

11	11.03.2010	jzie	amap	mspl	Item II; III (9.1-9.6); V; VII (1+1.1) modified	
10	09.02.2010	jzie	amap	mspl	Item VII Sheet modified	
9	08.02.2010	jzie	amap	mspl	Item I, II, III, IV, VI, VII several modifications	
8	17.11.2009	jzie	amap	mspl	Item I (3.2.6) & Item III (15.2) modified	
7	10.11.2009	jzie	amap	mspl	Item I, II, Thickness modified	
6	28.10.2009	jzie	amap	mspl	Item I, II, III, IV, VI, VII Thickness modified	
5	09.09.2009				Item IV Option, Item VIII deleted	released
4	30.06.2009	KAS	RP	IC	Item II Piping / Item VIII Thickness modified	
3	25.03.2009	KAS	RP	IC	Item 1, III, Thickness modified	
2	13.08.2008	Illenseer	Falheier	Falheier	Item II/19 delete; Item VI/1 modified; Item VIII new	
1	06.03.2008	Illenseer	Falheier	Falheier	Modified	
Rev.	Date	Created by	Checked by	Approved by	Description	Status

Project (Проект)

## Maritza East I Power Station

Company (Възложителя)



Space for stamp of Municipality of Galabovo  
Място за печат на Община Гълъбово

Space for further stamps  
Място за допълнителни печати

Area for Stamp of EQE Control OOD (ICS)  
Място за печат на EQE Control ООД (Незав. надзор)

Space for stamp of authorized Bulgarian Designer  
Място за печат на лицензиран български проектант

Main Contractor / Главен изпълнител

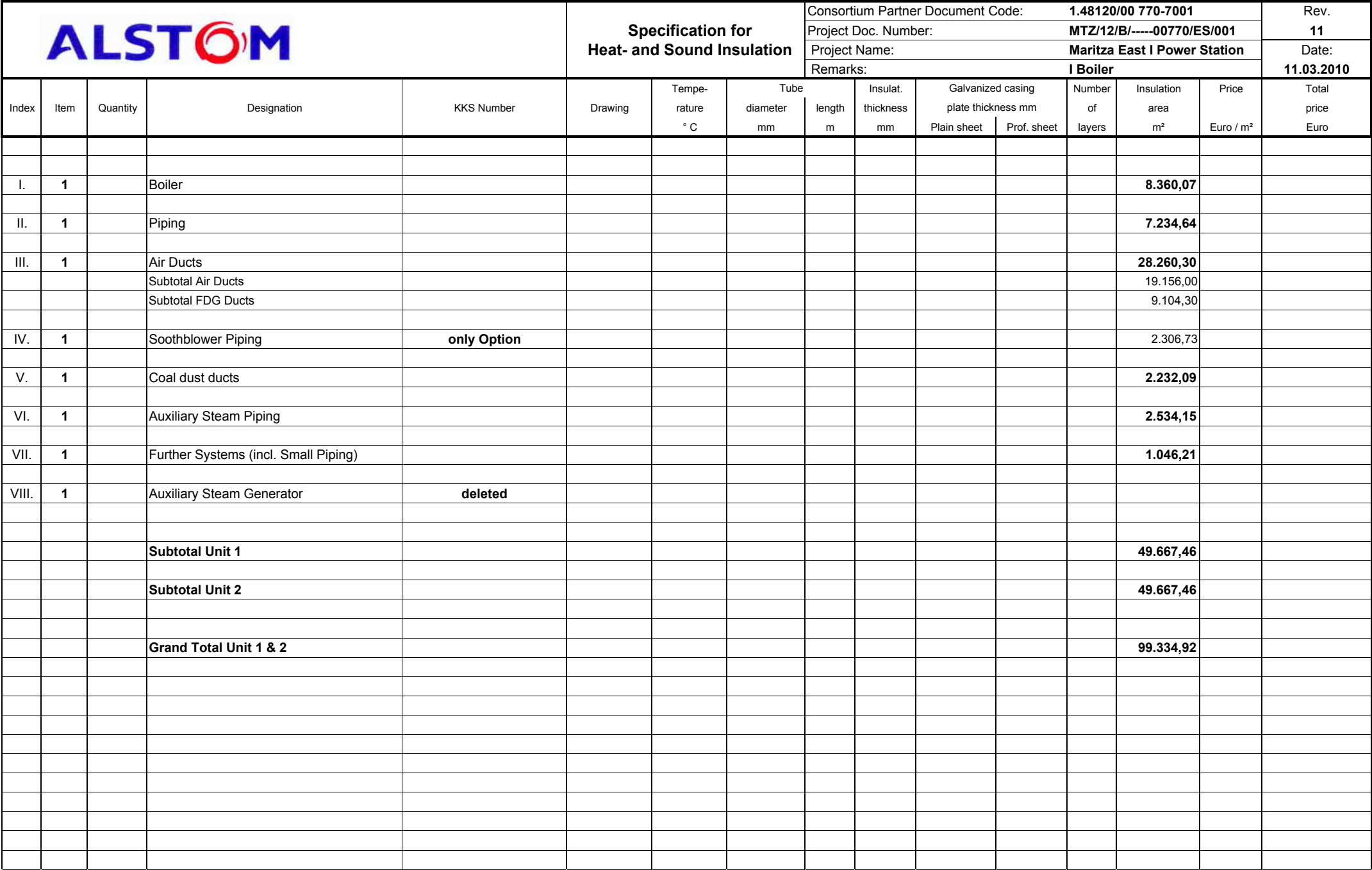
**ALSTOM**  
Power Generation AG  
Power Boiler GmbH

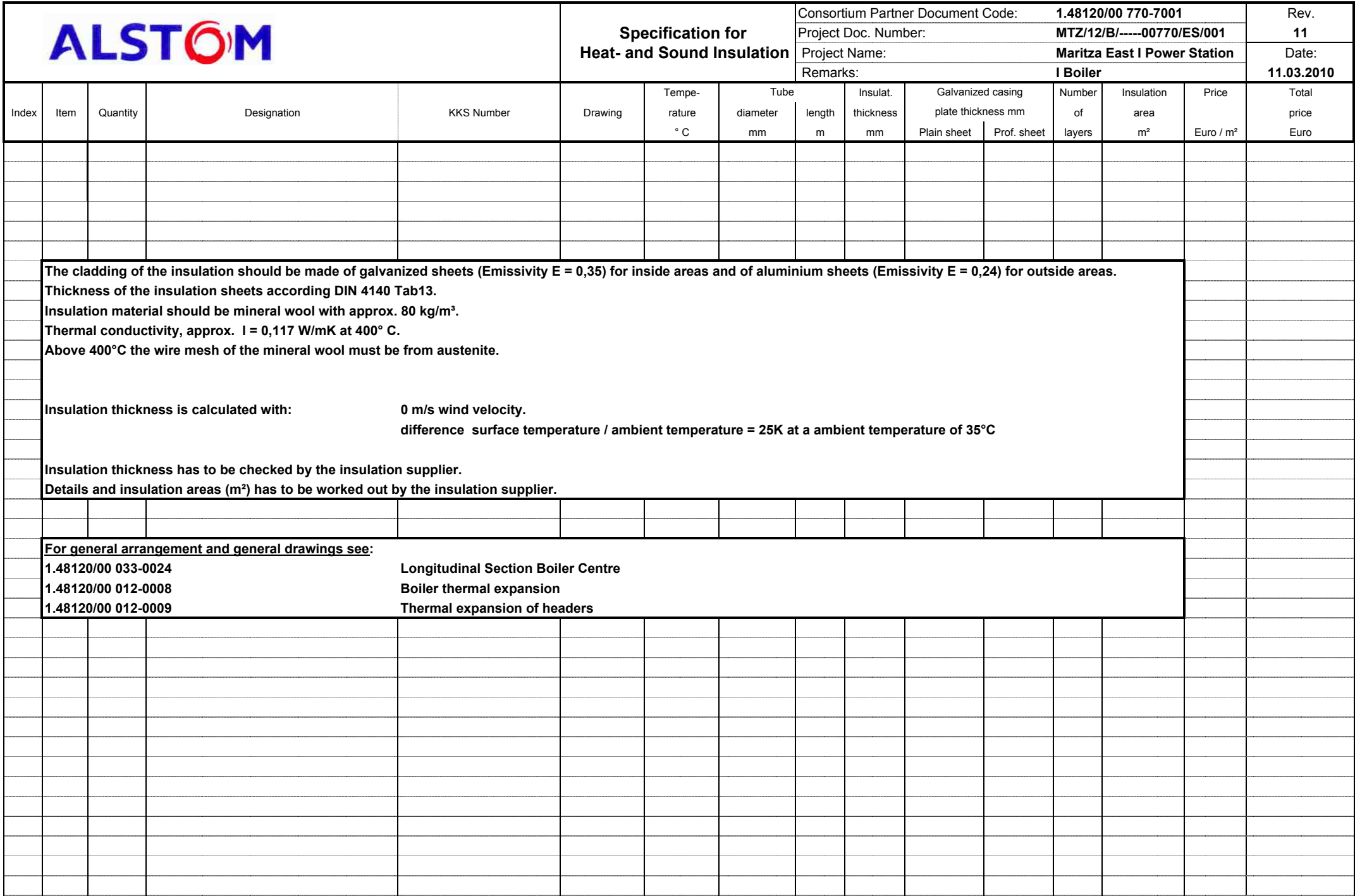
Partner of Main Contractor / Партньор на главния изпълнител


Resp. dept. Отговорен отдел GK-FI	Created by / Изготвил O. Illenseer	Checked by / Проверил H.Falheier	Approved by / Одобрил H.Falheier	Format / Формат A4
Scale / Мащаб		Class. no. (e.g. KKS) / Класифик. №	for Company Review & Approval: за одобрение от Възложителя: no no	
Derived from / Произтича от	Replaces / Заменя	Doc. Type Тип на документа ES	Document Status Статус на окумента released	Sub Site No. / Подобект №
Logo of Legal Owner / Официален собственик		Sub Contractors Doc Number № на документа на подизпълнителя	Consortium Partner Document Code Код на документа на партньора от консорциума 148120_00770_7001	
		Title, Subtitle / Заглавие, подзаглавие <b>Specification for Heat- and Sound Insulation</b>	Project Doc. Number / № на проектния документ MTZ/12/B/-----00770/ES/001	
		Rev. Рев	Date Дата	Lang. Език
		11	11.03.2010	en
		Sheet Страница		1/121

We reserve all rights in this document and in the information contained herein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

Правата върху този документ и информацията в него са запазени. Размножаването, използването или разпространяването на трети страни без специални полномощия е строго забранено





					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: I Boiler							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1</b>	1	<b>Furnace hopper</b> from +0.000m to +12.300m											
	<b>1.1</b>	2	<b>Front and rear wall</b>		214-0001 214-0002 214-0003									
		2	Inlet header at level approx. +0.450m		"	360	-	-	150	1,0   -	2	30,86		
		2	Horizontal tube pannel to front and rear wall, at level approx. +0.900m (insulation on the top and botom surface)		"	360	-	-	150	1,0   -	2	25,20		
		2	Front and rear wall from level approx. +0.900m to approx. +3.300m (partial, also insulation on inside surfaces )		"	360	-	-	150	-   0,8	2	17,40		
		4	Inlet header at level approx. +3.300m		"	360	-	-	150	1,0   -	2	63,52		
		2	Front and rear wall from level approx. +3.300m to approx. +12.300m (partial, also insulation on inside surfaces )		"	360	-	-	150	-   0,8	2	302,40		
		2	Wall box for access door (850 x 850), refractory lined, at level approx. +3.825m		"	-	-	-	100	1,0   -	1	9,72		
		2	Wall box for observation door (300 x 300), refractory lined, at level approx. +3.825m		"	-	-	-	100	1,0   -	1	4,00		
		-	Buckstays, front and rear wall		-	-	-	-	-	-   -	-			
		-	Buckstay corner conection		-	-	-	-	-	-   -	-			
	<b>1.2</b>	2	<b>Left and right side wall</b>		214-0001 214-0002 214-0003									
		2	Inlet header at level approx. +0.450m		"	360	-	-	150	1,0   -	2	82,21		
		2	Horizontal tube pannel to side walls, at level approx. +0.900m (insulation on the top and botom surface)		"	360	-	-	150	1,0   -	2	68,80		
		2	side walls from level approx. +0.900m to +12.300m		"	360	-	-	150	-   0,8	2	638,40		
		-	Buckstays left and right side		-	-	-	-	-	-   -	-			
		-	Buckstay corner conection		-	-	-	-	-	-   -	-			

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>2</b>	1	<b>Boiler lower part</b> from +12.300m to +48.575m		214-0001 214-0002	360								
		4	Boiler walls from level approx. +12.300m to +48.575m		"	360	-	-	150	-	0,8	2	2.437,68	
		-	Buckstays, front and rear wall		-	-	-	-	-	-	-	-		
		-	Buckstays, left and right side wall		-	-	-	-	-	-	-	-		
		-	Buckstay corner connection		-	-	-	-	-	-	-	-		
		6	Tube opening for main coal burner box at level approx. +15.735m		-	360	-	-	150	1,0	-	2	59,94	
1		6	Main burner wind box at level approx. +15.735m		-	327	-	-	140	1,0	-	2	24,08	
		6	Tube opening for Reburning burner at level approx. +23.450m		-	360	-	-	150	1,0	-	2	38,88	
1		6	Reburning burner wind box at level approx. +23.450m		-	327	-	-	140	1,0	-	2	16,16	
		4	Tube opening for oil burner, at level approx. +14.350m,		-	360	-	-	150	1,0	-	2	16,92	
	<b>2</b>	4	Oil burner at level approx. +14.350m, front plate removable		500-0001	327	-	-	140	1,0	-	2	86,32	
		12	Wall box for wall air (3 per wall), refractory lined, at level approx. +11.800m, +20.700m and +26.200m		214-0001 214-0002 012-0040	-	-	-	100	1,0	-	1	17,26	
		4	Wall box for access door, side walls, front and rear wall at approx. +46.500m		"	-	-	-	100	1,0	-	1	15,05	
		26	Wall box for observation door, side walls, front and rear wall at approx. +14.700m, +23.100m, +33.900m, +38.600m, +46.900m,		"	-	-	-	100	1,0	-	1	34,49	
		8	Wall box for flamescanner, side walls, front and rear wall at approx. +22.400m		"	-	-	-	100	1,0	-	1	20,04	
		8	Wall box for water lance blower, side walls, front and rear wall at approx. +18.800m, 38.500m,		"	-	-	-	100	1,0	-	1	20,04	
		12	Overfire 1 air box, refractory lined at level approx. +35.500 (10 boxes at front and rear wall, 2 boxes at side walls)		"	-	-	-	100	1,0	-	1	15,92	
		12	Overfire 2 air box, refractory lined at level approx. +47.500 (10 boxes at front and rear wall, 2 boxes at side walls)		"	-	-	-	100	1,0	-	1	15,92	
		18	Wall box for tapping point, side walls, front and rear wall at approx. +20.000m, +33.900m, +46.100m, +47.900m,		"	-	-	-	100	1,0	-	1	10,61	


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: I Boiler						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		6	Conection to flue gas recirculation duct at level approx. +40.500m		"	360	-	-	150	1,0	-	2	45,63		

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>3</b>	1	<b>Boiler upper part</b> from +48.575m to +80.500m											
	<b>3.1</b>	2	<b>Side walls</b> from level approx. +48.575 to approx. + 80.500 m without header boxes		012-0001 012-0002 215-0002	360	-	-	150	-   0,8	2	1.072,68		
		48	Sootblower woll boxes, left and right side wall at approx. + 53.470m, +57.010m, +60.330m, +63.915m, +67.385m, +70.495m		"	-	-	-	100	1,0   -	1	40,68		
		16	Access door wall boxes, left and right side wall at level approx. +53.470m, +57.010m, +60.330m, +63.915m, +67.385m, +70.495m, +73.175m		"	-	-	-	100	1,0   -	1	23,01		
		13	Wall boxes for measurement points, right side wall, at level approx. +53.470m, +57.010m, +60.330m, +67.385m, +73.175m.		"	-	-	-	100	1,0   -	1	13,18		
		-	Buckstays, left and right side wall		203-0003 203-0001	-	-	-	-	-   -	-			
		-	Buckstay corner conection		"	-	-	-	-	-   -	-			
	<b>3.2</b>	2	<b>Front and rear wall</b> from level approx. +48.575 to approx. + 80.500m		012-0001 012-0002									
	<b>3.2.1</b>		<b>SH1 outl header</b>		012-0013									
3		1	Headerbox for SH1 outl header, rear wall, at level approx +49.675m, with inside metal box (material P235GH).		"	382	-	-	180 100/80	-   0,8	2	95,00		
		-	The bottom of the inside metal box has to be designed to take a load of 150kg/m²		"	-	-	-	-	-   -	-			
4		4	penetrations of vertical members (Pay attention on Boiler Thermal expansion)		"	382	-	-	-	1,0   -	-	12,50		
		4	penetration of drain piping through the header box bottom.		"	-	-	-	-	-   -	-	-		
		3	penetration of supports for SH1 outl. Header through the header box roof.		"	-	-	-	-	-   -	-	-		
3		2	Inspection door for header box.		"	-	-	-	180	1,0   -	2	7,30		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: I Boiler						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<u>3.2.2</u>		SH3 inl. SH3 outl. and FW outl. header		012-0011									
3		1	Headerbox for <b>SH3 inlet</b> header, front wall, at level approx. +53.520m, with inside metal box (material P235GH)		"	460	-	-	320 100 VA /100/120	-   0,8	3	75,00		
		-	The bottom of the inside metal box has to be designed to take a load of 150kg/m²		"	-	-	-	-	-   -	-			
		-	<b>Attention!</b> Lokal flattening in area of the downcomer pipes to 250 / 200 mm		"	-	-	-	250 / 200	-   -	-			
4		4	penetrations of vertical members (Pay attention on Boiler Thermal expansion)		"	-	-	-	-	1,0   -	-	20,00		
		4	penetration of drain piping through the header box bottom.		"	-	-	-	-	-   -	-	-		
3		2	Inspection door for header box.		"	-	-	-	320	1,0   -	3	9,50		
		3	penetration of supports for SH3 inll. header through the header box bottom.		"	-	-	-	-	-   -	-	-		
3		1	Headerbox for <b>SH3 outl.</b> header, front wall, at level approx. +57.050m, with inside metal box (material 13CrMo4-5)		012-0011	544	-	-	320 100 VA /100/120	-   0,8	3	80,00		
4		4	penetrations of vertical members (Pay attention on Boiler Thermal expansion)		"	-	-	-	-	1,0   -	-	20,00		
		2	penetration of vent piping through the header box roof.		"	-	-	-	-	-   -	-	-		
		4	penetration of supports for SH3 outl. Header through the header box roof.		"	-	-	-	-	-   -	-	-		
		4	penetration of supports for front wall header through the header box roof.		"	-	-	-	-	-   -	-	-		
		2	Inspection door for header box		"	-	-	-	320	-   -	3	11,50		
		2	Penetration of bucstays through the side walls		"	-	-	-	-	-   -	-	-		
		4	Penetration for piping to FW header through the header box roof.		"	-	-	-	-	-   -	-	-		
		1	<b>FW header</b> , inside the Insulation box for SH3 inl. and SH3 outl. at level approx. +57.510m.		012-0015	360	-	-	-	-   -	-			
		2	Caps for inspection stubs		"	360	-	-	150	1,0   -	2	2,17		


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: I Boiler							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

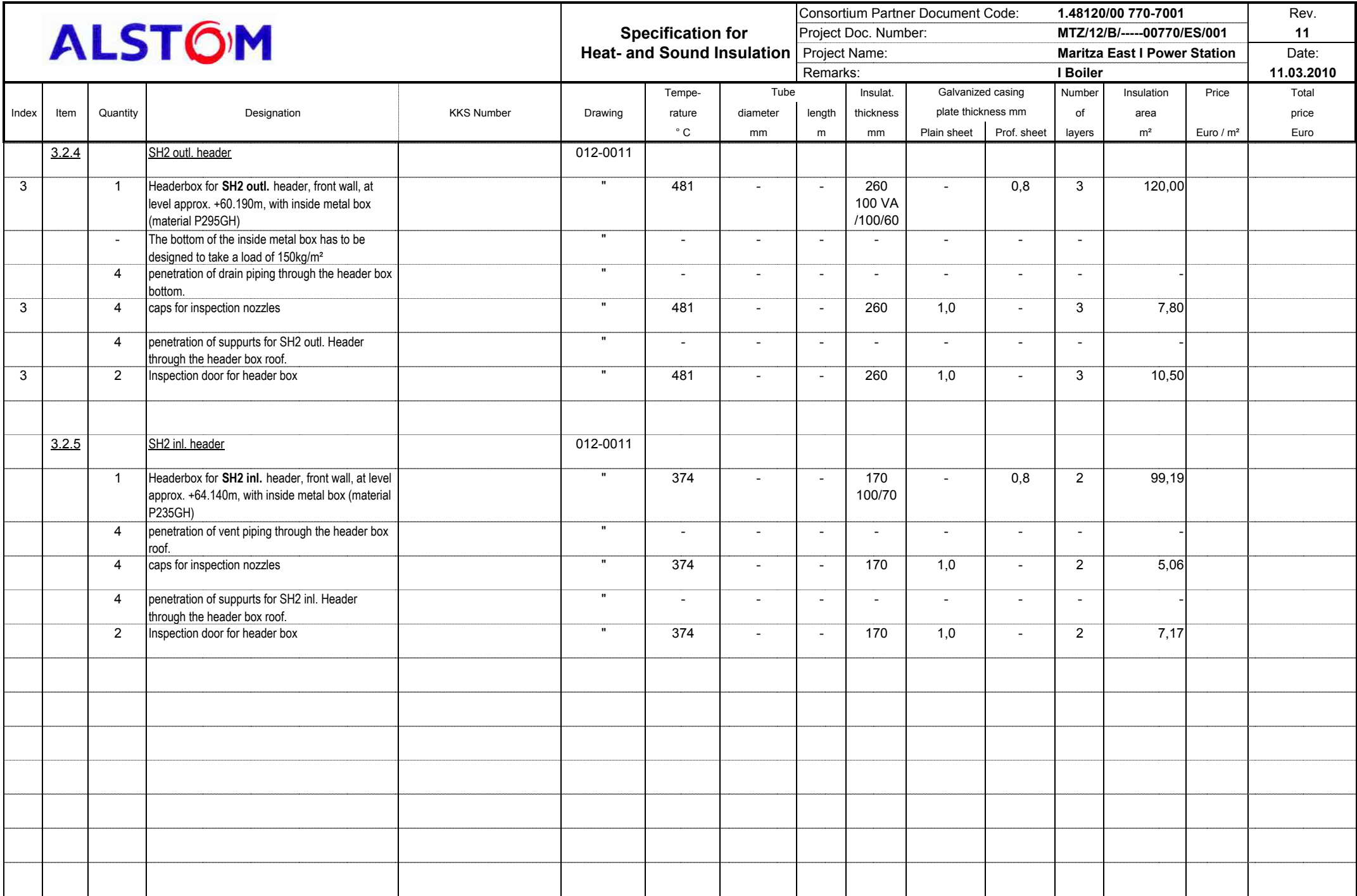
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

