C



Section D - D



Adjustable flange for fitting on site

3000C CONNECTION
3000E CONNECTION

Cut this flange at required length

Installation Guidelines

Installation of pipe

Quality of surface water

Maximum Fluid Temperature

Minimum Fluid Temperature

Maximum Fluid Velocity

Minimum Fluid Velocity

Minimum and Maximum

Notes

1. This is a new design.

2. To be confirmed before use in a CPC and designed for static loading only.

3. See also 10000

4. See also 10000

5. See also 10000

6. See also 10000

7. See also 10000

8. See also 10000

9. See also 10000

10. See also 10000

11. See also 10000

12. See also 10000

13. See also 10000

14. See also 10000

15. See also 10000

16. See also 10000

17. See also 10000

18. See also 10000

19. See also 10000

20. See also 10000

21. See also 10000

22. See also 10000

23. See also 10000

24. See also 10000

25. See also 10000

26. See also 10000

27. See also 10000

28. See also 10000

29. See also 10000

30. See also 10000

31. See also 10000

32. See also 10000

33. See also 10000

34. See also 10000

35. See also 10000

36. See also 10000

37. See also 10000

38. See also 10000

39. See also 10000

40. See also 10000

41. See also 10000

42. See also 10000

43. See also 10000

44. See also 10000

45. See also 10000

46. See also 10000

47. See also 10000

48. See also 10000

49. See also 10000

50. See also 10000

51. See also 10000

52. See also 10000

53. See also 10000

54. See also 10000

55. See also 10000

56. See also 10000

57. See also 10000

58. See also 10000

59. See also 10000

60. See also 10000

61. See also 10000

62. See also 10000

63. See also 10000

64. See also 10000

65. See also 10000

66. See also 10000

67. See also 10000

68. See also 10000

69. See also 10000

70. See also 10000

71. See also 10000

72. See also 10000

73. See also 10000

74. See also 10000

75. See also 10000

76. See also 10000

77. See also 10000

78. See also 10000

79. See also 10000

80. See also 10000

81. See also 10000

82. See also 10000

83. See also 10000

84. See also 10000

85. See also 10000

86. See also 10000

87. See also 10000

88. See also 10000

89. See also 10000

90. See also 10000

91. See also 10000

92. See also 10000

93. See also 10000

94. See also 10000

95. See also 10000

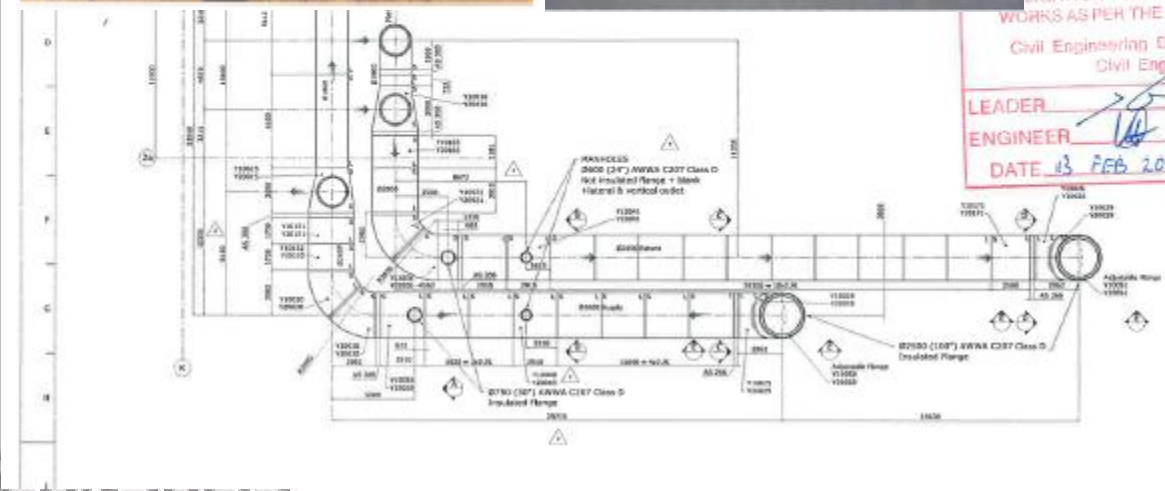
96. See also 10000

97. See also 10000

98. See also 10000

99. See also 10000

100. See also 10000



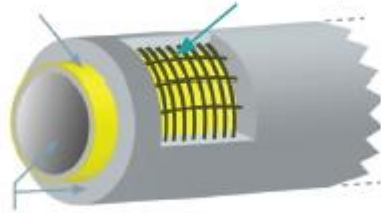
Item	Quantity	Unit	Remarks
1	10000	m	3000C CONNECTION
2	10000	m	3000E CONNECTION
3	10000	m	ADJUSTABLE FLANGE
4	10000	m	INSULATED FLANGE
5	10000	m	INSULATED FLANGE
6	10000	m	INSULATED FLANGE
7	10000	m	INSULATED FLANGE
8	10000	m	INSULATED FLANGE
9	10000	m	INSULATED FLANGE
10	10000	m	INSULATED FLANGE
11	10000	m	INSULATED FLANGE
12	10000	m	INSULATED FLANGE
13	10000	m	INSULATED FLANGE
14	10000	m	INSULATED FLANGE
15	10000	m	INSULATED FLANGE
16	10000	m	INSULATED FLANGE
17	10000	m	INSULATED FLANGE
18	10000	m	INSULATED FLANGE
19	10000	m	INSULATED FLANGE
20	10000	m	INSULATED FLANGE
21	10000	m	INSULATED FLANGE
22	10000	m	INSULATED FLANGE
23	10000	m	INSULATED FLANGE
24	10000	m	INSULATED FLANGE
25	10000	m	INSULATED FLANGE
26	10000	m	INSULATED FLANGE
27	10000	m	INSULATED FLANGE
28	10000	m	INSULATED FLANGE
29	10000	m	INSULATED FLANGE
30	10000	m	INSULATED FLANGE
31	10000	m	INSULATED FLANGE
32	10000	m	INSULATED FLANGE
33	10000	m	INSULATED FLANGE
34	10000	m	INSULATED FLANGE
35	10000	m	INSULATED FLANGE
36	10000	m	INSULATED FLANGE
37	10000	m	INSULATED FLANGE
38	10000	m	INSULATED FLANGE
39	10000	m	INSULATED FLANGE
40	10000	m	INSULATED FLANGE
41	10000	m	INSULATED FLANGE
42	10000	m	INSULATED FLANGE
43	10000	m	INSULATED FLANGE
44	10000	m	INSULATED FLANGE
45	10000	m	INSULATED FLANGE
46	10000	m	INSULATED FLANGE
47	10000	m	INSULATED FLANGE
48	10000	m	INSULATED FLANGE
49	10000	m	INSULATED FLANGE
50	10000	m	INSULATED FLANGE
51	10000	m	INSULATED FLANGE
52	10000	m	INSULATED FLANGE
53	10000	m	INSULATED FLANGE
54	10000	m	INSULATED FLANGE
55	10000	m	INSULATED FLANGE
56	10000	m	INSULATED FLANGE
57	10000	m	INSULATED FLANGE
58	10000	m	INSULATED FLANGE
59	10000	m	INSULATED FLANGE
60	10000	m	INSULATED FLANGE
61	10000	m	INSULATED FLANGE
62	10000	m	INSULATED FLANGE
63	10000	m	INSULATED FLANGE
64	10000	m	INSULATED FLANGE
65	10000	m	INSULATED FLANGE
66	10000	m	INSULATED FLANGE
67	10000	m	INSULATED FLANGE
68	10000	m	INSULATED FLANGE
69	10000	m	INSULATED FLANGE
70	10000	m	INSULATED FLANGE
71	10000	m	INSULATED FLANGE
72	10000	m	INSULATED FLANGE
73	10000	m	INSULATED FLANGE
74	10000	m	INSULATED FLANGE
75	10000	m	INSULATED FLANGE
76	10000	m	INSULATED FLANGE
77	10000	m	INSULATED FLANGE
78	10000	m	INSULATED FLANGE
79	10000	m	INSULATED FLANGE
80	10000	m	INSULATED FLANGE
81	10000	m	INSULATED FLANGE
82	10000	m	INSULATED FLANGE
83	10000	m	INSULATED FLANGE
84	10000	m	INSULATED FLANGE
85	10000	m	INSULATED FLANGE
86	10000	m	INSULATED FLANGE
87	10000	m	INSULATED FLANGE
88	10000	m	INSULATED FLANGE
89	10000	m	INSULATED FLANGE
90	10000	m	INSULATED FLANGE
91	10000	m	INSULATED FLANGE
92	10000	m	INSULATED FLANGE
93	10000	m	INSULATED FLANGE
94	10000	m	INSULATED FLANGE
95	10000	m	INSULATED FLANGE
96	10000	m	INSULATED FLANGE
97	10000	m	INSULATED FLANGE
98	10000	m	INSULATED FLANGE
99	10000	m	INSULATED FLANGE
100	10000	m	INSULATED FLANGE