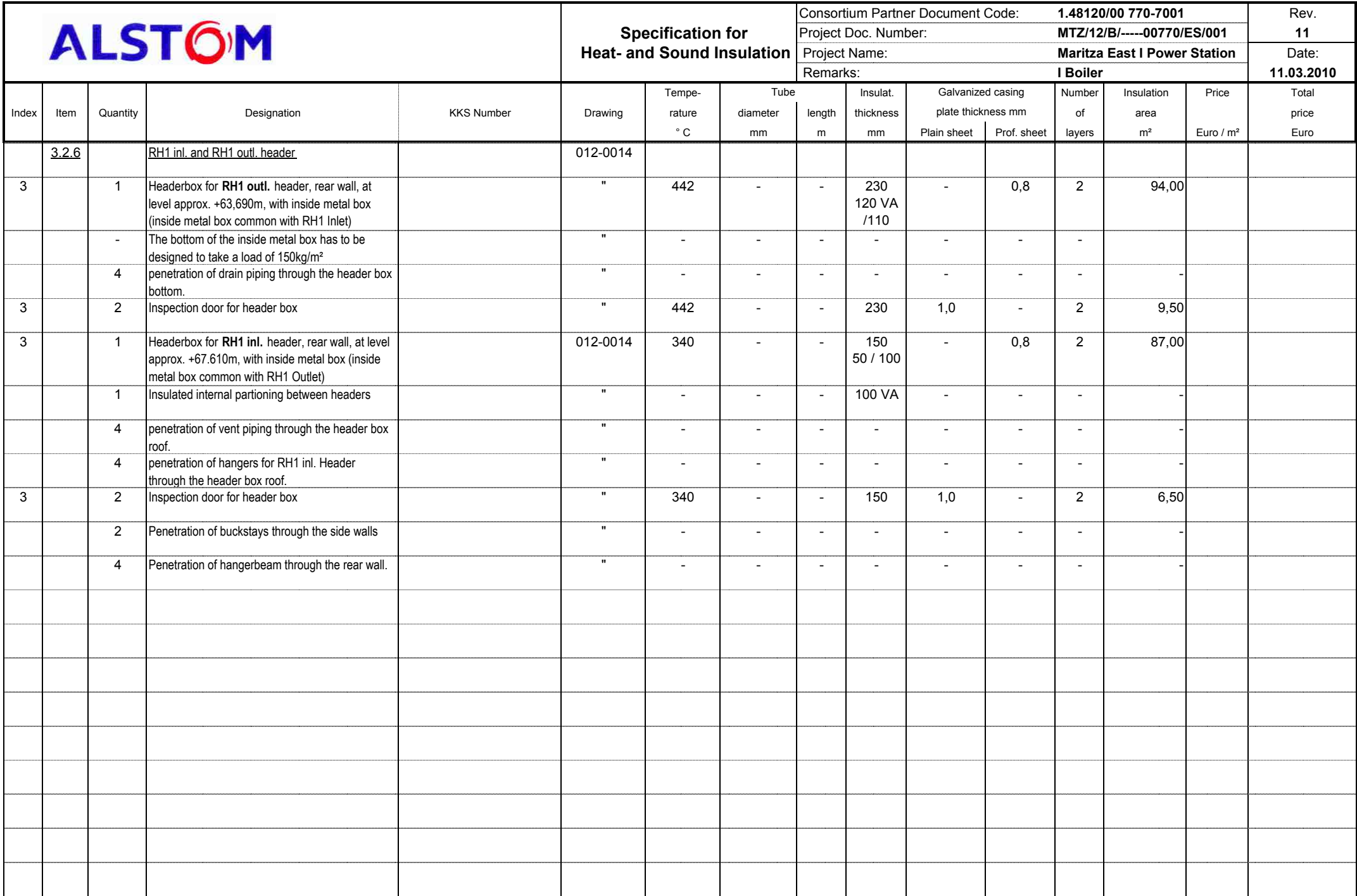
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<u>3.2.3</u>		<u>RH2 inl. RH2 outl and RW outl. header</u>		012-0013									
3		1	Headerbox for <b>RH2 inlet</b> header, rear wall, at level approx. +56.870m, with inside metal box (material P235GH)		"	415	-	-	320 100 VA /100/120	-	0,8	3	102,00	
		-	The bottom of the inside metal box has to be designed to take a load of 150kg/m²		"	-	-	-	-	-	-	-		
		-	<b>Attention!</b> The insulation in the area of the steel structure has to be adapted.		"	-	-	-	-	-	-	-		
4		3	penetrations of vertical members (Pay attention on Boiler Thermal expansion)		"	-	-	-	-	1,0	-	-	15,00	
		4	penetration of drain piping through the header box bottom.		"	-	-	-	-	-	-	-	-	
3		2	Inspection door for header box		"	-	-	-	320	1,0	-	3	8,50	
		2	Penetration of bucstays through the side walls		"	-	-	-	-	-	-	-	-	
		4	penetration for piping to RW header through the header box roof.		012-0015	-	-	-	-	-	-	-	-	
3		1	Headerbox for <b>RH2 outl.</b> header, rear wall, at level approx. +60.470m, with inside metal box (material 13CrMo4-5)		012-0013	544	-	-	320 100 VA /100/120	-	0,8	3	106,00	
4		3	penetrations of vertical members (Pay attention on Boiler Thermal expansion)		"	-	-	-	-	1,0	-	-	15,00	
		4	penetration of vent piping through the header box roof.		"	-	-	-	-	-	-	-	-	
		4	penetration of supports for RH2 outl. Header through the header box roof.		"	-	-	-	-	-	-	-	-	
3		2	Inspection door for header box.		"	-	-	-	320	1,0	-	3	11,50	
		2	Penetration of bucstays through the side walls		"	-	-	-	-	-	-	-	-	
		1	<b>RW header</b> , cladding together with Insulation box for RH2 inl. & RH2 outl. at level approx.		012-0015	360	-	-	150	1,0	-	2	-	
		2	Caps for inspection stubs		"	360	-	-	150	1,0	-	2	2,17	

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: I Boiler						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: I Boiler							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: I Boiler							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

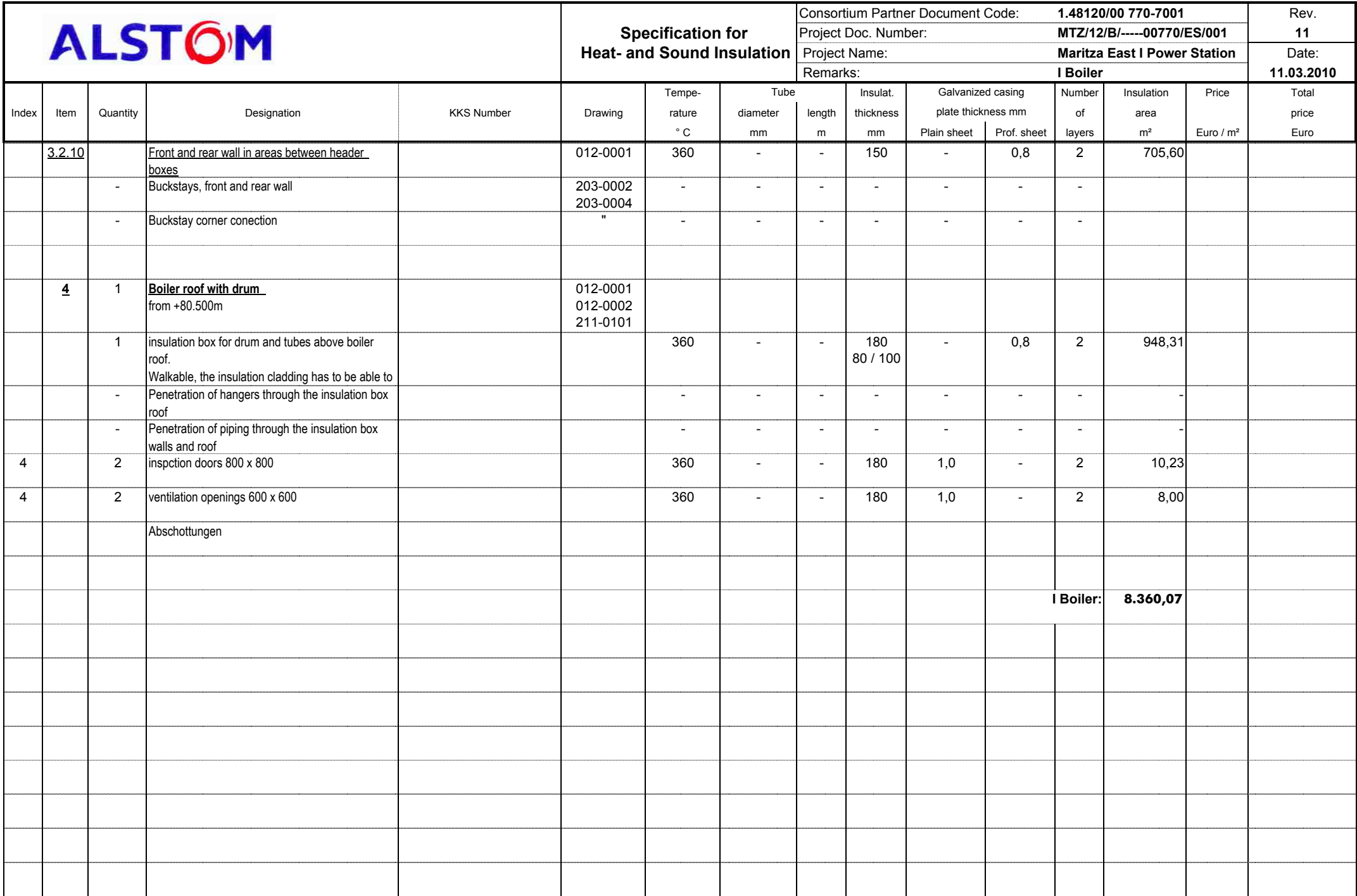
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **I Boiler**

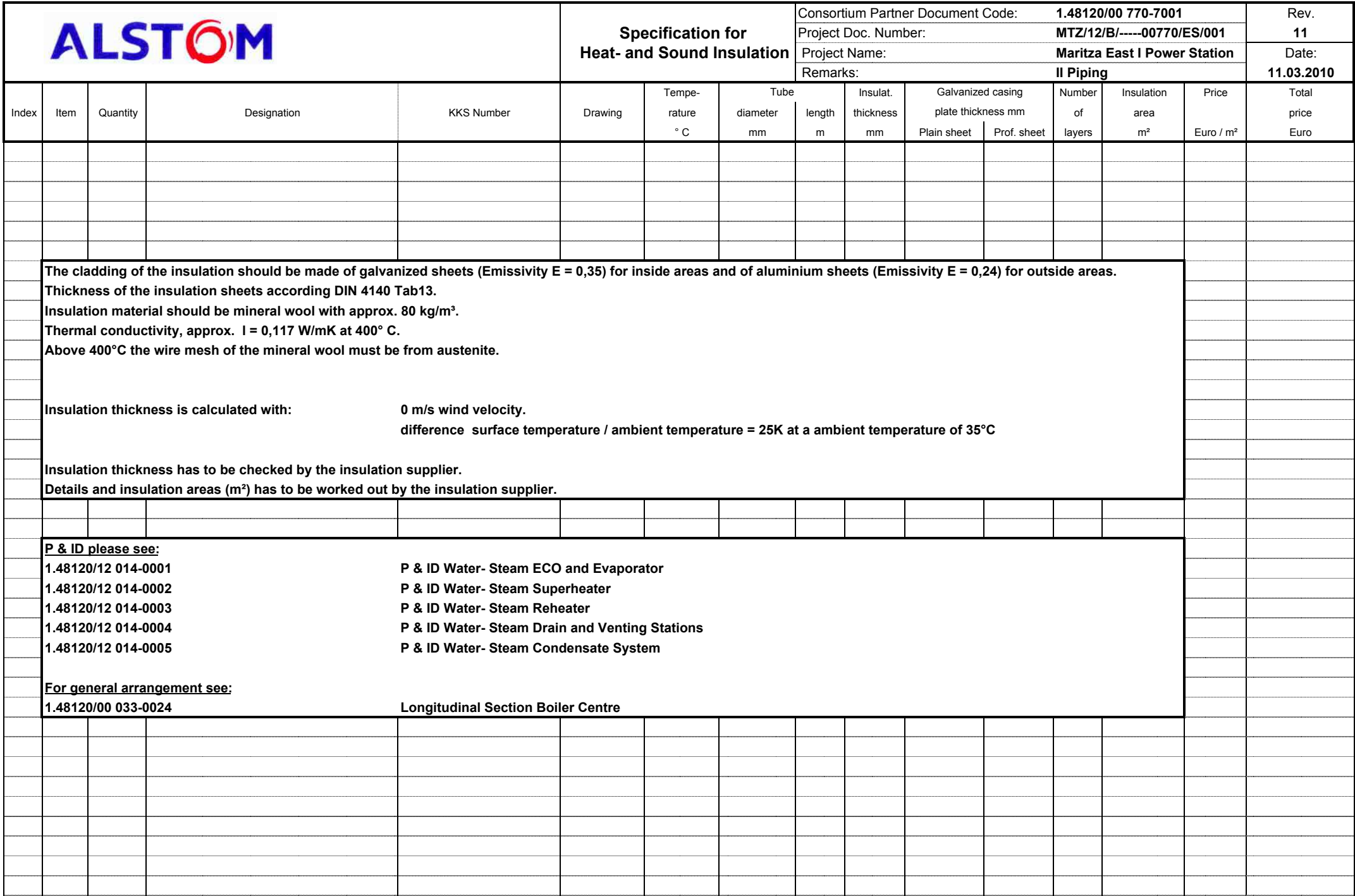
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<u>3.2.7</u>		<u>ECO2 inl. header</u>		012-0012									
		1	Headerbox for <b>ECO2 inl.</b> header, front wall, at level approx. +67.260m, with inside metal box (material P235GH)		"	275	-	-	150 50 / 100	-	0,8	2	84,76	
		-	The bottom of the inside metal box has to be designed to take a load of 150kg/m²		"	-	-	-	-	-	-	-		
		4	penetration of drain piping through the header box bottom.		"	-	-	-	-	-	-	-		
		4	penetration of supports for ECO 2 inl. Header through the header box roof.		"	-	-	-	-	-	-	-		
		2	Inspection door for header box		"	275	-	-	150	1,0	-	2	5,20	
	<u>3.2.8</u>		<u>ECO1 outl. and ECO2 outl. header</u>		012-0012									
		1	Headerbox for <b>ECO2 outl.</b> header and <b>ECO1 outl.</b> header front wall, at level approx. +70.570m, with inside metal box (material P235GH)		"	313	-	-	150 50 / 100	-	0,8	2	111,74	
		-	<b>Attention!</b> The insulation in the area of the downcomer pipes has to be adapted.		"	-	-	-	-	-	-	-		
		6	Penetration of piping from ECO2 outl to drum through the header box roof		"	-	-	-	-	-	-	-		
		2	Inspection door for header box		"	313	-	-	150	1,0	-	2	5,82	
		2	caps for inspection stubs (ECO2 outl.)		"	313	-	-	150	1,0	-	2	4,01	
		4	penetration of supports for ECO1 outl. header through the header box roof.		"	-	-	-	-	-	-	-		
	<u>3.2.9</u>		<u>ECO1 inl. header</u>		012-0012									
3		1	ECO1 inl. header at level approx. +73.200m		"	249	-	-	100 50 / 50	-	0,8	2	95,00	
		8	caps for inspection stubs		"	249	-	-	100	1,0	-	1	1,54	
		1	connection for evaporator line		"	-	-	-	-	-	-	-		
		4	supports for ECO1 inl. header		"	-	-	-	-	-	-	-		
4		1	Bundle tube insulation for ECO1 inl. piping.		"	249	-	-	150/100	-	0,8	2	73,00	

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: I Boiler						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		-	The insulation on the top of the tubes has to be designed to take a load of 150kg/m²		"	-	-	-	-	-	-	-			



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: I Boiler							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: II Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1</b>		<b><u>Connecting pipe from ECO 1 outl. to ECO 2 inl.</u></b>		236-0041									
		1	Measurement pipe for ECO1 outl. Header. Personal protection, only up to the 1st valve or max. only 0,5m after insulation of header box.	01 HAC 10 CP 501	014-0001	275	60,3		60	0,6	-	1	0,12	
		2	connection to ECO1 outl. Header on level approx. +70.570m	-	"	-	-		-	1,0	-	-	1,32	
		2	Pipe from ECO1 outl. at level approx. +70.570m to ECO2 inl. at level approx. +67.260m	01 HAC 11 BR 001 01 HAC 12 BR 001	"	275	310		110	1,0	-	1	4,43	
		4	Bend approx. 90°, 2 at level approx. +67.260m and 2 at level approx.+70.570m	01 HAC 11 BR 001 01 HAC 12 BR 001	"	275	310		110	1,0	-	1	13,23	
		2	connection to ECO2 inl. Header on level approx. +67.260m	-	"	-	-		-	1,0	-	-	1,32	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
	<b>2</b>		<b><u>Pipe from ECO2 outl. to drum</u></b>		236-0041									
		6	Connection to ECO2 outl. Header on level approx. +70.570m	-	"	-	-		-	1,0	-	-	2,47	
		6	Pipe from ECO2 outl. at level approx. +70.570 to drum	01 HAC 21 BR 001 - 006	"	314	168,3		120	1,0	-	1	92,36	
		6	Bend approx. 20° at level approx. +73.000m	01 HAC 21 BR 001 - 006	"	314	168,3		120	1,0	-	1	1,15	
		6	Connection to drum insulation box.	-	"	-	-		-	1,0	-	-	2,47	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
	<b>3</b>		<b><u>ECO evaporator line</u></b>		236-0040									
		1	Connection to drum insulation box.	-	"	-	-		-	0,6	-	-	0,21	
		1	Pipe from drum to ECO1 inl. at level approx. +74.270m	01 HAC 10 BR 001	"	249	114,3		80	0,6	-	1	24,13	
		11	Bend approx 90°	01 HAC 10 BR 001	"	249	114,3		80	0,6	-	1	4,28	
		1	Valve	01 HAC 10 AA 001	"	249	114,3		80	0,6	-	1	1,34	
		1	connection to ECO 1 inl. header at level approx. +73..200m	-	"	-	-		-	0,6	-	-	0,21	
		5	Hanger construction	-	"	-	-		-	-	-	-	-	
	<b>4</b>		<b><u>Downcomer pipes.</u></b>											
	<b>4.1</b>		<b><u>Pipes from drum to +57.700m</u></b>		212-0040									
1		12	Connection to drum insulation box.	-	"	-	-		-	1,0	-	-	11,04	
		12	Vertical pipe	01 HAD 05 BR 101 - 112	"	366	325		160	1,0	-	2	571,42	
		12	Bend approx. 45° at level approx. +57.700m	01 HAD 05 BR 101 - 112	"	366	325		160	1,0	-	2	30,94	
		12	Hanger construction	-	"	-	-		-	-	-	-	-	