RCCP TECHNOLOGY – a COMPLETE RANGE of internal diameters & special fittings

BONNA® PRESSURE PIPE SYSTEMS RCCP : COMPOSITE STEEL-CONCRETE TECHNOLOGY

A steel cylinder made of rolled welded lengthwise or helically with welded end-rings

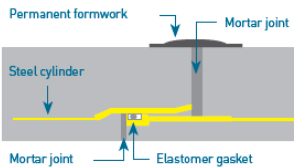
A steel reinforcement made by helical winding or caging of a steel wire at a constant pitch



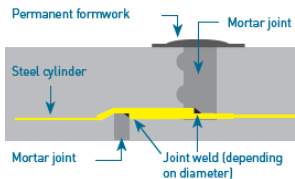
A double concrete coating with a very smooth concrete inner surface giving an excellent and permanent hydraulic flow coefficient and an outer reinforced concrete wall

Various types of joints

ER Flexible joint



SL Welded joint



standard pipes



Flange connections to any standards (C207, ASME, etc) and suitably protected



Stainless Steel rings to be fitted on any end to cope with settlements, expansion, rotation, seismic movements

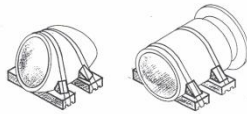
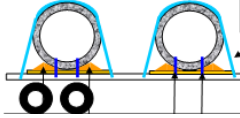
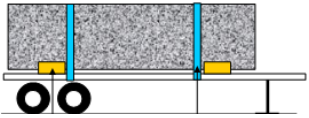
specials fittings



Actual pictures from Jakarta factory

HANDLING & SHIPPING - full export capability

Transport by truck



Loading
on vessel
(stevedoring)



Vessel
onboard choking



Key COMPETITIVE ADVANTAGES ...



ENGINEERING	Diameter range	up to Ø 4000mm
	Ease of design	Fully adapted to project constraints
	Pipe weight	Heaviest but the most resistant to loading impact
	Compatibility of special fittings	Fully custom-made
PROCUREMENT	Cost of materials (straight pipe segments & special fittings)	Cheapest for Ø above 800 mm
INSTALLATION	Requirement for structural supports (anchor and thrust blocks)	None
	Cost of pipeline assembly	Low
	Ease & installation speed for contractor	Easy and fast with flexible joint

... for SUPERIOR PERFORMANCE ...



MAINTENANCE	Protection against corrosion	Not required even in aggressive soil and in seawater
	Possibility of repair/replacement after installation	Simple welding and concrete works
EXPECTED DURABILITY	Theft-proof to prevent illegal drilling	Yes
	Resistance to vacuum	Yes inherently
	Resistance to water hammer effect	Yes inherently
	Demonstrated long-term references	Over 100 years
TOTAL OWNERS COST	Over the whole project life	Optimal

... over STEEL or GRP pipes.



GLOBAL BENEFITS

1. **COMPLETE ENGINEERED PRECAST CONCRETE SOLUTIONS** with additional **VALUE-ADDED SERVICES** such as :
 - ✓ design calculation & layout drawing
 - ✓ full engineering studies (seismic, ...)
 - ✓ installation manuals & site supervision upon request
 - ✓ combination with accessories in other materials (steel/rubber/PVC ...) whenever required
2. **FULLY MADE-TO-ORDER CUSTOMIZABLE SOLUTIONS**
3. **SUPPLIER EXPERTISE & RELIABILITY** (track record of 100% on time delivery)
4. **HIGHEST QC & TRACEABILITY STANDARDS** (experience from nuclear industry)
5. **PROVEN SAFE & DURABLE SOLUTIONS**
6. **COST EFFECTIVENESS** when taking into account **TOTAL OWNER'S COST**

BONNA is NOT ONLY a MANUFACTURER of ENGINEERED PREFABRICATED CONCRETE ELEMENTS & RCCP PRESSURE PIPES, but we shall also ACCOMPANY your COMPANY from INITIAL DESIGN until COMPLETION of your PROJECT.

BONNA INDONESIA – COMPANY PROFILE

PRECAST CONCRETE PRODUCTS

✓ BONNA® RCCP pressure pipe concrete technology for conventional /nuclear power plants circulating/cooling/safety system or water supply pipeline mains

✓ Railways sleepers, concrete turnouts, conveyor belt supports

✓ Offshore products (ballast collars, annular rings, mattresses)

✓ Other custom-made solutions

Industrial site (created in 1993)

Location : 50 km south of Jakarta port (Java island)

Total land acreage	75.000 m ²
Covered building	12.700 m ²
Office & lab buildings	400 m ²