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>4.2</b>		<b>Pipes from +57.700m to level approx. +10.000m</b>		212-0040 212-0041									
		12	Pipe from level approx. +57.700m to approx. +10.000m	01 HAD 05 BR 101 - 112	"	366	325		160	1,0   -	2	955,16		
		12	Bend approx. 45° at level approx. +51.000m	01 HAD 05 BR 101 - 112	"	366	325		160	1,0   -	2	15,47		
		8	Bend approx. 90° at level approx. +35.000m (2 bends per pipe)	01 HAD 05 BR 107 - 110	"	366	325		160	1,0   -	2	20,63		
		8	Hanger construction	-	"	-	-		-	-   -	-	-		
<b>1</b>	<b>4.3</b>		<b>Pipes from level approx. +10.000m to headers</b>		212-0042									
	<b>4.3.1</b>		<u>Pipes to front wall headers</u>											
		3	Pipe to front wall header	01 HAD 05 BR 101 - 103	"	366	325		160	1,0   -	2	121,58		
		6	Bend approx. 90° (2 bends per pipe)	01 HAD 05 BR 101 - 103	"	366	325		160	1,0   -	2	15,47		
		3	Bend approx. 30°	01 HAD 05 BR 101 - 103	"	366	325		160	1,0   -	2	2,58		
		3	Connection to front wall header, 2 headers at level approx. +3.300m, and 1 header at level approx. +0.450m	-	"	-	-		-	1,0   -	-	2,77		
		6	Hanger construction	-	"	-	-		-	-   -	-	-		
	<b>4.3.2</b>		<u>Pipes to left side wall header</u>											
		3	Pipe to left side wall header	01 HAD 05 BR 104 - 106	"	366	325		160	1,0   -	2	151,97		
		6	Bend approx. 90° (2 bends per pipe)	01 HAD 05 BR 104 - 106	"	366	325		160	1,0   -	2	15,47		
		3	Bend approx. 20°	01 HAD 05 BR 104 - 106	"	366	325		160	1,0   -	2	1,72		
		3	Bend approx. 30°	01 HAD 05 BR 104 - 106	"	366	325		160	1,0   -	2	2,58		
		3	Connection to left side wall header, at level approx. +0.450m	-	"	-	-		-	1,0   -	-	2,77		
		6	Hanger construction	-	"	-	-		-	-   -	-	-		
	<b>4.3.3</b>		<u>Pipes to rear wall headers</u>											
		3	Pipe to rear wall header	01 HAD 05 BR 107 - 109	"	366	325		160	1,0   -	2	121,58		
		6	Bend approx. 90° (2 bends per pipe)	01 HAD 05 BR 107 - 109	"	366	325		160	1,0   -	2	15,47		
		3	Bend approx. 30°	01 HAD 05 BR 107 - 109	"	366	325		160	1,0   -	2	2,58		
		3	Connection to rear wall header, 2 headers at level approx. +3.300m, and 1 header at level approx. +0.450m	-	"	-	-		-	1,0   -	-	2,77		
		6	Hanger construction	-	"	-	-		-	-   -	-	-		
	<b>4.3.4</b>		<u>Pipes to right side wall header</u>											
		3	Pipe to right side wall header	01 HAD 05 BR 110 - 112	"	366	325		160	1,0   -	2	91,18		
		6	Bend approx. 90° (2 bends per pipe)	01 HAD 05 BR 110 - 112	"	366	325		160	1,0   -	2	15,47		
		2	Bend approx. 20°	01 HAD 05 BR 110 - 112	"	366	325		160	1,0   -	2	1,15		
		3	Bend approx. 30°	01 HAD 05 BR 110 - 112	"	366	325		160	1,0   -	2	2,58		
		3	Connection to right side wall header, at level approx. +0.450m	-	"	-	-		-	1,0   -	-	2,77		
		6	Hanger construction	-	"	-	-		-	-   -	-	-		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>5</b>		<b>Overflow pipes</b>											
	<b>5.1</b>		<b>Overflow pipes front wall</b>											
		4	connection to Evaporator outl. Header front wall at level approx. +57.510m	-	215-0140	-	-	-	-	-	-	2,49		
		4	Pipe from EVA outl. header to Drum	01 HAD 10 BR 001 - 004	"	366	219	150	1,0	-	2	195,70		
		2	Bend approx. 45° at level approx. +59.000m	01 HAD 10 BR 002, 003	"	366	219	150	1,0	-	2	1,43		
		16	Bend approx. 45°	01 HAD 10 BR 001 - 004	"	366	219	150	1,0	-	2	11,47		
		4	Connection to drum insulation box.	-	"	-	-	-	1,0	-	-	2,49		
		4	Hanger construction	-	"	-	-	-	-	-	-	-		
	<b>5.2</b>		<b>Overflow pipes rear wall</b>											
		4	connection to Evaporator outl. Header rear wall at level approx. +58.070m	-	215-0021	-	-	-	-	-	-	2,49		
		4	Pipe from EVA outl. header to insulation box boiler roof / drum	01 HAD 30 BR 001 - 004	"	366	219	150	1,0	-	2	195,70		
		4	Bend approx. 90° at level approx. +82.500m	01 HAD 30 BR 002, 003	"	366	219	150	1,0	-	2	7,78		
		4	Connection to insulation box boiler roof / drum	-	"	-	-	-	1,0	-	-	2,49		
		-	Hanger construction	-	"	-	-	-	-	-	-	-		
	<b>6</b>		<b>Connecting pipe from SH1 outl. to SH2 inl.</b>											
	<b>6.1</b>		<b>Pipe from SH1 outl. to spray cooler</b>		226-0040									
		2	connection to SH1 outl. Header at level approx. +49.675m	-	"	-	-	-	-	-	-	1,79		
		2	Pipe from SH1 outl. header to spray cooler	01 HAH 11, 12 BR 001	"	382	297	170	1,0	-	2	116,53		
		4	Bend approx. 90°	01 HAH 11, 12 BR 001	"	382	297	170	1,0	-	2	9,19		
		2	Flow Measurement	01 HAH 11, 12 CF 001	"	382	297	170	1,0	-	2	4,02		
		4	Measurement points (2 Measurements per pipe)	01 HAH 11, 12 CT 001, 501	"	-	-	-	-	-	-	-		
		2	Pressure Measurement pipe <i>Personal protection, only up to the 1st valve or max. only 0,5m after main pipe..</i>	01 HAH 11, 12 CP001	"	382	-	100	0,5	-	1	0,24		
		4	Hanger construction	-	"	-	-	-	-	-	-	-		
	<b>6.2</b>		<b>Spray cooler</b>		226-0040									
		2	spray cooler (vertical) from level approx. +52.800 to approx. +57.800m	01 HAH 11, 12 AC 001	"	382	289	170	1,0	-	2	19,76		
	<b>6.3</b>		<b>Pipe from spray cooler to SH2 inl. header</b>		226-0040									
		2	Pipe from spray cooler to SH2 inl. header	01 HAH 11, 12 BR 002	"	374	289	160	1,0	-	2	38,28		
		4	Bend approx. 90°	01 HAH 11, 12 BR 002	"	374	289	160	1,0	-	2	8,62		
		2	Bend approx. 45°	01 HAH 11, 12 BR 002	"	374	289	160	1,0	-	2	2,15		
		6	Measurement points (3 Measurements per pipe)	01 HAH 11, 12 CT 002, 502,	"	-	-	-	-	-	-	-		
		2	Connection to SH2 inl. header at level approx.	-	"	-	-	-	1,0	-	-	1,66		
		4	Hanger construction	-	"	-	-	-	-	-	-	-		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

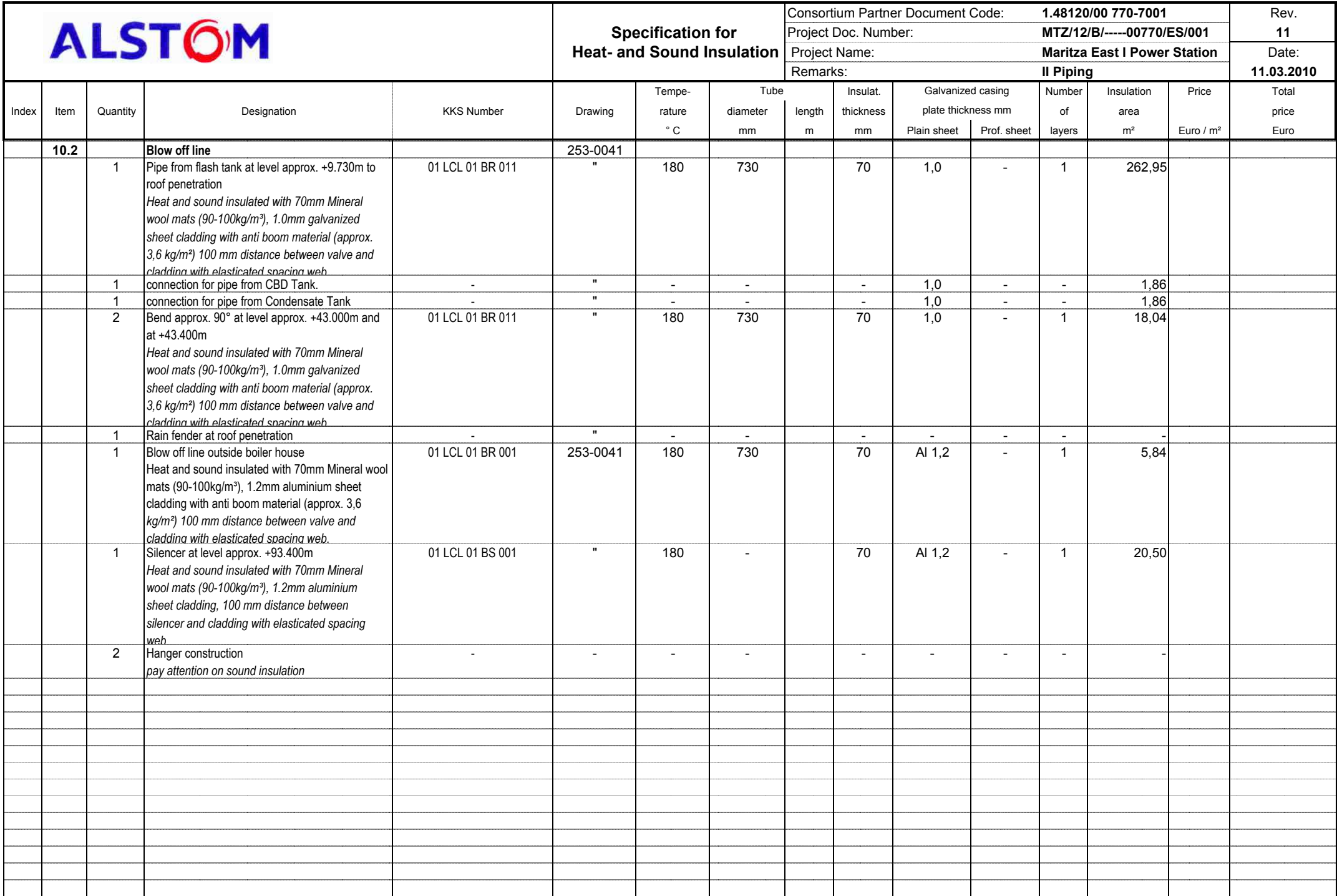
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>7</b>		<b>Connecting pipe SH2 outl. to SH3 inl.</b>											
	<b>7.1</b>		<b>Pipe from SH2 outl. to spray cooler</b>		226-0040									
		2	connection to SH2 outl header. at level approx. +60.100m	-	"	-	-		-	1,0	-	2,87		
		2	Pipe from SH2 outl. header to spray cooler	01 HAH 21, 22 BR 001	"	480	350		240	1,0	-	26,08		
		6	Measurement points (3 Measurements per pipe)	01 HAH 21, 22 CT 001, 002,	"	-	-		-	-	-	-		
		4	Bend approx. 90°	01 HAH 21, 22 BR 001	"	480	350		240	1,0	-	15,40		
		4	Hanger construction	-	"	-	-		-	-	-	-		
	<b>7.2</b>		<b>Spray cooler</b>		226-0040									
		2	spray cooler (vertical) from level approx. +52.800 to approx. +57.800m	01 HAH 21, 22 AC 001	"	480	350		240	1,0	-	99,09		
	<b>7.3</b>		<b>Pipe from spray cooler to SH3 inl. header</b>		226-0040									
		2	Pipe from spray cooler to SH3 inl. header	01 HAH 21, 22 BR 002	"	461	330		220	1,0	-	38,57		
		8	Bend approx. 90°	01 HAH 21, 22 BR 002	"	461	330		220	1,0	-	26,52		
		6	Measurement points (3 Measurements per pipe)	01 HAH 21, 22 CT 003, 004,	"	-	-		-	-	-	-		
		2	Connection to SH3 inl. header at level approx. +53.520m	-	"	-	-		-	1,0	-	2,51		
		2	Hanger construction	-	"	-	-		-	-	-	-		
	<b>8</b>		<b>Connecting pipe RH1 outl. to RH2 inl.</b>											
	<b>8.1</b>		<b>Pipe from RH1 outl. to spray cooler</b>		246-0040									
		2	Connection to RH1 outl header at level approx. +63.581m	-	"	-	-		-	1,0	-	4,47		
		2	Pipe from RH1 outl header to spray cooler	01 HAJ 11, 12 BR 001	"	443	566		230	1,0	-	88,72		
		2	Measurement points	01 HAJ 11, 12 CT 001	"	-	-		-	-	-	-		
		3	Bend approx. 90° (1 for HAJ11 and 2 for HAJ12)	01 HAJ 11, 12 BR 001	"	443	566		230	1,0	-	23,58		
		1	Bend approx. 45°	01 HAJ 11 BR 001	"	443	566		230	1,0	-	3,93		
		8	Hanger construction	-	"	-	-		-	-	-	-		
	<b>8.2</b>		<b>Spray cooler</b>		246-0040									
		2	spray cooler (vertical) HAJ11: from level approx. +60.510 to approx. +55.510m, HAJ12 from level approx. +61.425m to approx. +56.425m	01 HAJ 11, 12 AC 001	"	443	566		230	1,0	-	115,01		
	<b>8.3</b>		<b>Pipe from spray cooler to RH2 inl header</b>		246-0040									
		2	Pipe from spray cooler to RH2 inl header	01 HAJ 1, 12 BR 002	"	415	560		210	1,0	-	119,52		
		1	Bend approx. 45°	01 HAJ 12 BR 002	"	415	560		210	1,0	-	3,60		
		6	Bend approx. 90° (3 bends per pipe)	01 HAJ 11, 12 BR 002	"	415	560		210	1,0	-	43,23		
		2	Connection for sootblower piping	-	"	-	-		-	1,0	-	3,98		
		4	Measurement points	01 HAJ 11, 12 CT 002, 003	"	-	-		-	-	-	-		
		3	Pressure Measurement pipe for RH2 outl. header Personal prot., only 0,5m after header box insul.	01 HAJ 20 BR 201 - 203	014-0003	415	60,3		110	0,6	-	4,00		

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheetProf. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		-	Hanger construction	-	"	-	-		-	-	-	-	-		



					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				


# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>10.3</b>		<b>Drain lance</b>		291-0040									
4		1	Drain lance, upstream valve LCL01AA001	01 LCL 01 BR 001		366	101,6		110	1,0	-	1	4,04	
		1	Drain lance, downstream valve LCL01AA001 <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	01 LCL 01 BR 001		195	193		70	1,0	-	1	4,94	
		1	Valve <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web. The drive of the valves must be protected.</i>	01 LCL 01 AA 001		195	193		70	1,0	-	1	2,36	
		1	Drain lance <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	01 LCL 01 BR 002	291-0040	180	114,3		70	1,0	-	1	1,97	
	<b>10.4</b>		<b>Pipe from feedwater tank overflow</b>		014-0004									
		1	Pipe from feedwater tank overflow <i>Personal protection only in the areas of cable ways and platforms</i>	01 LAA 05 BR 020		180	114,3		70	0,6	-	1	4,50	
	<b>10.5</b>		<b>Pipe from venting station</b>		014-0004									
			<i>Personal protection only, approx 3m before IBD tank.</i>											
		1	Pipe	01 HAN 30BR 002		180	60,3		60	0,6	-	1	2,21	
	<b>11</b>		<b>CBD tank</b>											
	<b>11.1</b>		<b>CBD tank</b>		014-7501									
		1	CBD tank <i>Personal protection only in the areas of cable ways and platforms.</i>	01 LCL 02 BB 001	"	215	300		80	1,0	-	1	4,22	
		1	Pressure Measurement LCL02CP001 <i>Personal protection, only to the 1st Valve or max. only 0,5m after piping.</i>	01 LCL 02 BR ...	"	215	60,3		50	0,6	-	1	0,12	
		2	Level measurement LCL02CL001 <i>Personal protection, only to the 1st Valve or max. only 0,5m after piping.</i>	01 LCL 02 BR ...	"	215	60,3		50	0,6	-	1	0,24	
		2	Support construction	-	"	-	-		-	-	-	-	-	



					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>11.4</b>		<b>Pipe to feedwater Tank</b>		014-0004									
		1	connection to CBD blow off pipe	-		-	-		-	0,6	-	0,11		
		1	Pipe to feedwater tank Personal protection only in the areas of cable ways and platforms.	01 LCL 02 BR 002		215	76,1		50	0,6	-	5,53		
		-	Pipe bend Personal protection only in the areas of cable ways and platforms.	01 LCL 02 BR 002		215	76,1		50	0,6	-	5,53		
		2	Valve Personal protection only in the areas of cable ways and platforms.	01 LCL 02 AA 002, 003		215	76,1		50	0,6	-	1,52		
		-	Hanger construction	-	"	-	-		-	-	-	-		
	<b>12</b>		<b>Safety valves and HP bypass valve</b>											
	<b>12.1</b>		<b>Drum Safety Valve</b>		257-0040									
		1	Drum safety valve <i>Heat and sound insulated with 100mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 150 mm distance between valve and cladding with elasticated spacing web. The drive of the valves must be protected</i>	01 HAD 01 AA 201	"	250	219,1		100	1,0	-	2,36		
		1	Blow off pipe vertical piece after insulation box for drum to roof penetration <i>Heat and sound insulated with 100mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding with anti boom material (approx. 3,6 kg/m²) 150 mm distance between pipe and cladding with elasticated spacing web</i>	01 HAD 01 BR 202	"	250	219,1		100	1,0	-	6,58		
		1	Rain fender and penetration through boiler house roof	-	"	-	-		-	-	-	-		
		1	Hanger construction <i>pay attention on sound insulation</i>	-	"	-	-		-	-	-	-		
	12.1	1	Blow off pipe outside boiler house <i>Heat and sound insulated with 100mm Mineral wool mats (90-100kg/m³), 1.2mm aluminium sheet cladding, 150 mm distance between pipe and cladding with elasticated spacing web</i>	-	257-0040	250	219,1		100	Al 1,2	-	3,26		
		1	Silencer <i>Heat and sound insulated with 120mm Mineral wool mats (90-100kg/m³), 1.2mm aluminium sheet cladding, 150 mm distance between valve and cladding with elasticated spacing web.</i>	01 HAD 01 BS 201	"	250	-		120	Al 1,2	-	13,81		

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>12.2</b>		<b>RH Safety Valve</b>		257-0041									
		2	RH Safety Valve at level approx. +75.100m <i>Heat and sound insulated with 180mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 200 mm distance between valve and cladding with elasticated spacing web. The drive of the valves must be protected</i>	01 LBB 11, 12 AA 201	257-0041	400	559		180	1,0   -	2	14,84		
4		2	Spray head part <i>Heat and sound insulated with 200mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding with anti boom material (approx. 3,6 kg/m²) 200 mm distance between pipe and cladding with elasticated spacing web</i>	01 LBB 11, 12 BB 201	"	400	1050		200	1,0   -	2	41,00		
4		2	Vertical Blow off pipe to Silencer from level approx. +75.100m to roof penetration <i>Heat and sound insulated with 180mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding with anti boom material (approx. 3,6 kg/m²) 200 mm distance between pipe and cladding with elasticated spacing web</i>	01 LBB 11, 12 BR 203	"	400	680		180	1,0   -	2	108,57		
		2	Rain fender with penetration through boiler house roof	-	257-0041	-	-		-	-   -	-	-		
4		2	Vertical Blow off pipe to Silencer from roof penetrator to silencer <i>Heat and sound insulated with 210mm Mineral wool mats (90-100kg/m³), 1.2mm aluminium sheet cladding with anti boom material (approx. 3,6 kg/m²) 200 mm distance between pipe and cladding with elasticated spacing web</i>	01 LBB 11, 12 BR 203	"	400	680		210	AL 1,2   -	2	6,79		
		6	Hanger construction <i>(pay attention on sound insulation)</i>	-	"	-	-		-	-   -	-	-		
		2	Silencer at level approx. +94.000m <i>Heat and sound insulated with 230mm Mineral wool mats (90-100kg/m³), 1.2mm aluminium sheet cladding, 150 mm distance between silencer and cladding with elasticated spacing web</i>	01 LBB 11, 12 BS 201	257-0041	400	-		230	AL 1,2   -	2	75,29		
4	<b>12.3</b>	2	<b>HP Bypass Valve</b> <i>Heat and sound insulated with 160mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 200 mm distance between duct and cladding with elasticated spacing web. The drive of the valves must be protected</i>	01 LBF 11, 12 AA 001	014-0002	400	424		160	1,0   -	2	15,92		

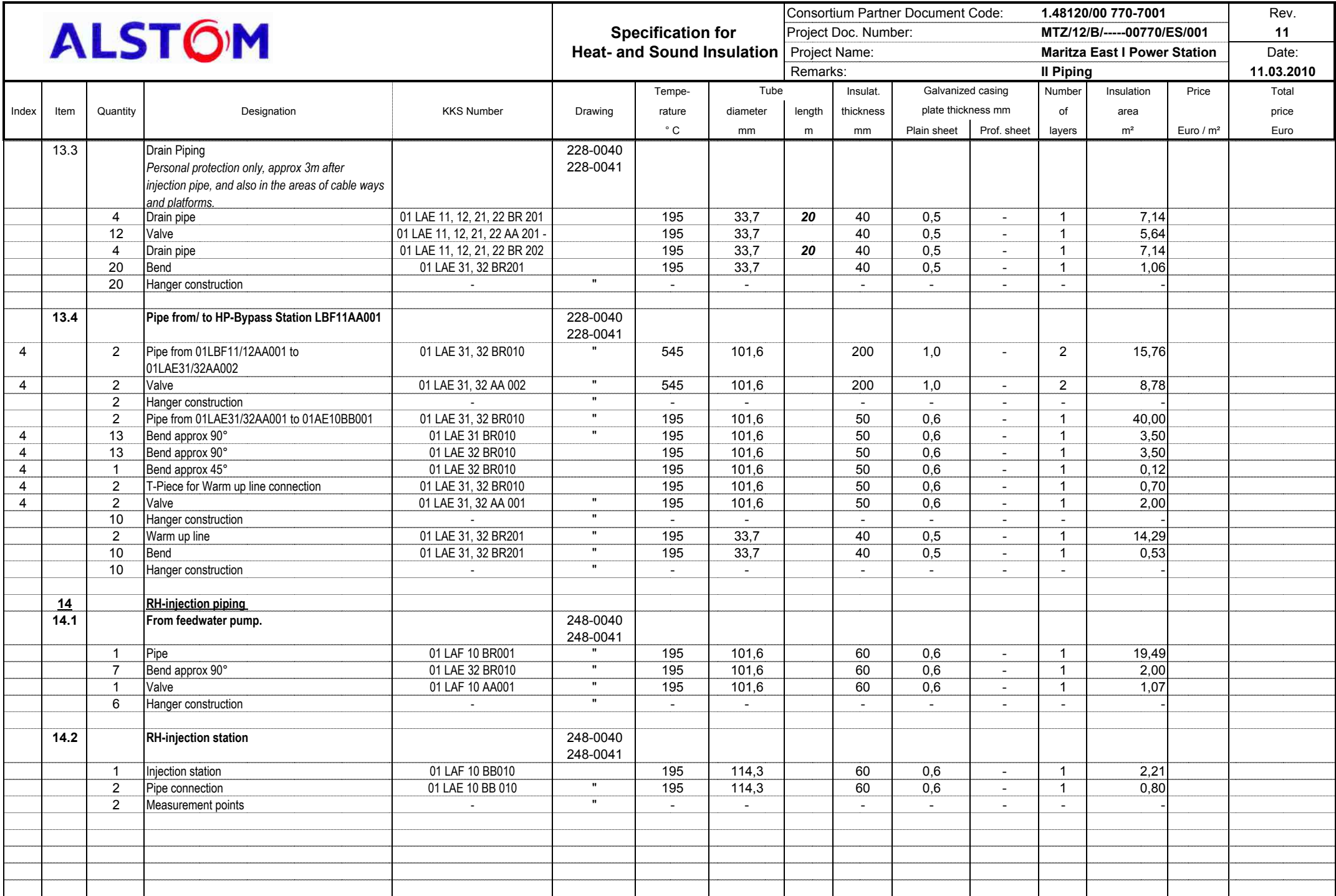
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>13</b>		<b>SH-injection piping</b>		228-0040									
	<b>13.1</b>		<b>From feedwater pump.</b>											
		1	Pipe	01 LAE 10 BR 001	"	195	219,1		70	0,8	-	1	5,64	
		3	Bend approx 90°	01 LAE 10 BR 001	"	195	219,1		70	0,8	-	1	2,55	
		1	Bend approx 45°	01 LAE 10 BR 001	"	195	219,1		70	0,8	-	1	0,42	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
		1	Pipe / distributor	01 LAE 10 BB 001	"	195	219,1		70	0,8	-	1	3,38	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
		2	Measurement point	01LAE10CT001, 002	"	-	-		-	-	-	-	-	
		1	Pipe to SH-injection station	01 LAE 10 BR 002	"	195	219,1		60	0,8	-	1	12,25	
		2	Bend approx 45°	01 LAE 10 BR 002	"	195	219,1		60	0,8	-	1	0,79	
		2	Bend approx 90°	01 LAE 10 BR 002	"	195	219,1		60	0,8	-	1	1,57	
		2	T-Piece	01 LAE 10 BR 002	"	195	101,6		60	0,6	-	1	0,80	
		1	Valve	01 LAE 10 AA 001	"	195	219,1		60	0,8	-	1	1,66	
		5	Hanger construction	-	"	-	-		-	-	-	-	-	
		1	Pressure Measurement pipe Personal protection, only to the 1st Valve or max. only 3m after piping.	01 LAE 10CP501	"	195	60,3		40	0,5	-	1	0,15	
	<b>13.2</b>		<b>SH-injection station</b>		228-0040									
		1	Injection station	01 LAE 10 BB 010	"	195	139,7		60	0,6	-	1	4,08	
		4	pipe connection	01 LAE 10 BB 010	"	195	70		40	0,6	-	1	1,02	
		2	Measurement points	-	"	-	-		-	-	-	-	-	
	<b>13.3</b>		<b>Pipe to Spray cooler HAH11, 12, 21, 22 AC 001</b>		228-0040 228-0041									
		4	Pipe	01 LAE 11, 12, 21, 22 BR 001	"	195	70		40	0,6	-	1	41,47	
		4	Flow measurement point	01 LAE 11, 12, 21, 22 CF 001	"	195	70		40	0,6	-	1	1,02	
		4	T-Piece for pipe connection	01 LAE 11, 12, 21, 22 BR 001	"	195	70		40	0,6	-		0,92	
		20	Hanger construction	-	"	-	-		-	-	-	-	-	
		8	Valve	01 LAE 11, 12, 21, 22 AA 001,	"	195	70		40	0,6	-	1	5,44	
		4	Injection Pipe	01 LAE 11, 12, 21, 22 BR 003	"	195	70		40	0,6	-	1	5,65	
		12	Bend approx 90° (3 Bends per Piping)	01 LAE 11, 12, 21, 22 BR 003	"	195	70		40	0,6	-		1,53	
		8	Valve	01 LAE 11, 12, 21, 22 AA 003-	"	195	70		40	0,6	-	1	5,44	
		4	T-Piece for pipe connection	01 LAE 11, 12, 21, 22 BR 003	"	195	70		40	0,6	-	1	0,92	
		4	Transition piece	01 LAE 11, 12, 21, 22 BR 003	"	195	70		40	0,6	-	1	15,08	
		4	Injection Pipe 1, including all bends	01 LAE 11, 12, 21, 22 BR 003	"	195	48,3		40	0,5	-	1	24,18	
		20	Hanger construction	-	"	-	-		-	-	-	-	-	
		4	Injection Pipe 2, including all bends	01 LAE 11, 12, 21, 22 BR 005	"	195	48,3		40	0,5	-	1	24,18	
		4	Valve	01 LAE 11, 12, 21, 22 AA 005	"	195	48,3		40	0,5	-	1	2,20	
		12	Hanger construction	-	"	-	-		-	-	-	-	-	

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: II Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

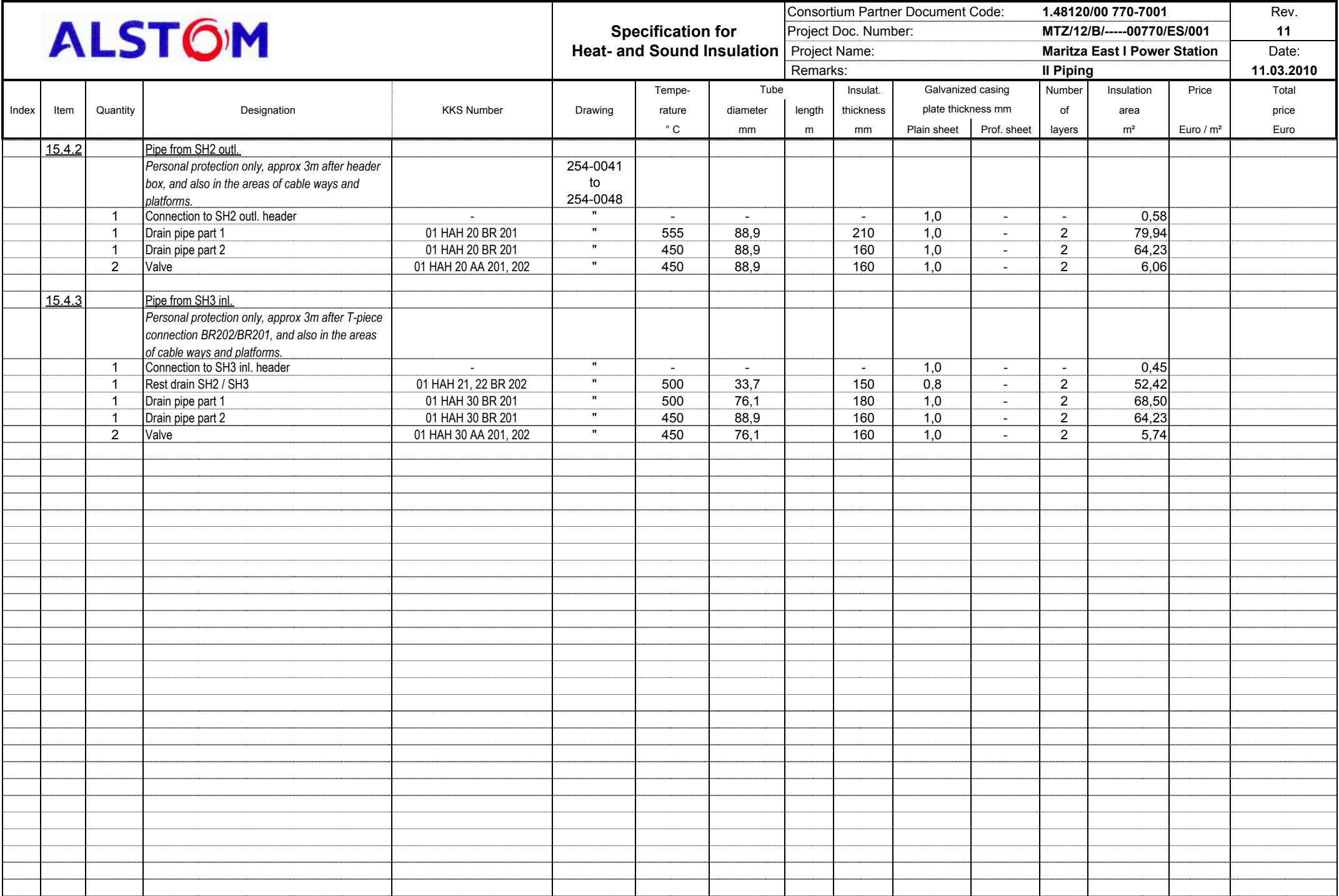
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>14.3</b>		<b>Pipe to Spray cooler HAJ 11, 12 AC 001</b>		248-0040 248-0041									
		2	Injection pipe 1	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	26,00	
		8	Bend approx 90°	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	2,00	
		2	T-Peaces for drain connection	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	0,80	
		2	Flow measurement	01 LAF 11, 12 CF 001	"	195	70		40	0,6	-	1	0,51	
		4	Valve	01 LAF 11, 12 AA 001, 002	"	195	70		40	0,6	-	1	2,72	
		2	Strainer	01 LAF 11, 12 AT 001	"	195	70		40	0,6	-	1	1,36	
		2	Pipe connection	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	0,51	
		12	Hanger construction	-	"	-	-		-	-	-	-	-	
		2	Pipe to Valve LAF11, 12 AA203	01 LAF 11, 12 AA 203	"	195	33,7		40	0,5	-	1	3,57	
		2	Bend approx 90°	01 LAF 11, 12 AA 203	"	195	33,7		40	0,5	-	1	0,11	
		2	Valve	01 LAF 11, 12 AA 203	"	195	33,7		40	0,5	-	1	0,94	
		2	Pipe downstream Valve LAF11, 12 AA203 Personal protection only, approx 3m after valve, and also in the areas of cable ways and platforms.	01 LAF 11, 12 AA 204	"	195	33,7		40	0,5	-	1	2,14	
		1	Hanger construction	-	"	-	-		-	-	-	-	-	
		2	Injection pipe 2	01 LAF 11, 12 BR 001	248-0040 248-0041	195	70		40	0,6	-	1	51,84	
		27	Bend approx 90°	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	3,45	
		1	Bend approx 45°	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	0,06	
		2	Bend approx 15°	01 LAF 11, 12 BR 001	"	195	70		40	0,6	-	1	0,04	
		20	Hanger construction	-	"	-	-		-	-	-	-	-	
		2	Injection valve	01 LAF 11, 12 AA 004		195	70		40	0,6	-	1	1,36	
			Drain Piping <i>Personal protection only, approx 3m after injection pipe, and also in the areas of cable ways and platforms.</i>											
		2	Drain pipe	01 LAF 11, 12, BR 201		195	33,7		40	0,5	-	1	14,29	
		4	Valve	01 LAF 11, 12, AA 201, 202		195	33,7		40	0,5	-	1	1,88	
		10	Bend	01 LAE 31, 32 BR201		195	33,7		40	0,5	-	1	0,53	
		8	Hanger construction	-	"	-	-		-	-	-	-	-	
	<b>15</b>		<b><u>Drain piping</u></b>		254-0041 to 254-0048									
	<b>15.1</b>		<b>Filling line</b>											
			<i>Personal protection only, approx 3m after T- peace, and approx. 3m before collector 01LCL01BR001 and also in the areas of cable ways and platforms.</i>											
		1	Pipe (filling line)	01 LAE 10 BR 201	"	336	76,1		120	0,6	-	1	29,79	

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		2	Valve	01 LAE 10 AA 201, 202	"	336	76,1		120	0,6	-	1	3,82		

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet	Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
1	15.2		From evaporator		254-0041 to 254-0048										
	15.2.1		Pipe from wall headers												
			Personal protection only, approx 3m after header box, in area of cable ways and platforms and approx. 3m before collector 01LCL01BR001												
		6	Drain pipe from header	01 HAD 10, 30 BR 201- 203	"	366	38		110	0,6	-	1	72,95		
		4	Drain pipe Eva.Inl.	01 HAD 10, 30 BR 203 01 HAD 20, 40 BR 201	"	366	76,1		120	0,6	-	1	59,58		
		8	Valve	01 HAD 10, 30 AA 201, 202 01 HAD 20, 40 AA 201, 202	"	366	76,1		120	0,6	-	1	15,28		
	15.2.2		Pipe from drum to CBD tank												
			Personal protection only, approx 3m after drum insulation, and approx. 3m before CBD tank and also in the areas of cable ways and platforms.												
		1	Pipe	01 LCQ 10 BR 001	"	366	76,1		120	0,6	-	1	49,65		
		2	Valve	01 LCQ 10 AA 001, 002	"	366	76,1		120	0,6	-	1	3,82		
	15.2.3		From drum safety valve												
			Personal protection only, approx 3m after drum insulation, and approx. 3m before drain lance and also in the areas of cable ways and platforms.												
		1	Pipe	01 HAD 01 BR 205	"	366	48,3		110	0,6	-	1	42,14		
	15.3		From ECO												
			Personal protection only, approx 3m after header box, and approx. 3m before Flash tank drain lance and also in the areas of cable ways and platforms.												
		1	Pipe from ECO 2 inl.	01 HAC 20 BR 201	"	366	101,6		130	0,8	-	2	56,80		
		1	Valve	01 HAC 20 AA 201	"	366	101,6		130	0,8	-	2	2,41		
		1	Valve	01 HAC 20 AA 202	"	366	101,6		130	0,8	-	2	2,41		
1	15.4		SH- drains		254-0041 to 254-0048										
	15.4.1		Pipe from SH1 outl.												
			Personal protection only, approx 3m after header box, and also in the areas of cable ways and platforms.												
		1	Connection to SH1 outl. header	-	"	-	-		-	1,0	-	-	0,38		

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		1	Pipe	01 HAH 10 BR 201	"	450	76,1		160	1,0	-	2	62,22		



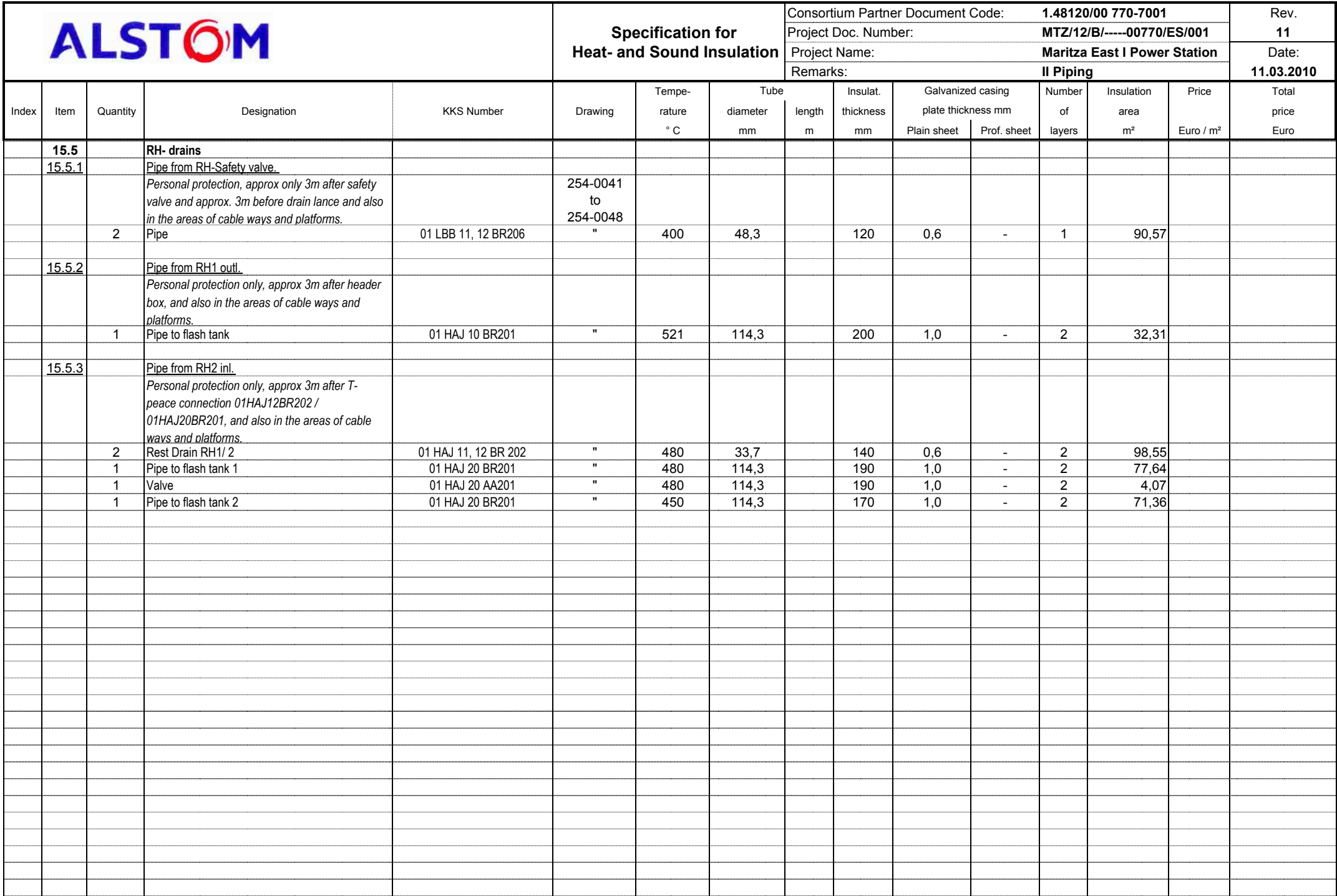
					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				


# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
1	15.4.4		SH-drain station		254-0041 to 254-0048									
			<i>Personal protection, approx only 3m before Flash Tank and in the areas of cable ways and platforms.</i>											
		1	Drain station	01 HAN 10 BB 001	"	450	168,3		190	1,0	-	2	8,61	
		1	Measuring point	-	"	-	-		-	-	-	-	-	
		1	Pressure Measurement pipe for HAN10CP002 <i>Personal protection, only to the 1st Valve or max. only 0,5m after piping.</i>	01 HAN 10 BR ...	"	450	60,3		130	0,8	-	2	0,12	
		2	Level Measurement pipe for HAN10CL001 <i>Personal protection, only to the 1st Valve or max. only 0,5m after main pipe</i>	01 HAN 10 BR ...	"	450	60,3		130	0,8	-	2	0,24	
		1	Level Measurement pipe for HAN10CL002 <i>Personal protection, only to the 1st Valve or max. only 0,5m after main pipe</i>	01 HAN 10 BR ...	"	450	60,3		130	0,8	-	2	0,12	
		1	Pipe to flash tank 1	01 HAN 10 BR 001	"	450	168,3		190	1,0	-	2	86,13	
		1	Valve	01 HAN 10 AA 003	"	450	168,3		190	1,0	-	2	4,57	
		1	Pipe to flash tank, pipe from valve HAN10AA003 to HAN10AA004	01 HAN 10 BR 001	"	450	168,3		190	1,0	-	2	34,45	
		1	Bypass piping	01 HAN 10 BR 002	"	450	168,3		190	1,0	-	2	17,20	
		1	Valve	01 HAN 10 AA 001	"	450	168,3		190	1,0	-	2	4,57	
		1	Pipe to flash tank, pipe from valve HAN10AA001 to HAN10AA002	01 HAN 10 BR 001	"	450	168,3		190	1,0	-	2	34,45	
		2	Valve <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web. The drives of the valves must be protected.</i>	01 HAN 10 AA 002, 003	"	180	168,3		70	1,0	-	1	4,14	
1		1	Pipe after valve HAN10AA002 <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	-	254-0041 to 254-0048	180	168,3		70	1,0	-	1	23,14	
		1	Pipe to flash tank 2 <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	01 HAN 10 BR 003	"	180	168,3		70	1,0	-	1	19,37	



					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
1	15.5.4		<u>RH-drain station</u>											
			<i>Personal protection, approx only 3m before Flash Tank and in the areas of cable ways and platforms.</i>		254-0041 to 254-0048									
		1	Drain station	01 HAN 20 BB 001	"	450	168,3		190	1,0	-	2	5,17	
		1	Measuring point	-	"	-	-		-	-	-	-	-	
		1	Pressure Measurement pipe for HAN20CP002 <i>Personal protection, only to the 1st Valve or max. only 0,5m after piping.</i>	01 HAN 20 BR ...	"	450	-		130	0,5	-	2	0,12	
		2	Level Measurement pipe for HAN20CL001 <i>Personal protection, only to the 1st Valve or max. only 0,5m after main pipe.</i>	01 HAN 20 BR ...	"	450	-		130	0,5	-	2	0,24	
		2	Level Measurement pipe for HAN20CL002 <i>Personal protection, only to the 1st Valve or max. only 0,5m after main pipe.</i>	01 HAN 20 BR ...	"	450	-		130	0,5	-	2	0,24	
		1	Pipe to Flash Tank 1	01 HAN 20 BR 001	"	450	168,3		190	1,0	-	2	43,06	
		1	Valve	01 HAN 20 AA 003	"	450	168,3		190	1,0	-	2	4,57	
		1	Pipe to Flash Tank, pipe from valve HAN20AA003 to HAN20AA004	01 HAN 20 BR 001	"	450	168,3		190	1,0	-	2	25,84	
		1	Bypass piping	01 HAN 20 BR 002	"	450	168,3		190	1,0	-	2	17,23	
		1	Valve	01 HAN 20 AA 001	"	450	168,3		190	1,0	-	2	4,57	
		1	Bypass piping from valve HAN20AA001 to HAN20AA002	01 HAN 20 BR 002	"	450	168,3		190	1,0	-	2	17,23	
		2	Valve <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web. The drives of the valves must be protected</i>	01 HAN 20 AA 002, 004	"	180	168,3		70	1,0	-	1	4,14	
1	15.5.4	1	Pipe after valve HAN20AA002 <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	01 HAN 20 BR 003	254-0041 to 254-0048	180	168,3		70	1,0	-	1	28,93	
		1	Pipe to flash tank 2 <i>Heat and sound insulated with 70mm Mineral wool mats (90-100kg/m³), 1.0mm galvanized sheet cladding, 100 mm distance between valve and cladding with elasticated spacing web.</i>	01 HAN 20 BR 003	"	180	168,3		70	1,0	-	1	28,93	

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet	Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>15.6</b>		<b>Pipe from Sootblower</b>												
			<i>Personal protection, approx only 3m after sootblower piping and in the areas of cable ways and platforms.</i>												
		1	Pipe from air preheater sootblower	01 HCB 05 BR 201	"	480	88,9		180	1,0	-	2	28,21		
		1	Pipe from boiler sootblower	01 HCB 50 BR 201	"	480	88,9		180	1,0	-	2	42,31		
	<b>16</b>		<b>Vent Piping</b>		256-0040 256-0041 256-0042										
	<b>16.1</b>		<b>Pipes from saturated steam lines</b>												
			<i>Personal protection only, approx 2 m after insulation box for steam lines and in the areas of cable ways and platforms. No personal protection after the first valve necessary</i>												
		3	Pipe	01 HAD 01 BR 251 - 253	"	366	139,7		140	1,0	-	2	185,80		
		18	Vent Pipe from drum insulation box up to 1,0 m behind bend (to prevent condensate)			366	33,7		100	0,6	-	1	26,01		
	<b>16.2</b>		<b>Pipes from SH2 inl.</b>												
			<i>Personal protection only, approx 3m after header box and in the areas of cable ways and platforms. No personal protection after the first valve necessary</i>												
		1	Pipe	01 HAH 20 BR 251	"	415	48,3		130	0,6	-	2	48,43		
1	<b>16.3</b>		<b>Pipes from SH3 outl.</b>		256-0040 256-0041 256-0042										
			<i>Personal protection only, approx 3m after header box and in the areas of cable ways and platforms. No personal protection after the first valve necessary</i>												
		1	Pipe	01 HAH 30 BR 251	"	545	42,4		180	1,0	-	2	63,21		
	<b>16.4</b>		<b>Pipes from RH1 inl.</b>												
			<i>Personal protection only, approx 3m after header box and in the areas of cable ways and platforms. No personal protection after the first valve necessary</i>												
		1	Pipe	01 HAJ 10 BR 251	"	381	76,1		130	0,8	-	2	52,79		
	<b>16.5</b>		<b>Pipes from RH2 outl.</b>		???										