BONNA REINFORCED CONCRETE STEEL CYLINDER (RCCP) PIPES : over 4000 WORLDWIDE REFERENCES in the ENERGY SECTOR

FRANCE



GDF SUEZ

ALSTOM

EDISON INTERNATIONAL

SNC-LAVALIN

BLACK & VEATCH

AMERICAS

A COMPANY OF
CONSOLIS

EUROPE



AFRICA

SOUTH EAST ASIA



DAEWOO E&C
DAELIM

SOUTH KOREA

JAPAN



TOSHIBA

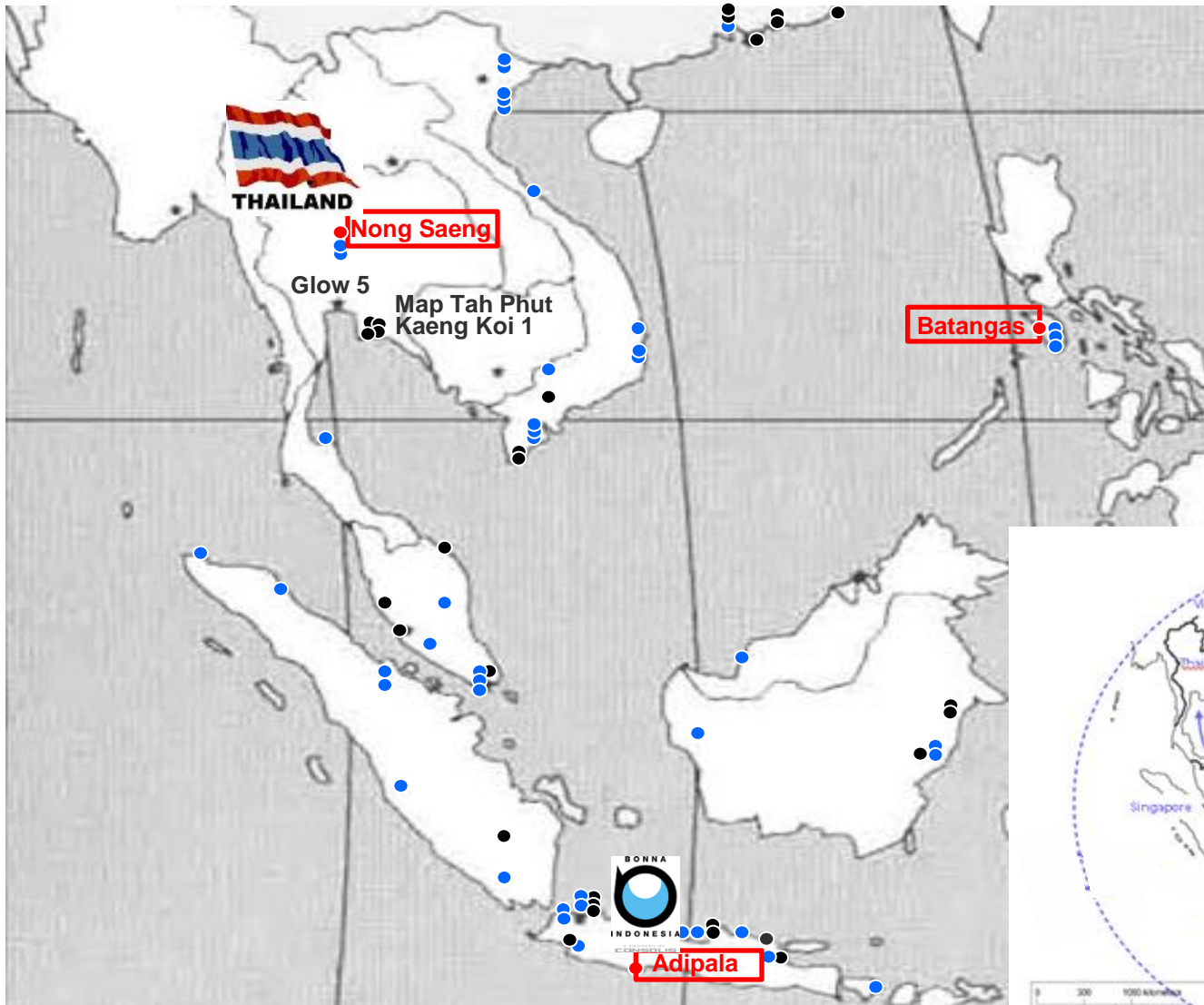


CHINA



NUCLEAR APPLICATIONS
(17% worldwide market share)

Exiting REFERENCES in THAILAND



- Glow 5 (2009)
- Kaeng Khoi (1997-2005)
- Map Ta Phut (1997)

PROJECTS currently under EXECUTION





Thank You