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
			Personal protection only, approx 3m after header box and in the areas of cable ways and platforms. No personal protection after the first valve necessary												
		1	Pipe	01 HAJ 20 BR 251	"	546	60.3		190	1.0	-	2	69.16		

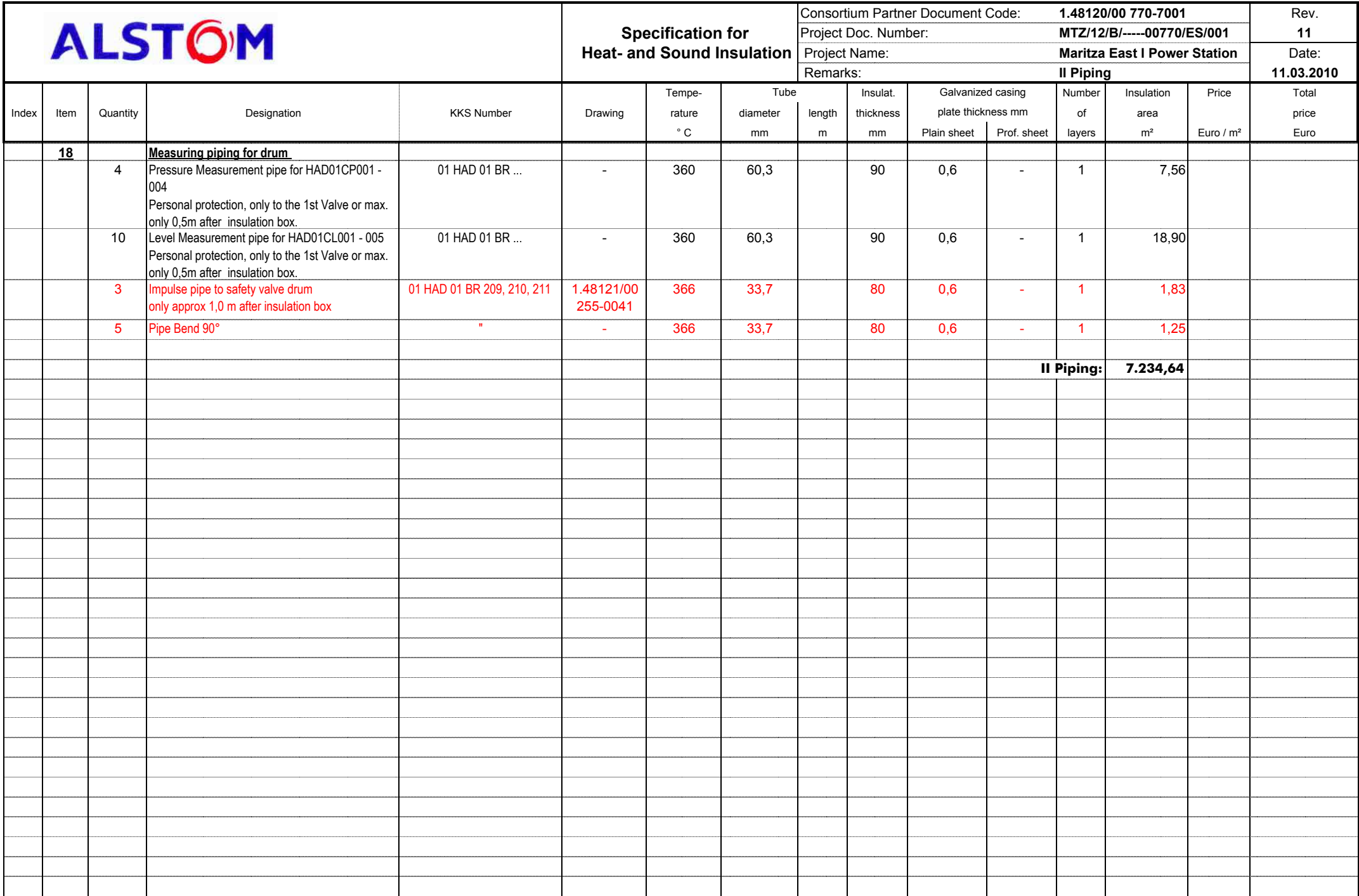
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **II Piping**

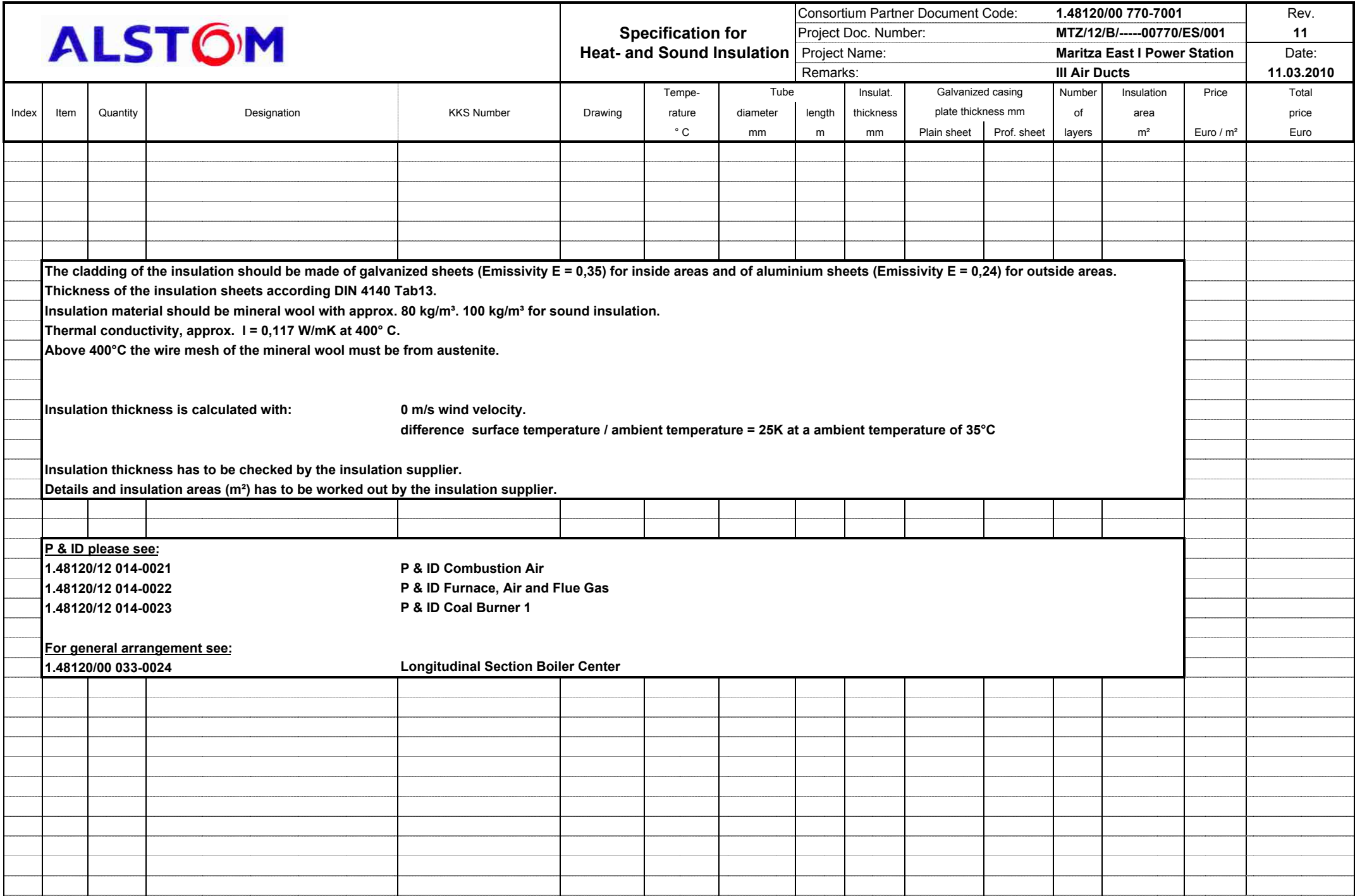
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>17</b>		<b>Condensate storage tank</b>											
	<b>17.1</b>		<b>Condensate storage tank</b>		291-0040 291-0070 014-7501									
		1	Condensate storage tank	01 LCL 10 BB 001	"	144	-		40	1,0	-	1	141,22	
		1	Cap for inspection door	-	"	144	-		40	1,0	-	1	1,15	
		-	Measuring points	-	"	-	-		-	-	-	-	-	
	<b>17.2</b>		<b>Condensate piping</b>		291-0040 014-7501									
		1	Pipe from Flash tank	-	"	180	<b>323,9</b>		60	1,0	-	1	3,96	
		1	Cap for expansion joint		"	180	<b>323,9</b>		60	1,0	-	1	0,91	
		1	Reheat Evaporating Pipe (pipe from Condensate tank to Flash tank blow of line)	01 LCL 10 BR 002	"	144	114,3		30	0,6	-	1	4,40	
	<b>17.3</b>		<b>Piping to condensate pumps</b>		291-0040 014-7501									
		2	Pipe to condensate pump	01 LCL 11, 21 BR 001	"	144	219,1		30	0,6	-	1	22,87	
		8	Bend approx. 90°	01 LCL 11, 21 BR 001	"	144	219,1		30	0,6	-	1	4,41	
		2	Bend approx. 45°	01 LCL 11, 21 BR 001	"	144	219,1		30	0,6	-	1	0,55	
		2	Valve	01 LCL 11, 21 AA 001	"	144	219,1		30	0,6	-	1	2,64	
		2	Pressure Measurement pipe for LCL11, 21 CP001 personal protection, only to the 1st Valve or max. only 0,5m after main pipe.	01 LCL 11, 21 CP 001	"	144	-		30	0,5	-	1	0,24	
		2	Condensate pump	01 LCL 11, 21 AP 001	"	144	-		30	0,8	-	1	5,00	
		2	Pipe from condensate pump	01 LCL 11, 21 BR 002	"	144	127		30	0,6	-	1	11,94	
		2	Pressure Measurement pipe for LCL11, 21 CP002 personal protection, only to the 1st Valve or max. only 0,5m after main pipe.	01 LCL 11, 21 CP 001	"	144	-		30	0,5	-	1	0,24	
		5	Bend		"	144	127		30	0,6	-	1	1,32	
		4	Valve	01 LCL 11, 21 AA 002, 003	"	144	127		30	0,6	-	1	3,68	
		2	Connection for drain pipe	-	"	-	-		-	0,6	-	-	0,25	
		1	T- piece	01 LCL 11, 21 BR 002	"	144	127		30	0,6	-	1	0,36	
		1	Pipe to main cooling water return	01 LCL 30 BR 001	"	144	127		30	0,6	-	1	11,94	
		5	Bend		"	144	127		30	0,6	-	1	1,32	
		1	Connection for pipe to Condensate Storage tank	-	"	-	-		-	0,6	-	-	0,12	
		1	Pressure Measurement pipe for LCL30CP001 personal protection, only to the 1st Valve or max. only 0,5m after piping.	01 LCL 30 CP 001	291-0040 014-7501	144	-		30	0,5	-	1	0,12	
		2	Valve	01 LCL 30 AA 101, 102	"	144	127		30	0,6	-	1	1,84	
		1	Pipe to condensate storage tank	01 LCL 30 BR 002	"	144	60,3		30	0,5	-	1	18,85	
		10	Bend		"	144	60,3		30	0,5	-	1	0,80	
		1	Valve	01 LCL 30 AA 001	"	144	60,3		30	0,5	-	1	0,53	

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: II Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: II Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



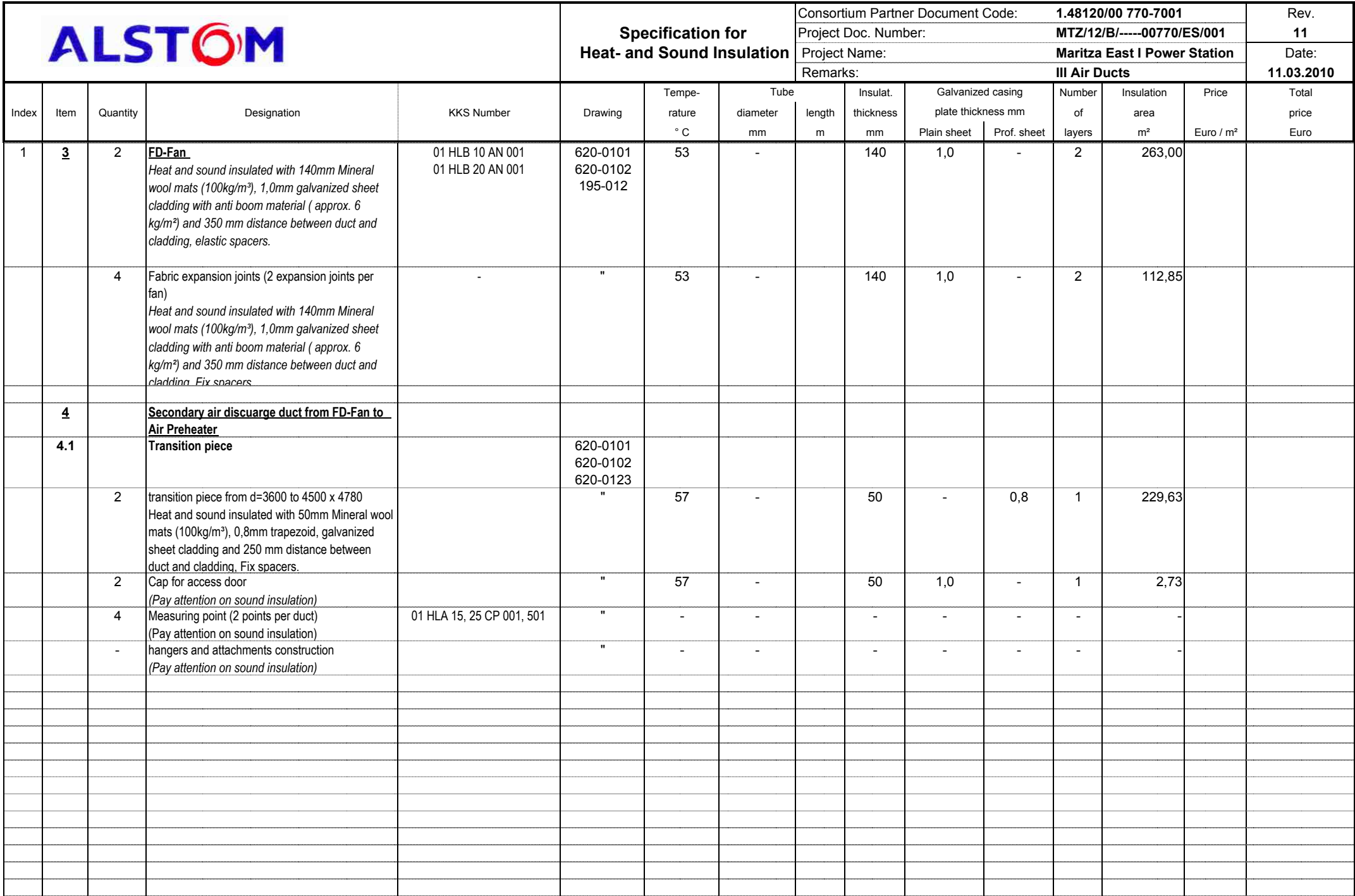
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1</b>		<b>Steam Coil Air Preheater</b>											
		2	(approx. 5.000 x 7.300), at level approx +26.500m	01 HLC 10 01 HLC 20	620-0102 620-0124	25	-		30	-   0,8	1	41,28		
	<b>2</b>	<b>2</b>	<b>Secondary cold air suction duct from SCAPH to FD-Fan</b>											
	<b>2.1</b>		<b>Air duct from SCAPH to Silencer</b>		620-0102 620-0124									
		2	Transition piece from 5.000 x 7.300 to 5.000 x 4.200		"	25	-		30	-   0,8	1	196,00		
		2	steel expansion joints		"	25	-		30	-   0,8	1	42,80		
		2	Vertical duct to approx +17.000m (5.000 x 4.200)		"	25	-		30	-   0,8	1	319,48		
		4	Cap for acces door (2 doors per duct)		"	25	-		30	1,0   -	1	4,89		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		
	<b>2.2</b>	2	<b>Silencer</b> <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding, Fix spacers.</i>		620-0102 620-0124	25	-		50	-   0,8	1	228,48		
	<b>2.3</b>		<b>Air duct from Silencer to FD-Fan</b>		620-0102 620-0124									
		2	Rectangular duct (5.000 x 4.200) <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding, Fix spacers.</i>		"	53	-		50	-   0,8	1	40,80		
		12	Measuring point (6 point per duct) (Pay attention on sound insulation)	01 HLA 14, 24 CP 001, 501 - 503, CT 001, 002	"	-	-		-	-   -	-	-		
		2	connection of hot air recirculation duct		"	327	-		-	-   -	-	-		
		-	hangers and attachments construction (Pay attention on sound insulation)		"	-	-		-	-   -	-	-		
		2	Transition piece from (5.000 x 4.200) to (2.650 x 4.770) <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding, Fix spacers.</i>		"	53	-		50	-   0,8	1	202,08		

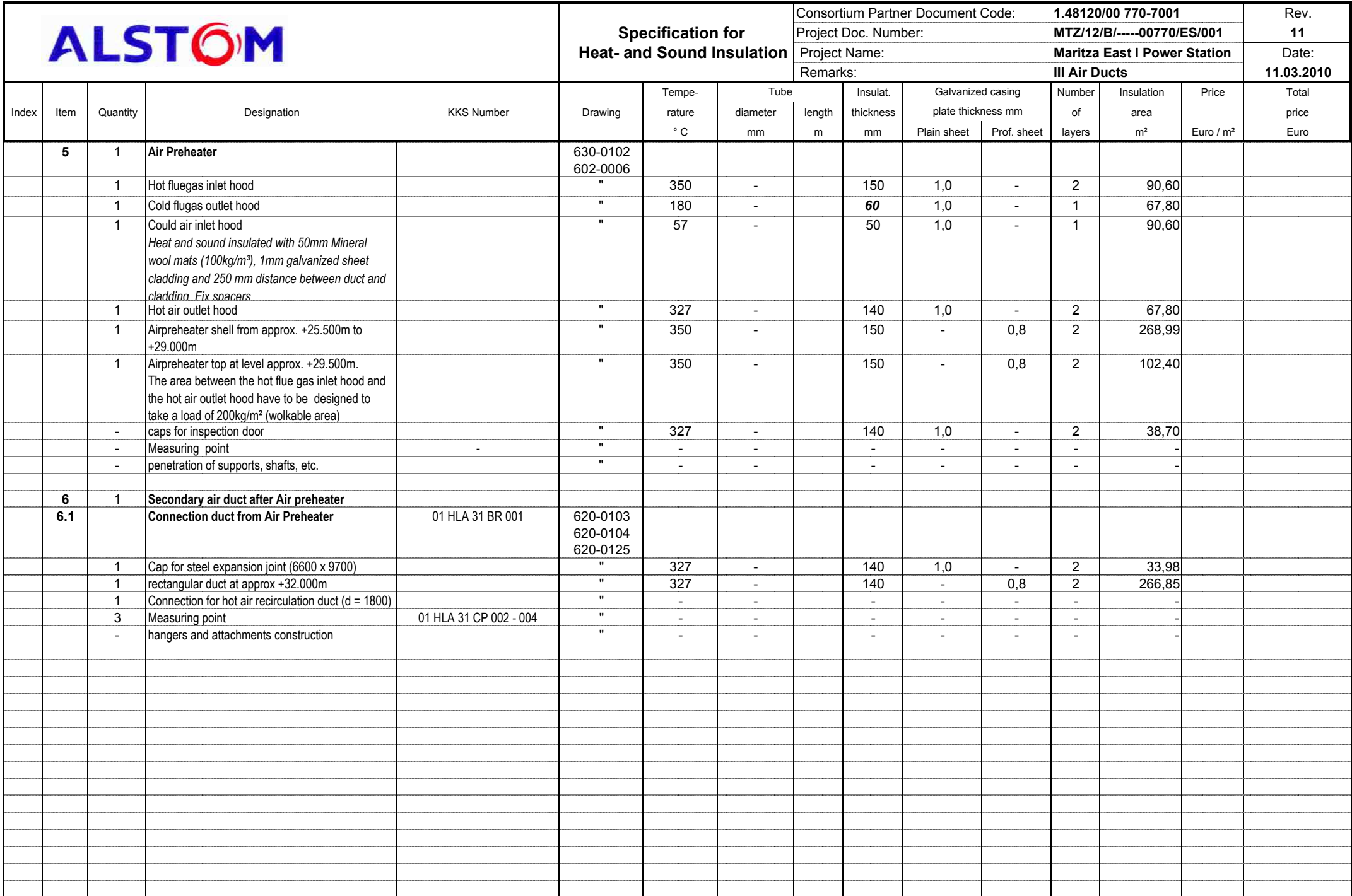



# Specification for Heat- and Sound Insulation

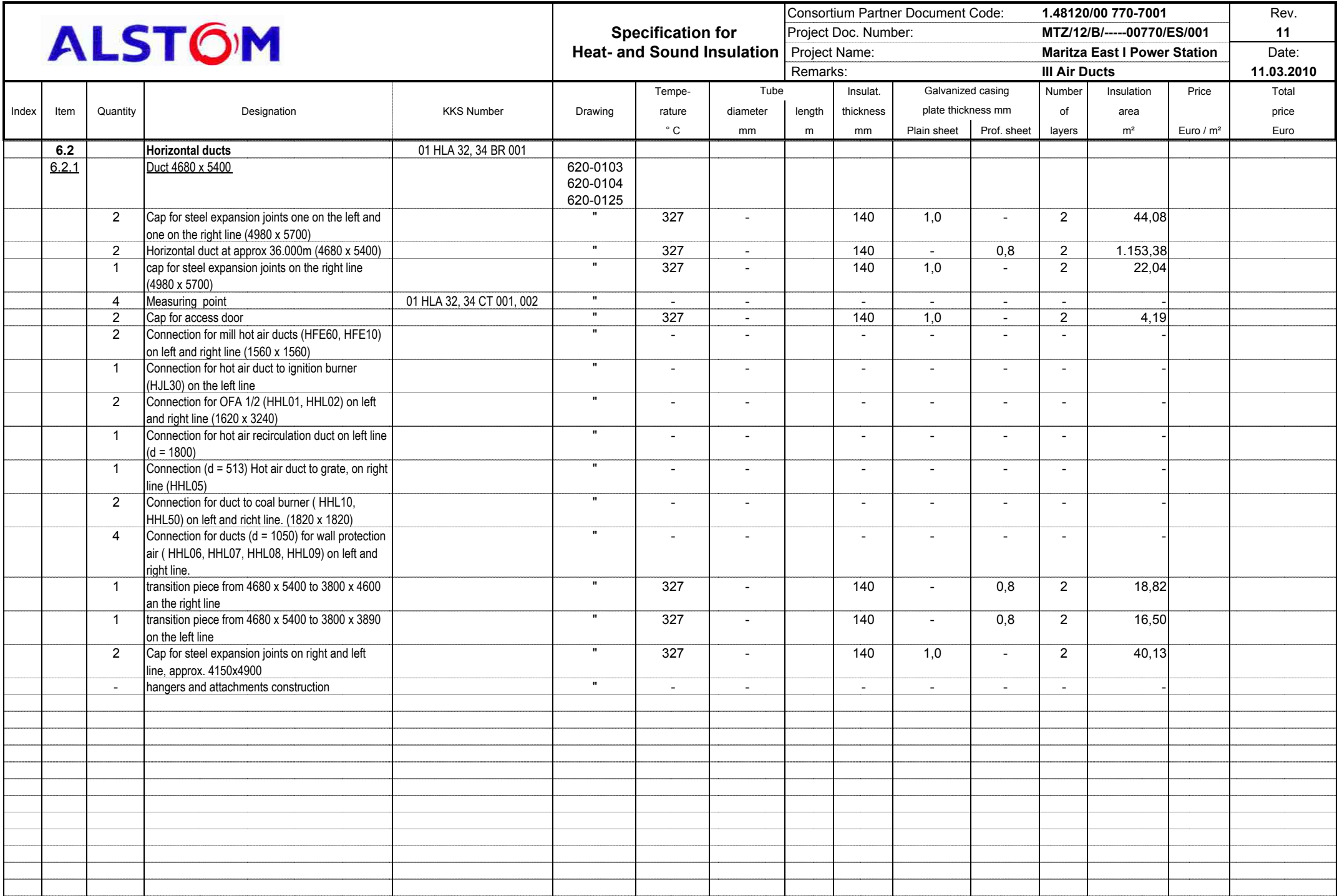
Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**


Rev. **11**  
 Date: **11.03.2010**

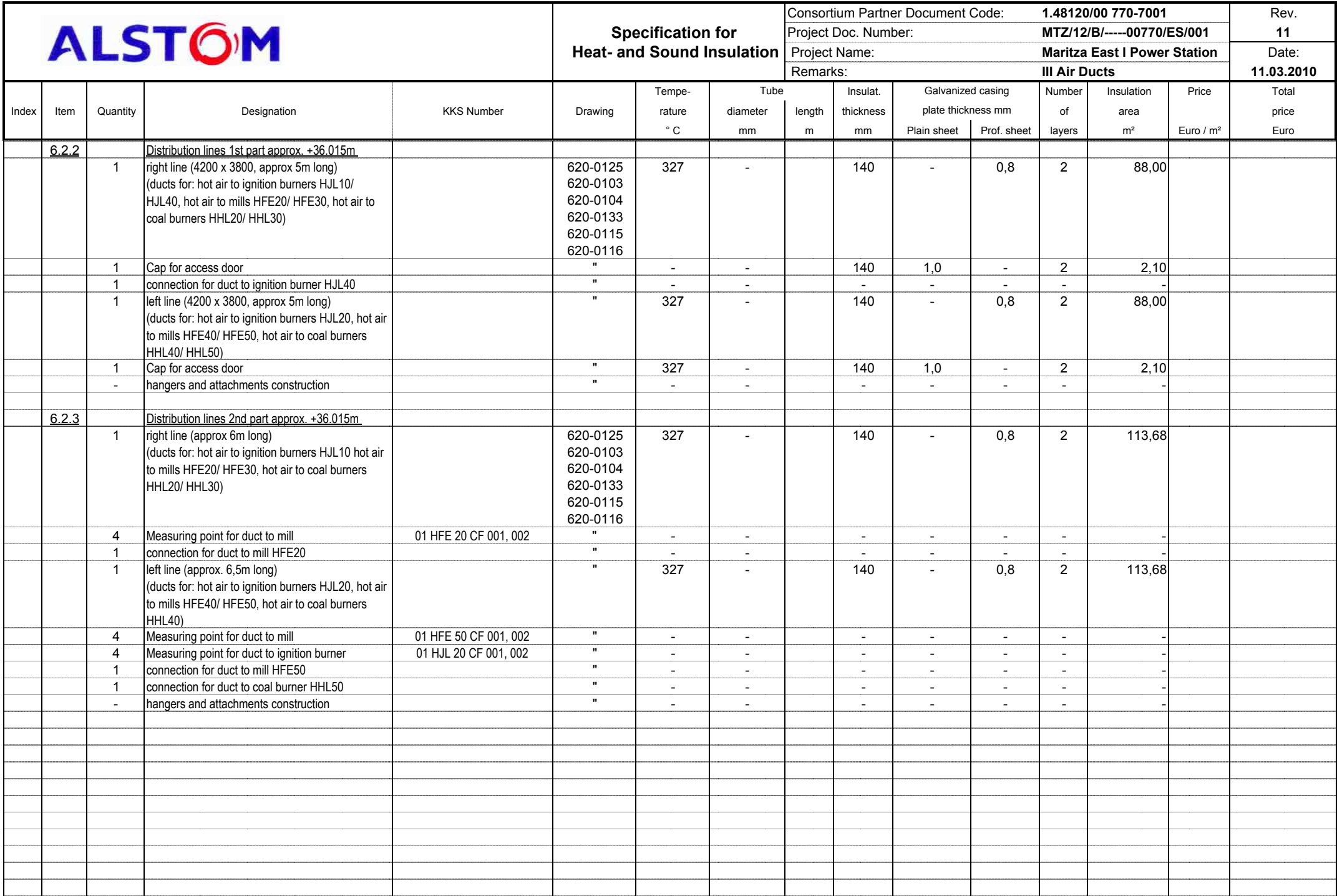
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>4.2</b>		<b>Duct upwards</b>		620-0101 620-0102 620-0123									
		2	duct 4500 x 4780 <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding. Fix spacers.</i>		"	57	-		50	-	0,8	1	637,36	
		2	Insulation cap for damper <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding. Fix spacers.</i>	01 HLA 15, 25 AA 001	"	57	-		50	-	0,8	1	40,80	
		8	Measuring point (4 points per duct) <i>(Pay attention on sound insulation)</i>	01 HLA 15, 25 CT 001, 002, CP 002, 502	"	-	-		-	-	-	-	-	
		-	hangers and attachments construction <i>(Pay attention on sound insulation)</i>		"	-	-		-	-	-	-	-	
	<b>4.3</b>		<b>Air duct to Air Preheater</b>		620-0101 620-0102 620-0123									
		1	duct 9419 x 4780 x 4500 <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding. Fix spacers.</i>	01 HLA 30 BR 001	"	57	-		50	-	0,8	1	144,00	
		2	Ash hopper <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding. Fix spacers.</i>		"	57	-					58,00		
		2	Measuring point <i>(Pay attention on sound insulation)</i>	01 HLA 30 CP 001, 501	"	-	-		-	-	-	-	-	
		1	Cap for access door <i>(Pay attention on sound insulation)</i>		"	57	-		50	-	0,8	1	1,36	
		-	hangers and attachments construction <i>(Pay attention on sound insulation)</i>		"	-	-		-	-	-	-	-	
		1	Fabric expansion joint <i>Heat and sound insulated with 50mm Mineral wool mats (100kg/m³), 0,8mm trapezoid, galvanized sheet cladding and 250 mm distance between duct and cladding. Fix spacers.</i>		"	57	-		50	-	0,8	1	46,76	




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




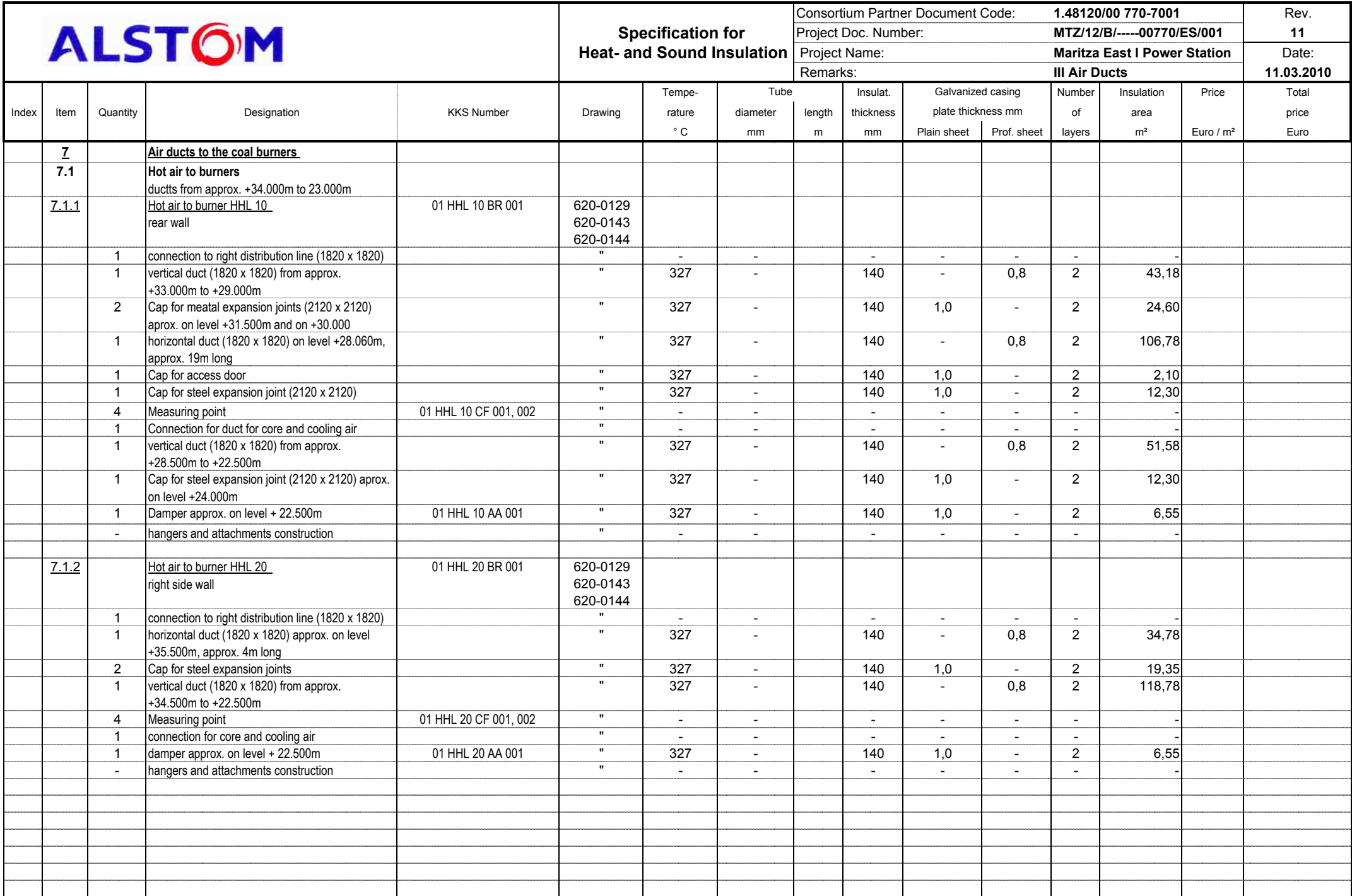
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




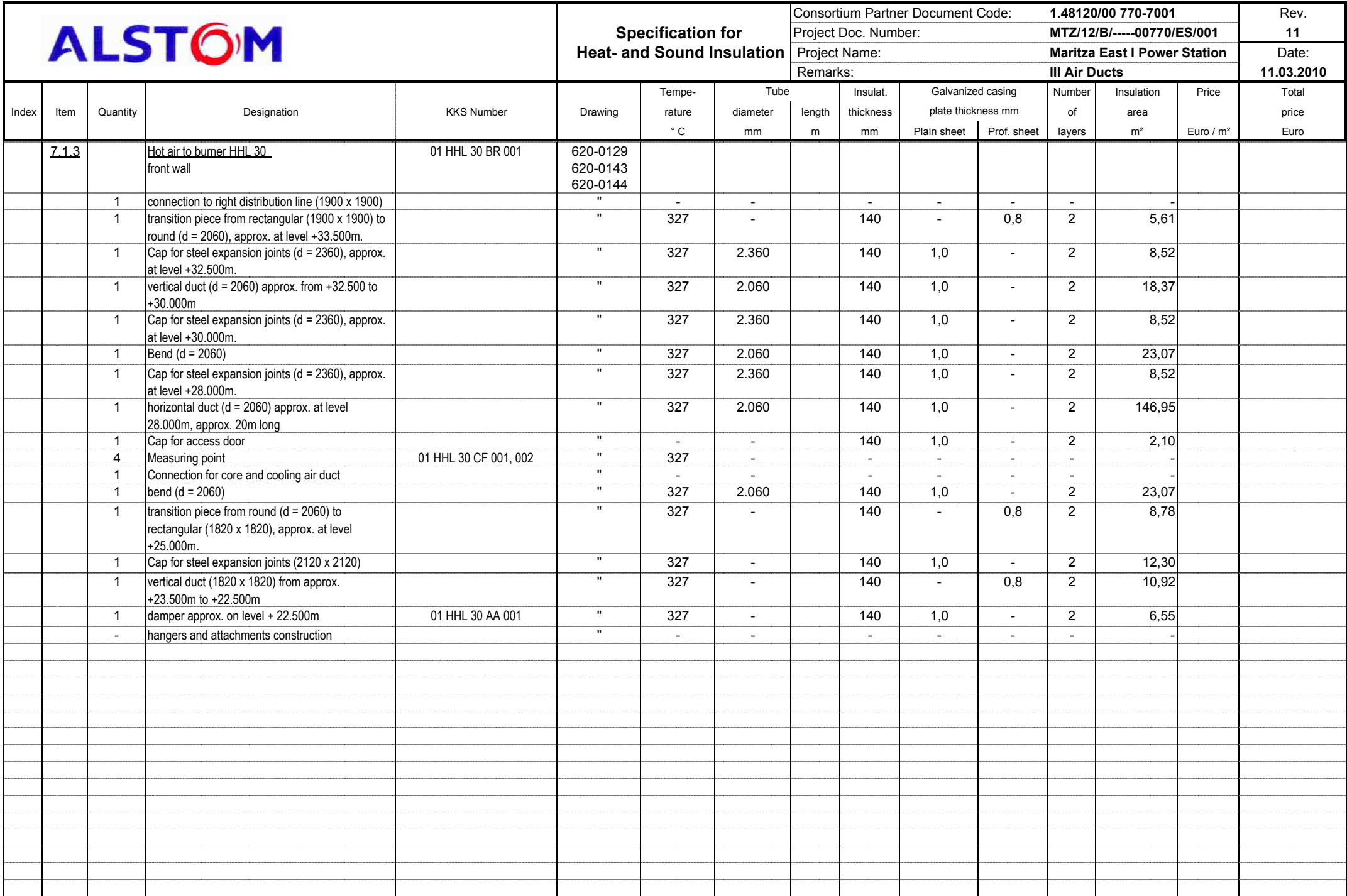
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>6.2.4</b>		<u>Distribution lines 3rd part approx. +36.015m.</u>											
		1	right line (approx. 6m long) (ducts for: hot air to ignition burner HJL10 hot air to mill HFE30, hot air to coal burners HHL20/ HHL30)		"	327	-		140	-   0,8	2	105,12		
		1	Cap for access door for Hot air duct to Coal burner.		"	-	-		140	1,0   -	2	2,10		
		1	Cap for access door for Hot air duct to Ignition burner.		"	-	-		140	1,0   -	2	2,10		
		1	connection for duct to coal burner HHL20		"	-	-		-	-   -	-	-		
		1	left line (1900 x 4600 approx. 8m long) (ducts for: hot air to ignition burner HJL20, hot air to mill HFE40, hot air to coal burner HHL40)		"	327	-		140	-   0,8	2	114,94		
		1	Cap for access door for hot air duct to ignition burner		"	327	-		140	1,0   -	2	2,10		
		1	connection for duct to ignition burner HJL20		"	-	-		-	-   -	-	-		
		1	Cap for damper for hot air to ignition burner	01 HJL 20 AA 001	"	327	-		140	1,0   -	2	11,01		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		
	<b>6.2.5</b>		<u>Distribution lines 4th part approx. +36.015m.</u>											
		1	right line (1900 x 4600 approx 7m long) (ducts for: hot air to ignition burner HJL10 hot air to mill HFE30, hot air to coal burner HHL30)		620-0125 620-0103 620-0104 620-0133 620-0115 620-0116	327	-		140	-   0,8	2	100,82		
		4	Measuring point for duct to mill	01 HFE 30 CF 001, 002	"	-	-		-	-   -	-	-		
		1	connection for duct to ignition burner HJL10		"	-	-		-	-   -	-	-		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		
	<b>6.2.6</b>		<u>Distribution lines 5th part approx. +36.015m.</u>											
		1	right line (1900 x 3180 approx. 6m long) (ducts for: hot air to mill HFE30, hot air to coal burner HHL30)		620-0125 620-0103 620-0104	327	-		140	-   0,8	2	69,26		
		1	Cap for access door		"	-	-		140	1,0   -	2	2,10		
		1	connection for duct to mill HFE30		"	-	-		-	-   -	-	-		
		1	connection for duct to coal burner HHL30		"	-	-		-	-   -	-	-		
		1	left line (1900 x 3180 approx. 10,5m long) (ducts for: hot air to mill HFE40, hot air to coal burner HHL40)		"	327	-		140	-   0,8	2	120,02		
		4	Measuring point for duct to mill	01 HFE 40 CF 001, 002	"	-	-		-	-   -	-	-		
		1	Cap for access door		"	-	-		140	1,0   -	2	2,10		
		1	connection for duct to mill HFE40		"	-	-		-	-   -	-	-		
		1	connection for duct to coal burner HHL40		"	-	-		-	-   -	-	-		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: III Air Ducts						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

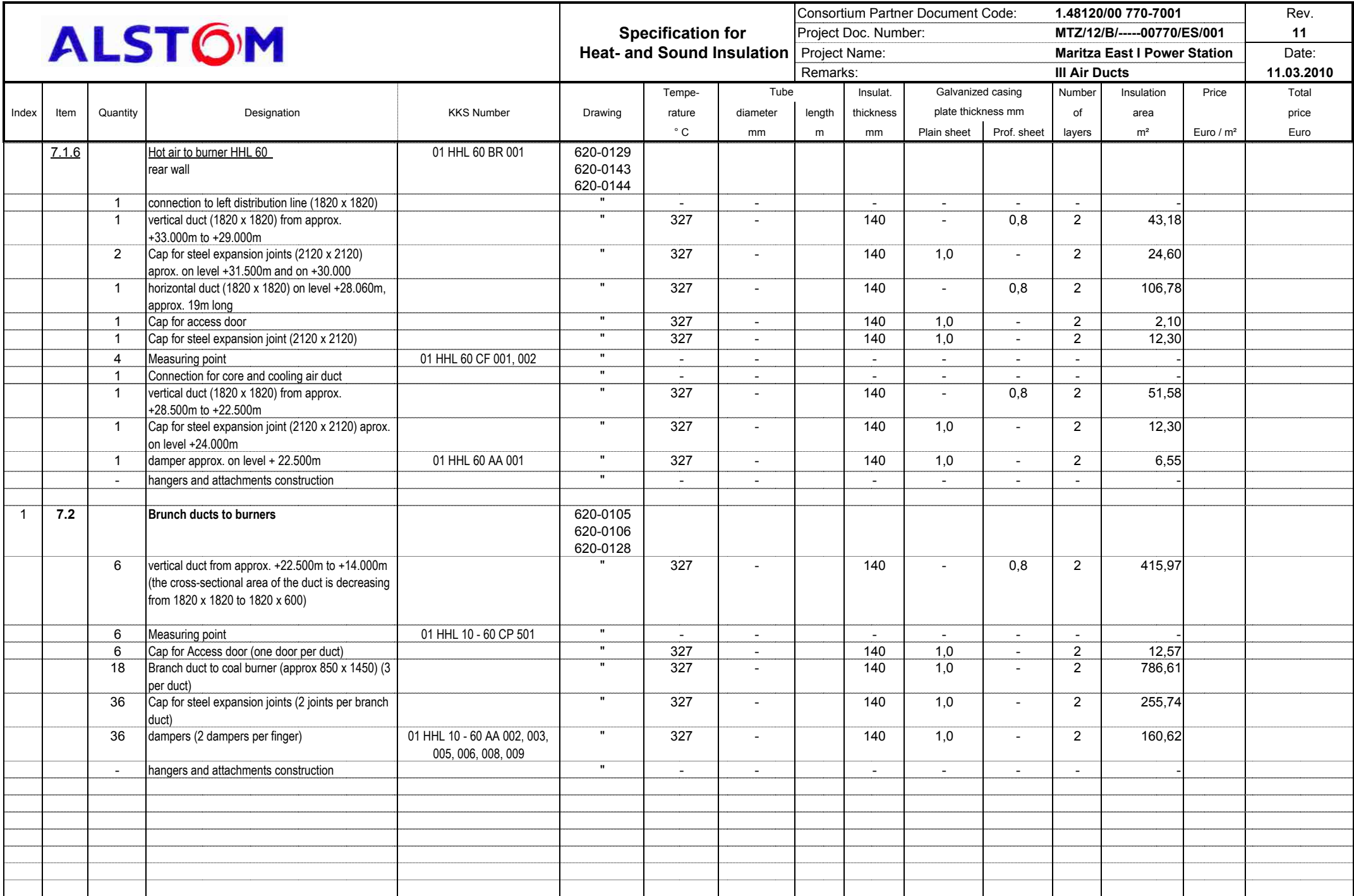
# Specification for Heat- and Sound Insulation

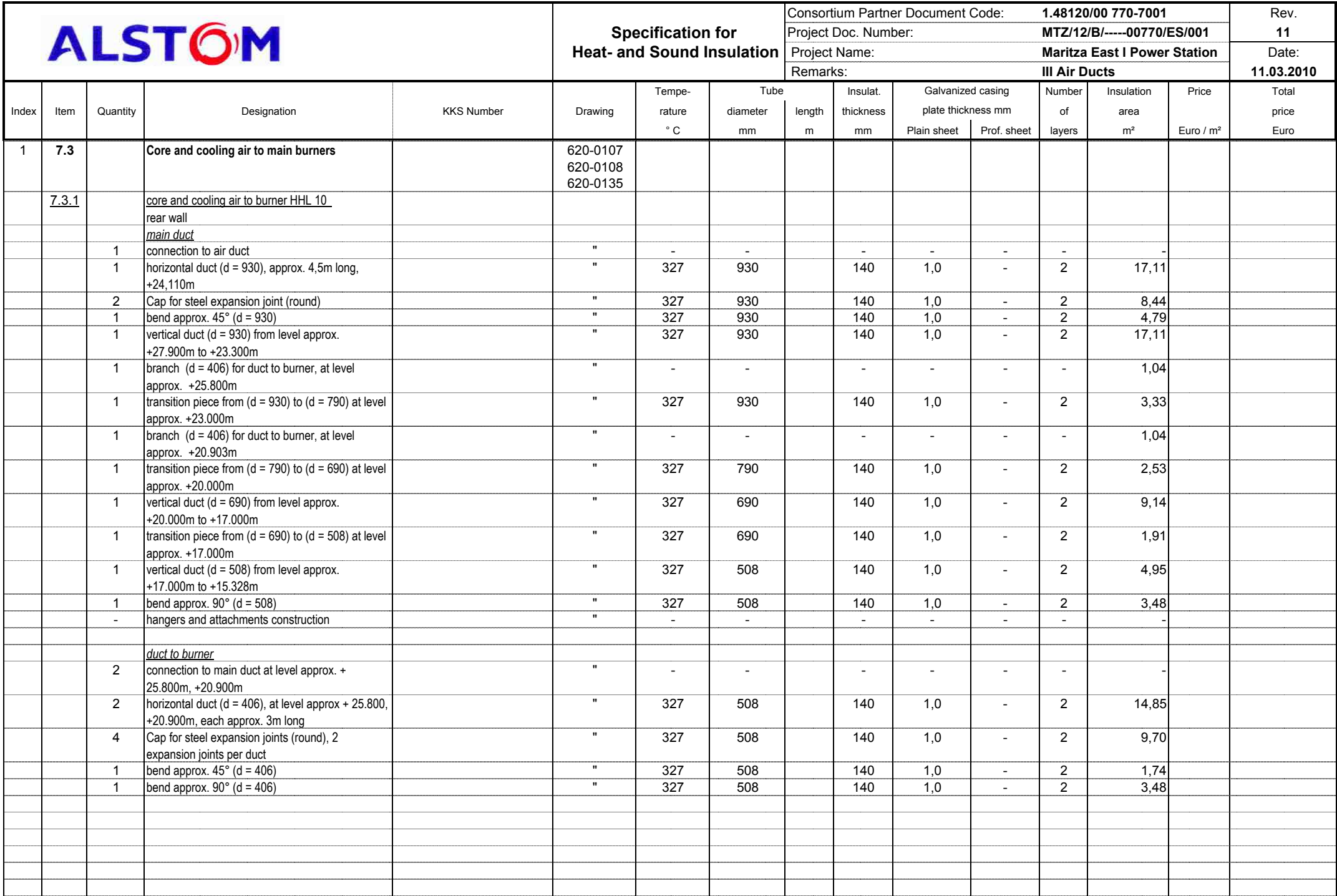
Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**


Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<u>7.1.4</u>		Hot air to burner HHL 40 front wall	01 HHL 40 BR 001	620-0129 620-0143 620-0144									
		1	connection to left distribution line (1900 x 1900)		"	-	-		-	-	-	-		
		1	transition piece from rectangular (1900 x 1900) to round (d = 2060), approx. at level +33.500m.		"	327	-		140	-	0,8	2	5,61	
		1	Cap for steel expansion joints (d = 2360), approx. at level +32.500m.		"	327	2.360		140	1,0	-	2	8,52	
		1	vertical duct (d = 2060) approx. from +32.500 to +30.000m		"	327	2.060		140	1,0	-	2	18,37	
		1	Cap for steel expansion joints (d = 2360), approx. at level +30.000m.		"	327	2.360		140	1,0	-	2	8,52	
		1	bend (d = 2060)		"	327	2.060		140	1,0	-	2	23,07	
		1	Cap for steel expansion joints (d = 2360), approx. at level +28.000m.		"	327	2.360		140	1,0	-	2	8,52	
		1	horizontal duct (d = 2060) approx. at level 28.000m, approx. 20m long		"	327	2.060		140	1,0	-	2	146,95	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		4	Measuring point	01 HHL 40 CF 001, 002	"	-	-		-	-	-	-		
		1	Connection for core and cooling air duct		"	-	-		-	-	-	-		
		1	bend (d = 2060)		"	327	2.060		140	1,0	-	2	23,07	
		1	transition piece from round (d = 2060) to rectangular (1820 x 1820), approx. at level +25.000m.		"	327	-		140	-	0,8	2	8,78	
		1	Cap for steel expansion joints (2120 x 2120)		"	327	-		140	1,0	-	2	12,30	
		1	vertical duct (1820 x 1820) from approx. +23.500m to +22.500m		"	327	-		140	-	0,8	2	10,92	
		1	damper approx. on level + 22.500m	01 HHL 40 AA 001	"	327	-		140	1,0	-	2	6,55	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<u>7.1.5</u>		Hot air to burner HHL 50 left side wall	01 HHL 50 BR 001	620-0129 620-0143 620-0144									
		1	connection to right distribution line (1820 x 1820)		"	-	-		-	-	-	-		
		1	horizontal duct (1820 x 1820) approx. on level +35.500m, approx. 4m long		"	327	-		140	-	0,8	2	34,78	
		2	Cap for meatal expansion joints		"	327	-		140	1,0	-	2	19,35	
		1	vertical duct (1820 x 1820) from approx. +34.500m to +22.500m		"	327	-		140	-	0,8	2	118,78	
		4	Measuring point	01 HHL 50 CF 001, 002	"	-	-		-	-	-	-		
		1	connection for core and cooling air		"	-	-		-	-	-	-		
		1	damper approx. on level + 22.500m	01 HHL 50 AA 001	"	327	-		140	1,0	-	2	6,55	
		-	hangers and attachments construction		"	-	-		-	-	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				






					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
1	7.3.1	1	damper (round)	01 HHL 10 AA 010	620-0107 620-0108 620-0135	327	508		140	1,0   -	2	2,43		
		1	transition piece from round (d = 406) to rectangular		"	327	-		140	1,0   -	2	3,47		
		1	connection to main duct at level approx. + 17,988m		"	-	-		-	-   -	-	-		
		2	horizontal duct (d = 508), at level approx. +17.988m and 15.328m, approx. 3m long		"	327	406		140	1,0   -	2	12,94		
		2	Cap for steel expansion joints (round)		"	327	406		140	1,0   -	2	4,24		
		2	damper (round)	01 HHL 10 AA 004, 007	"							4,24		
		2	bend approx. 45° (d = 508)		"	327	406		140	1,0   -	2	2,52		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		
	7.3.2		core and cooling air to burner HHL 20 right side wall		620-0107 620-0108 620-0135									
			main duct		"									
		1	connection to air duct		"	-	-		-	-   -	-	-		
		1	horizontal duct (d = 930), approx. 7m long, +24,110 m		"	327	930		140	1,0   -	2	26,61		
		1	bend approx. 90° (d = 930)		"	327	930		140	1,0   -	2	9,58		
		2	Cap for steel expansion joint (round)		"	327	930		140	1,0   -	2	8,44		
		1	bend 90° (d = 930)		"	327	930		140	1,0   -	2	9,58		
		1	branch (d = 406) for duct to burner, at level approx. +25.800m		"	-	-		-	-   -	-	1,04		
		1	transition piece from (d = 930) to (d = 790) at level approx. +23.000m		"	327	930		140	1,0   -	2	3,33		
		1	vertical duct (d = 790) from level approx. +22.500m to +20.000m		"	327	790		140	1,0   -	2	10,08		
		1	branch (d = 406) for duct to burner, at level approx. +20.903m		"	-	-		-	-   -	-	1,04		
		1	transition piece from (d = 790) to (d = 690) at level approx. +20.000m		"	327	790		140	1,0   -	2	2,53		
		1	vertical duct (d = 690) from level approx. +19.500m to +17.000m		"	327	690		140	1,0   -	2	9,14		
		1	branch (d = 508) for duct to burner, at level approx. +17.988m		"	-	-		-	-   -	-	1,35		
		1	transition piece from (d = 690) to (d = 508) at level approx. +17.000m		"	327	690		140	1,0   -	2	1,91		
		1	vertical duct (d = 508) from level approx. +17.000m to +15.328m		"	327	508		140	1,0   -	2	4,95		
		1	bend approx. 90° (d = 508)		"	327	508		140	1,0   -	2	3,48		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	7.3.2		<u>duct to burner</u>		620-0107 620-0108 620-0135									
		2	connection to main duct at level approx. + 25.800m and +20.903m		"	-	-		-	-	-	-		
		2	duct (d = 406), at level approx. + 25.800m and +20.903m, each approx. 3m long		"	327	508		140	1,0	-	2	14,85	
		4	Cap for steel expansion joints (round), 2 expansion joints per duct		"	327	508		140	1,0	-	2	19,40	
		1	bend approx. 45° (d = 406)		"	327	508		140	1,0	-	2	1,74	
		2	bend approx. 90° (d = 406)		"	327	508		140	1,0	-	2	6,95	
		1	damper (round)	01 HHL 20 AA 010	"	327	508		140	1,0	-	2	2,43	
		1	transition piece from round (d = 406) to connection to main duct at level approx. +		"	327	-		140	1,0	-	2	3,47	
		2	horizontal duct (d = 508), at level approx. +17.988m and 15.328m, approx. 3m long		"	-	-		-	-	-	-		
		2	horizontal duct (d = 508), at level approx. +17.988m and 15.328m, approx. 3m long		"	327	406		140	1,0	-	2	12,93	
		4	Cap for steel expansion joints (round)		"	327	406		140	1,0	-	2	8,48	
		2	damper	01 HHL 20 AA 004, 007	"								4,85	
		2	bend approx. 45° (d = 508)		"	327	406		140	1,0	-	2	2,52	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	7.3.3		<u>core and cooling air to burner HHL 30 front wall</u>											
			<u>main duct</u>		620-0107 620-0108 620-0135									
		1	connection to air duct		"	-	-		-	-	-	-		
		1	horizontal duct (d = 930), approx. 7m long		"	327	930		140	1,0	-	2	26,61	
		2	Cap for steel expansion joint (round)		"	327	930		140	1,0	-	2	8,44	
		2	bend approx. 45° (d = 930)		"	327	930		140	1,0	-	2	9,58	
		1	bend 90° (d = 930)		"	327	930		140	1,0	-	2	9,58	
		1	vertical duct (d = 930) from level approx. +27.900m to +23.000m		"	327	930		140	1,0	-	2	15,21	
		1	branch (d = 406) for duct to burner, at level approx. +25.800m		"	-	-		-	-	-	-	1,04	
		1	transition piece from (d = 930) to (d = 790) at level approx. +23.000m		"	327	930		140	1,0	-	2	3,33	
		1	vertical duct (d = 790) from level approx. +22.500m to +20.500m		"	327	790		140	1,0	-	2	10,08	
		1	branch (d = 406) for duct to burner, at level approx. +20.903m		"	-	-		-	-	-	-	1,04	
		1	transition piece from (d = 790) to (d = 690) at level approx. +20.000m		"	327	790		140	1,0	-	2	2,53	


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet	Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	7.3.3	1	vertical duct (d = 690) from level approx. +20.000m to +17.000m		620-0107 620-0108 620-0135	327	690		140	1,0	-	2	9,14		
		1	brunch (d = 508) for duct to burner, at level approx. +17.988m		"	-	-		-	-	-	-	1,35		
		1	transition piece from (d = 690) to (d = 508) at level approx. +17.000m		"	327	690		140	1,0	-	2	1,91		
		1	vertical duct (d = 508) from level approx. +17.000m to +15.328m		"	327	508		140	1,0	-	2	4,95		
		1	bend approx. 90° (d = 508)		"	327	508		140	1,0	-	2	3,48		
		-	hangers and attachments construction		"	-	-		-	-	-	-	-		
			<u>duct to burner</u>		620-0107 620-0108 620-0135										
		2	connection to main duct at level approx. + 25.800m and +20.903m		"	-	-		-	-	-	-	-		
		2	horizontal duct (d = 406), at level approx + 25.800m and +20.903m, each approx. 3m long		"	327	508		140	1,0	-	2	14,85		
		4	Cap for steel expansion joints (round), 2 expansion joints per duct		"	327	508		140	1,0	-	2	38,80		
		1	bend approx. 45° (d = 406)		"	327	508		140	1,0	-	2	1,74		
		1	bend approx. 90° (d = 406)		"	327	508		140	1,0	-	2	3,48		
		1	damper (round)	01 HHL 30 AA 010	"	327	508		140	1,0	-	2	2,43		
		1	transition piece from round (d = 406) to		"	327	-		140	1,0	-	2	6,95		
		1	connection to main duct at level approx. +		"	-	-		-	-	-	-	-		
		2	horizontal duct (d = 508), at level approx +17.988m and +15.328m, approx. 3m long		"	327	406		140	1,0	-	2	12,93		
		4	Cap for steel expansion joints (round)		"	327	406		140	1,0	-	2	8,48		
		2	bend approx. 45° (d = 508)		"	327	406		140	1,0	-	2	2,52		
		2	damper (round)	01 HHL 30 AA 004, 007	"	327	508		140	1,0	-	2	4,85		
		-	hangers and attachments construction		"	-	-		-	-	-	-	-		
	7.3.4		<u>core and cooling air to burner HHL 40 rear wall</u>												
			<u>main duct</u>		620-0107 620-0108 620-0135										
		1	connection to air duct		"	-	-		-	-	-	-	-		
		1	horizontal duct (d = 930), approx. 4,5m long		"	327	930		140	1,0	-	2	17,11		
		2	Cap for steel expansion joint (round)		"	327	930		140	1,0	-	2	8,44		
		1	bend approx. 45° (d = 930)		"	327	930		140	1,0	-	2	4,79		
		1	bend 90° (d = 930)		"	327	930		140	1,0	-	2	9,58		
		1	vertical duct (d = 930) from level approx. +27.900m to +23.000m		"	327	930		140	1,0	-	2	15,21		


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	7.3.4	1	branch (d = 406) for duct to burner, at level approx. +25.800m		620-0107 620-0108 620-0135	-	-		-	-	-	1,04		
		1	transition piece from (d = 930) to (d = 790) at level approx. +23.000m		"	327	930		140	1,0	-	2	3,33	
		1	vertical duct (d = 790) from level approx. +22.500m to +20.500m		"	327	790		140	1,0	-	2	10,08	
		1	branch (d = 406) for duct to burner, at level approx. +20.903m		"	-	-		-	-	-	1,04		
		1	transition piece from (d = 790) to (d = 690) at level approx. +20.000m		"	327	790		140	1,0	-	2	2,53	
		1	vertical duct (d = 690) from level approx. +20.000m to +17.000m		"	327	690		140	1,0	-	2	9,14	
		1	branch (d = 508) for duct to burner, at level approx. +17.988m		"	-	-		-	-	-	1,35		
		1	transition piece from (d = 690) to (d = 508) at level approx. +17.000m		"	327	690		140	1,0	-	2	1,91	
		1	vertical duct (d = 508) from level approx. +17.000m to +15.328m		"	327	508		140	1,0	-	2	7,43	
		1	bend approx. 90° (d = 508)		"	327	508		140	1,0	-	2	3,48	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
			<u>duct to burner</u>		620-0107 620-0108 620-0135									
		2	connection to main duct at level approx. + 25.800 and +20.903m		"	-	-		-	-	-	-		
		2	horizontal duct (d = 406), at level approx + 25.800m, and +20.903m, each approx. 3m long		"	327	508		140	1,0	-	2	14,85	
		4	Cap for steel expansion joints (round), 2 expansion joints per duct		"	327	508		140	1,0	-	2	77,60	
		1	bend approx. 45° (d = 406)		"	327	508		140	1,0	-	2	1,74	
		1	bend approx. 90° (d = 406)		"	327	508		140	1,0	-	2	3,48	
		1	damper (round)	01 HHL 40 AA 010	"	327	508		140	1,0	-	2	2,43	
		1	transition piece from round (d = 406) to rectangular		"	327	-		140	1,0	-	2	6,95	
		1	connection to main duct at level approx. +		"	-	-		-	-	-	-		
		2	horizontal duct (d = 508), at level approx +17.988m and +15.328m, approx. 3m long		"	327	406		140	1,0	-	2	12,93	
		4	Cap for steel expansion joints (round)		"	327	406		140	1,0	-	2	8,48	
		2	bend approx. 45° (d = 508)		"	327	406		140	1,0	-	2	2,52	
		2	damper (round)	01 HHL 40 AA 004, 007	"	327	508		140	1,0	-	2	4,85	
		-	hangers and attachments construction		"	-	-		-	-	-	-		


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

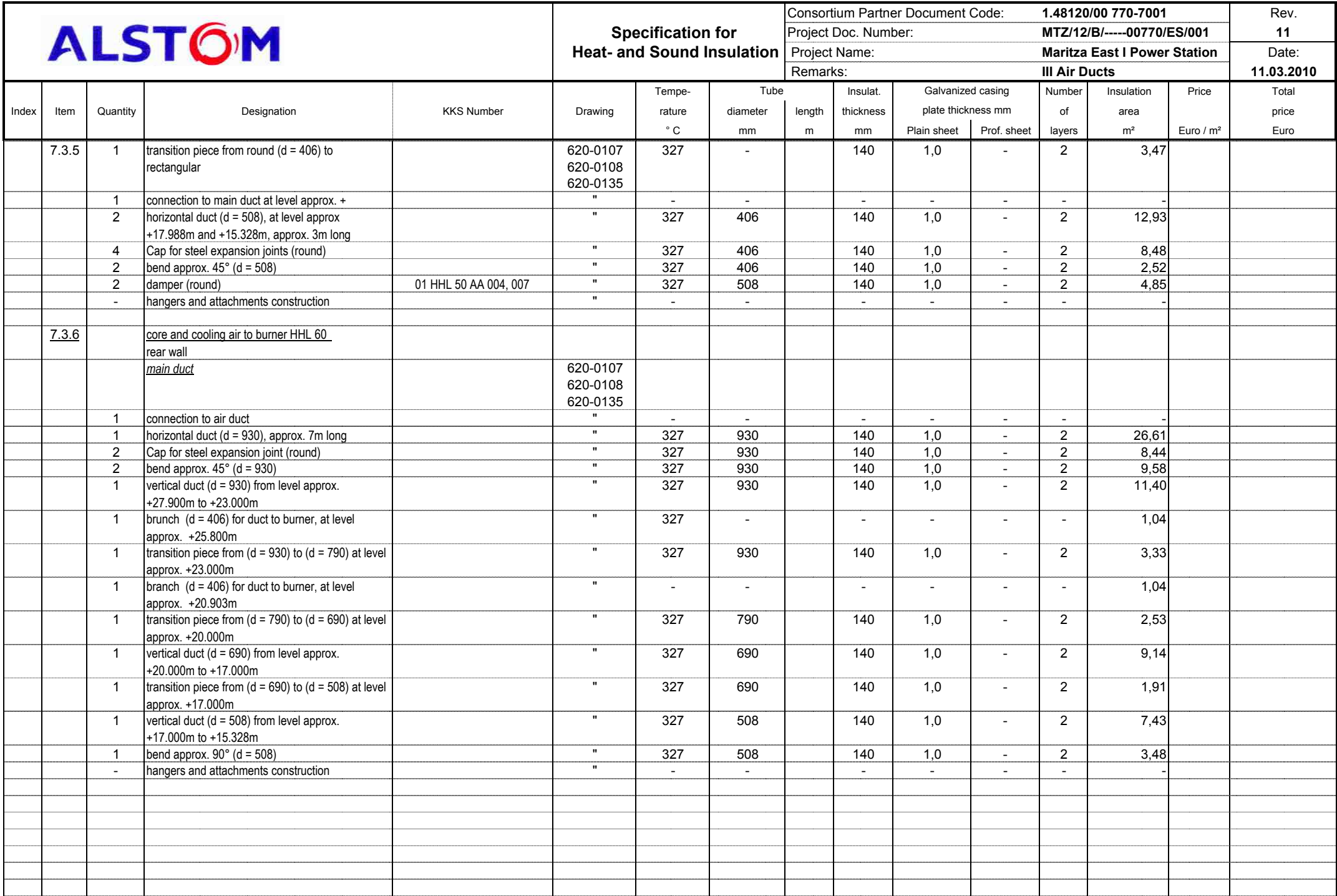
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

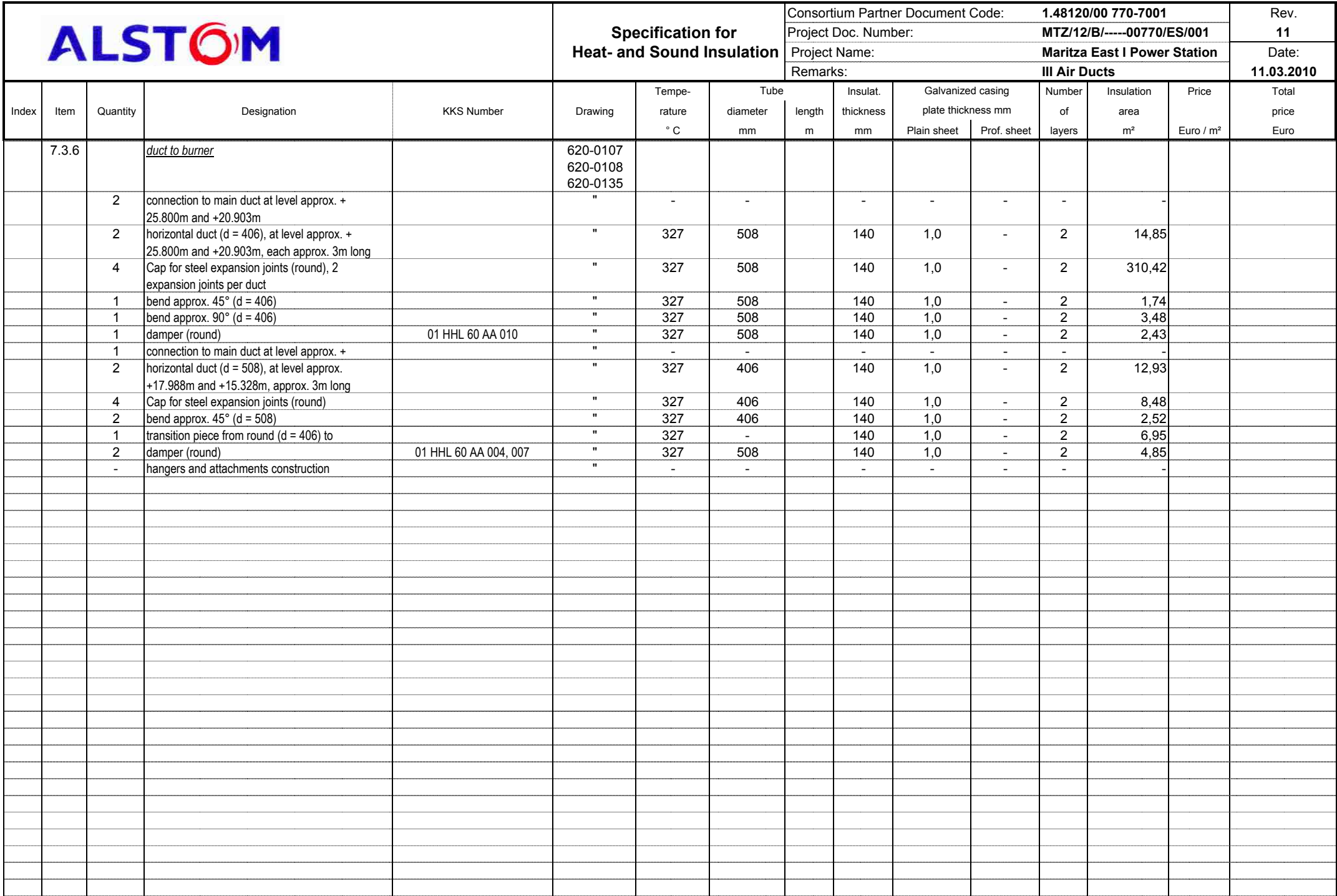
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<u>7.3.5</u>		core and cooling air to burner HHL 50 left side wall											
			<u>main duct</u>		620-0107 620-0108 620-0135									
		1	connection to air duct		"	-	-		-	-	-	-		
		1	horizontal duct (d = 930), approx. 7m long		"	327	930		140	1,0	-	2	26,61	
		1	bend approx. 90° (d = 930)		"	327	930		140	1,0	-	2	9,58	
		2	Cap for steel expansion joint (round)		"	327	930		140	1,0	-	2	8,44	
		1	bend 90° (d = 930)		"	327	930		140	1,0	-	2	9,58	
		1	branch (d = 406) for duct to burner, at level approx. +25.800m		"	327	930		140	1,0	-	2	1,04	
		1	transition piece from (d = 930) to (d = 790) at level approx. +23.000m		"	327	930		140	1,0	-	2	3,33	
		1	vertical duct (d = 790) from level approx. +22.500m to +20.000m		"	327	790		140	1,0	-	2	10,08	
		1	brunch (d = 406) for duct to burner, at level approx. +20.903m		"	-	-		-	-	-	-	1,04	
		1	transition piece from (d = 790) to (d = 690) at level approx. +20.000m		"	327	790		140	1,0	-	2	2,53	
		1	vertical duct (d = 690) from level approx. +19.500m to +17.000m		"	327	690		140	1,0	-	2	9,14	
		1	brunch (d = 508) for duct to burner, at level approx. +17.988m		"	-	-		-	-	-	-	1,35	
		1	transition piece from (d = 690) to (d = 508) at level approx. +17.000m		"	327	690		140	1,0	-	2	1,91	
		1	vertical duct (d = 508) from level approx. +17.000m to +15.328m		"	327	508		140	1,0	-	2	4,95	
		1	bend approx. 90° (d = 508)		"	327	508		140	1,0	-	2	3,48	
		-	hangers and attachments construction		"	-	-		-	-	-	-	-	
			<u>duct to burner</u>		620-0107 620-0108 620-0135									
		2	connection to main duct at level approx. + 25.800m and +20.903m		"	-	-		-	-	-	-		
		2	horizontal duct (d = 406), at level approx. + 25.800m and +20.903m, each approx. 3m long		"	327	508		140	1,0	-	2	14,85	
		4	Cap for steel expansion joints (round), 2 expansion joints per duct		"	327	508		140	1,0	-	2	155,21	
		1	bend approx. 45° (d = 406)		"	327	508		140	1,0	-	2	1,74	
		1	bend approx. 90° (d = 406)		"	327	508		140	1,0	-	2	3,48	
		1	damper (round)	01 HHL 50 AA 010	"	327	508		140	1,0	-	2	2,43	

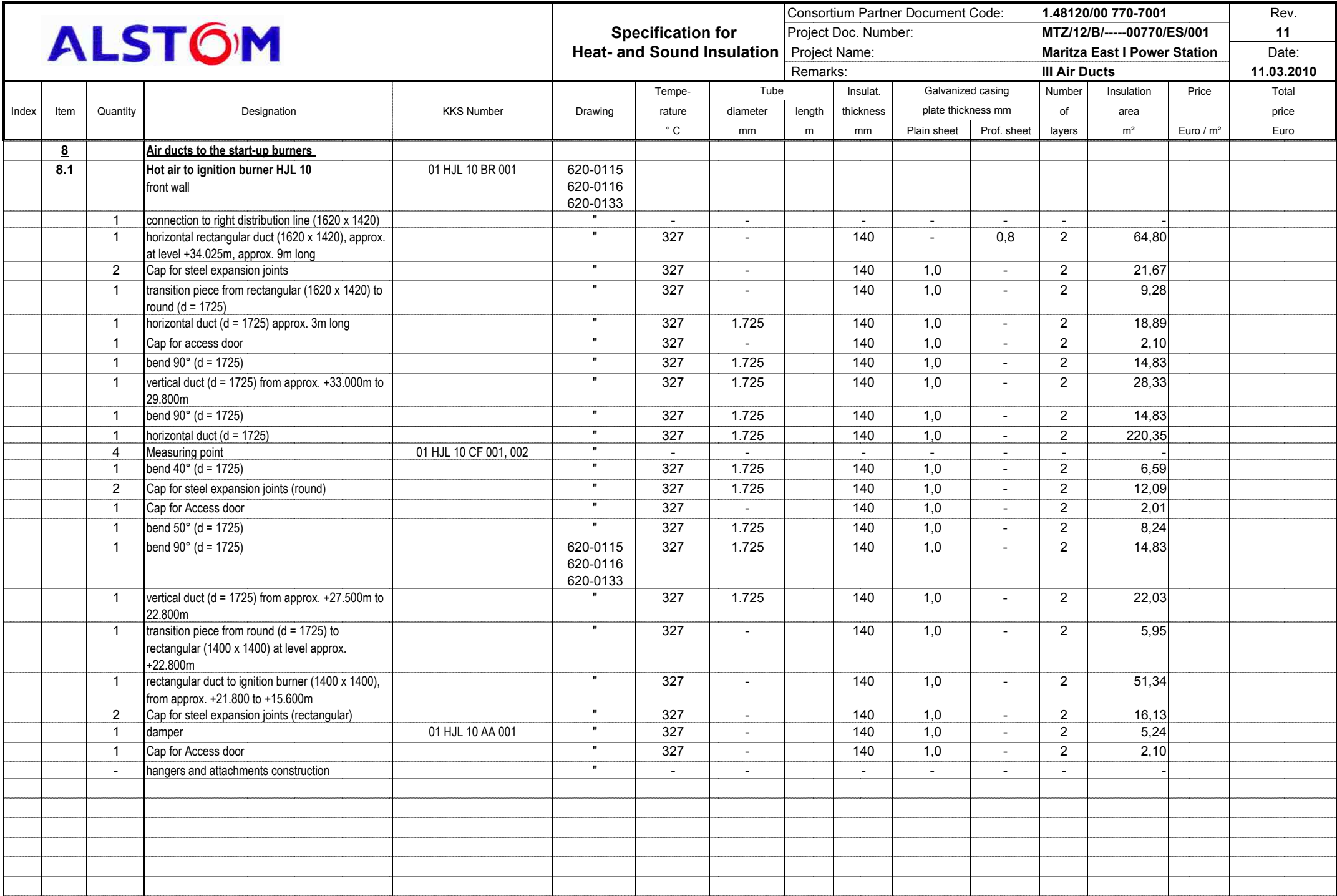
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>8.2</b>		<b>Hot air to ignition burner HJL 20</b> left side wall	01 HJL 20 BR 001	620-0115 620-0116 620-0133									
		1	connection to left distribution line (1620 x 1420)		"	-	-		-	-	-	-		
		1	transition piece from rectangular (1620 x 1420) to round (d = 1725)		"	327	-		140	1,0	-	2	9,28	
		1	horizontal duct (d = 1725) approx. 3m long		"	327	1.725		140	1,0	-	2	18,89	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		2	Cap for steel expansion joints (round)		"	327	1.725		140	1,0	-	2	12,09	
		1	bend 90° (d = 1725)		"	327	1.725		140	1,0	-	2	14,83	
		1	vertical duct (d = 1725) from approx. +27.500m to 20.000m		"	327	1.725		140	1,0	-	2	94,44	
		1	bend 90° (d = 1725)		"	327	1.725		140	1,0	-	2	14,83	
		1	horizontal duct (d = 1725) at level approx. +19.000m approx. 4m long		"	327	1.725		140	1,0	-	2	25,18	
		1	bend 90° (d = 1725)		"	327	1.725		140	1,0	-	2	14,83	
		1	transition piece from round (d = 1725) to rectangular (1400 x 1400) at level approx. +17.500m		"	327	-		140	1,0	-	2	5,95	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>8.3</b>		<b>Hot air to ignition burner HJL 30</b> rear wall	01 HJL 30 BR 001	620-0115 620-0116 620-0133									
		1	connection to left distribution line (1620 x 1620)		"	-	-		-	-	-	-		
		1	transition piece from (1620 x 1620) to (1420 x 1620) / bend		"	327	-		140	-	0,8	2	21,60	
		1	vertical duct (1420 x 1620) from approx. +33.000m to 29.500m		"	327	-		140	-	0,8	2	37,01	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,05	
		1	horizontal duct (1420 x 1620) at level approx. +28.600m		"	327	-		140	-	0,8	2	159,41	
		1	Cap for Access door		"	327	-		140	1,0	-	2	2,10	
		4	Measuring point	01 HJL 30 CF 001, 002	"	-	-		-	-	-	-		
		1	vertical duct (1420 x 1620) from approx. +29.000m to 15.600m		"	327	-		140	-	0,8	2	65,81	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,05	
		1	damper	01 HJL 30 AA 001	"	327	-		140	1,0	-	2	5,62	
		1	Cap for Access door		"	327	-		140	1,0	-	2	2,10	
		-	hangers and attachments construction		"	-	-		-	-	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>8.4</b>		<b>Hot air to ignition burner HJL 40</b> right side wall	01 HJL 40 BR 001	620-0115 620-0116 620-0133									
		1	connection to right distribution line (1620 x 1420)		"	-	-		-	-	-	-		
		1	transition piece from (1900 x 1420) to (1420 x 1620)		"	327	-		140	-	0,8	2	7,20	
		1	horizontal duct (1420 x 1620) at level approx. +34.025m		"	327	-		140	-	0,8	2	58,61	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,05	
		1	vertical duct (1420 x 1620) from approx. +33.500m to 19.500m		"	327	-		140	-	0,8	2	47,81	
		4	Measuring point	01 HJL 40 CF 001, 002	"	-	-		-	-	-	-		
		1	Cap for access door		"	-	-		140	1,0	-	2	2,10	
		1	damper at approx +22.500m	01 HJL 40 AA 001	"	327	-		140	1,0	-	2	5,62	
		1	horizontal duct (1420 x 1620) at level approx. +19.000m		"	327	-		140	-	0,8	2	51,41	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,05	
		1	vertical duct (1420 x 1620) from approx. +19.000m to 15.600m		"	327	-		140	-	0,8	2	44,21	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>9</b>		<b>Air duct to mills</b>											
	<b>9.1</b>		<b>Hot air to mill (HFE10)</b> rear wall	01 HFE 10 BR 001	620-0117 620-0118 620-0130									
		1	connection to right distribution line (1560 x 1560)		"	-	-		-	-	-	-		
		1	vertical duct (1560 x 1560) from approx. +38.700m to 42.780m		"	327	-		140	-	0,8	2	34,15	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,36	
		1	horizontal duct (1560 x 1560) at level approx. +42.780m		"	327	-		140	-	0,8	2	280,71	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		4	Measuring point	01 HFE 10 CF 001, 002	"	-	-		140	-	-	2	-	
		1	damper	01 HFE 10 AA 001	"	327	-		140	1,0	-	2	5,74	
		2	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	17,36	
		2	ducts to flue gas resuction duct head (780 x		"	327	-		140	-	0,8	2	111,82	
		2	fabric expansion joints (rectangular) without Insulation & protection		"	327	-							
		1	Primary Air wind box		620-0137	327	-		140	1,0	-	2	10,00	
		-	hangers and attachments construction		"	-	-		-	-	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>9.2</b>		<b>Hot air to mill (HFE20)</b> right side wall	01 HFE 20 BR 001	620-0117 620-0118 620-0130									
		1	connection to right distribution line (1900 x 1280)		"	-	-		-	-	-	-		
		1	transition piece from 1900 x 1280 to 1560 x 1560		"	327	-		140	-	0,8	2	7,36	
		1	vertical duct (1560 x 1560) from approx. +38.700m to 42.780m		"	327	-		140	-	0,8	2	30,47	
		1	horizontal duct (1560 x 1560) at level approx. +42.780m		"	327	-		140	-	0,8	2	104,07	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	damper	01 HFE 20 AA 001	"	327	-		140	1,0	-	2	5,74	
		1	Cap for steel expansion joint (rectangular)		"	327	-		140	1,0	-	2	17,36	
		2	ducts to flue gas resuction duct head (780 x		"	327	-		140	1,0	-	2	111,82	
		2	<b>fabric expansion joints (rectangular)</b> <b>without Insulation &amp; protection</b>		"	327	-							
		1	Primary Air wind box		620-0137	327	-		140	1,0	-	2	10,00	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>9.3</b>		<b>Hot air to mill (HFE30)</b> front wall	01 HFE 30 BR 001	620-0117 620-0118 620-0130									
		1	connection to right distribution line (1900 x 1280)		"	-	-		-	-	-	-		
		1	bend duct (1900 x 1280) to level approx. +37.000m		"	327	-		140	-	0,8	2	19,75	
		1	transition piece from rectangular (1900 x 1280) to round (d = 1760)		"	327	-		140	-	0,8	2	9,57	
		1	bend 90° (d = 1760)		"	327	1.760		140	1,0	-	2	15,09	
		1	horizontal duct (d = 1760) at level approx. +42.780m		"	327	1.760		140	1,0	-	2	172,95	
		2	Cap for steel expansion joints (round)		"	327	1.760		140	1,0	-	2	12,30	
		1	damper (round)	01 HFE 30 AA 001	"	327	1.760		140	1,0	-	2	5,00	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	Transition piece from round (d = 1760) to rectangular (1560 x 1560)		"	327	-		140	1,0	-	2	9,48	
		1	Cap for steel expansion joints (rectangular)		"	327	-		140	1,0	-	2	8,68	
		2	ducts to flue gas resuction duct head (780 x		"	327	-		140	1,0	-	2	111,82	
		2	<b>fabric expansion joints (rectangular)</b> <b>without Insulation &amp; protection</b>		"	327	-							
		1	Primary Air wind box		620-0137	327	-		140	1,0	-	2	10,00	
		-	hangers and attachments construction		"	-	-		-	-	-	-		


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

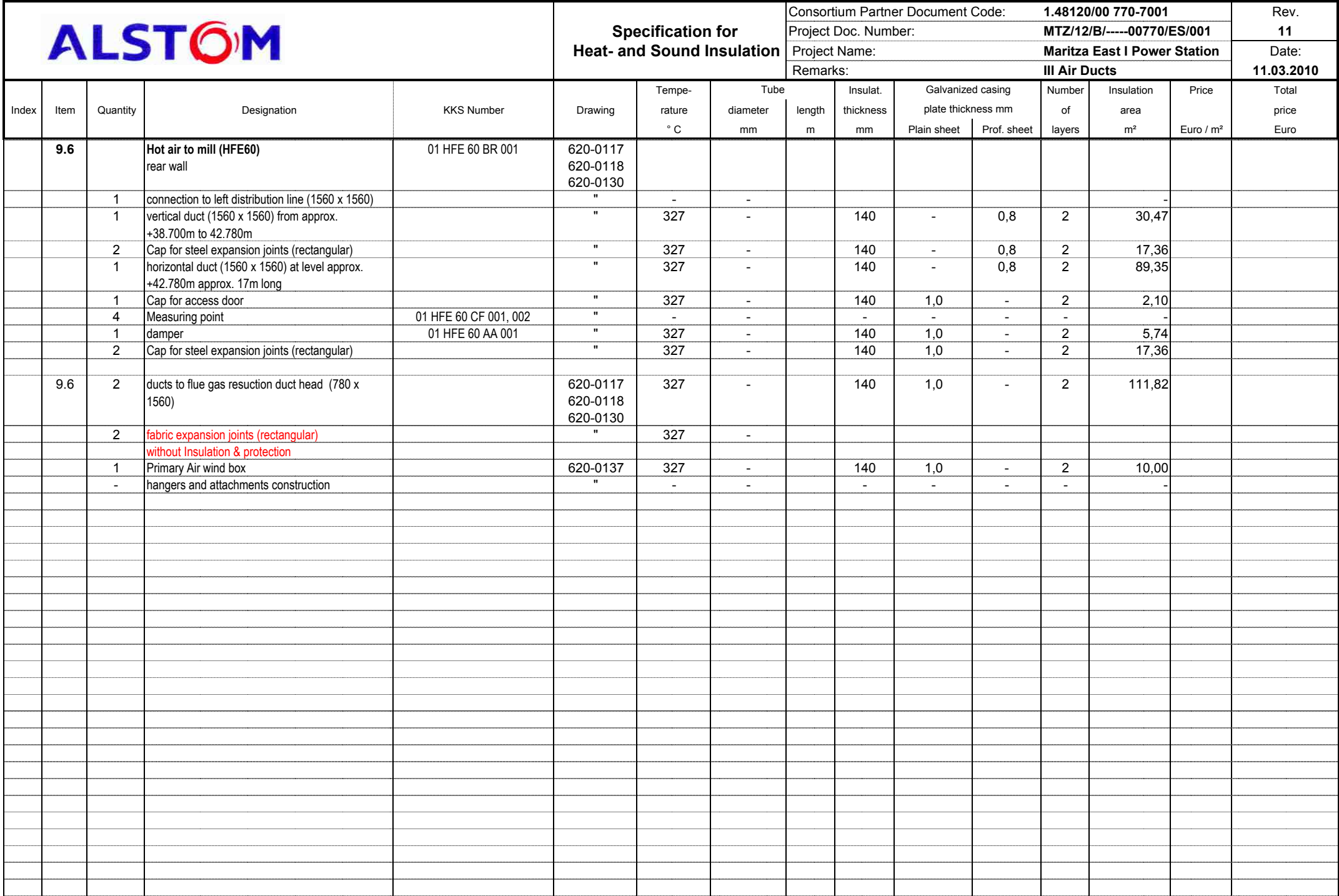
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>9.4</b>		<b>Hot air to mill (HFE40)</b> front wall	01 HFE 40 BR 001	620-0117 620-0118 620-0130									
		1	connection to left distribution line (1900 x 1280)		"	-	-					-		
		1	bend duct (1900 x 1280) to level approx. +38.500m		"	327	-		140	-	0,8	2	19,75	
		1	transition piece from rectangular (1900 x 1280) to round (d = 1760)		"	327	-		140	1,0	-	2	9,57	
		1	bend 90° (d = 1760)		"	327	1.760		140	1,0	-	2	15,09	
		1	horizontal duct (d = 1760) at level approx. +42.780m, approx. 18m long.		"	327	1.760		140	1,0	-	2	115,30	
		2	Cap for steel expansion joints (round)		"	327	1.760		140	1,0	-	2	12,30	
		1	damper (round)	01 HFE 40 AA 001	"	327	1.760		140	1,0	-	2	5,00	
		1	Cap for Access door		"	327	-		140	1,0	-	2	2,10	
		1	Transition piece from round (d = 1760) to rectangular (1560 x 1560)		"	327	-		140	1,0	-	2	9,48	
		1	Cap for steel expansion joint (rectangular)		"	327	-		140	1,0	-	2	8,68	
	<b>9.4</b>	2	ducts to flue gas resuction duct head (780 x 1560)		620-0117 620-0118 620-0130	327	-		140	1,0	-	2	111,83	
		2	<b>fabric expansion joints (rectangular)</b> <b>without Insulation &amp; protection</b>		"	327	-							
		1	Primary Air wind box		620-0137	327	-		140	1,0	-	2	10,00	
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>9.5</b>		<b>Hot air to mill (HFE50)</b> left side wall	01 HFE 50 BR 001	620-0117 620-0118 620-0130									
		1	connection to left distribution line (1900 x 1280)		"	-	-					-		
		1	transition piece from 1900 x 1280 to 1560 x 1560		"	327	-		140	-	0,8	2	7,36	
		1	vertical duct (1560 x 1560) from approx. +38.700m to 42.780m		"	327	-		140	-	0,8	2	37,83	
		1	horizontal duct (1560 x 1560) at level approx. +42.780m approx. 6m long		"	327	-		140	-	0,8	2	45,19	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	damper	01 HFE 50 AA 001	"	327	-		140	1,0	-	2	5,74	
		1	Cap for steel expansion joint (rectangular)		"	327	-		140	1,0	-	2	8,68	
		2	ducts to flue gas resuction duct head (780 x		"	327	-		140	1,0	-	2	111,82	
		2	<b>fabric expansion joints (rectangular)</b> <b>without Insulation &amp; protection</b>		"	327	-							
		1	Primary Air wind box		620-0137	327	-		140	1,0	-	2	10,00	
		-	hangers and attachments construction		"	-	-		-	-	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>10</b>		<b>Air ducts for wall protection air.</b>											
	<b>10.1</b>		<b>Wall protection air to front wall (HHL06)</b>											
			<u>Main duct HHL06</u>	01 HHL 06 BR 001	620-0121 620-0122 620-0134									
		1	connection to left distribution line (d = 1050) at level approx. +36.050m		"	-	-					-		
		1	horizontal duct (d = 1050) at level approx +36.050		"	327	1.050		140	1,0	-	2	41,78	
		1	bend 45° (d = 1050)		"	327	1.050		140	1,0	-	2	5,46	
		2	Cap for steel expansion joints (ruond)		"	327	1.050		140	1,0	-	2	7,99	
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0	-	2	10,93	
		1	vertical duct (d = 1050) from level approx. +36.050m to level approx +27.650m		"	327	1.050		140	1,0	-	2	29,25	
		1	Cap for steel expansion joints (ruond) at level approx. +32.000m		"	327	1.050		140	1,0	-	2	4,00	
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0	-	2	10,93	
		1	horizontal duct (d = 1050) at level approx +27.650		"	327	1.050		140	1,0	-	2	91,92	
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0	-	2	10,93	
		2	Cap for steel expansion joints (ruond)		"	327	1.050		140	1,0	-	2	7,99	
		1	bend 40° (d = 1050)		"	327	1.050		140	1,0	-	2	5,46	
		1	bend 50° (d = 1050)		"	327	1.050		140	1,0	-	2	6,07	
		1	bend 45° (d = 1050)		"	327	1.050		140	1,0	-	2	5,46	
		4	Measuring point	01 HHL 06 CF 001, 002	"	-	-					-		
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	damper	01 HHL 06 AA 001	"	327	1.050		140	1,0	-	2	4,40	
		2	Cap for steel expansion joints (ruond)		"	327	1.050		140	1,0	-	2	7,99	
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0	-	2	10,93	
		1	vertical duct (d = 1050) from level approx. +27.650m to level approx +26.200m		"	327	1.050		140	1,0	-	2	8,36	
		1	branche for duct to wall (d = 711) at level approx. +26.200m		"	-	-		-	-	-	-	2,08	
		1	transition piece from (d = 1050) to (d = 990)		"	327	1.050		140	1,0	-	2	4,29	
		1	vertical duct (d = 990) from level approx. +25.000m to level approx +21.500m		"	327	990		140	1,0	-	2	23,94	
		1	Cap for steel expansion joints (ruond) at level approx. +22.000m		"	327	990		140	1,0	-	2	4,40	
		1	branche for duct to wall (d = 711) at level approx. +20.700m		"	-	-		-	-	-	-	2,08	
		1	transition piece from (d = 990) to (d = 711)		"	327	990		140	1,0	-	2	3,52	
		1	vertical duct (d = 711) from level approx. +19.700m to level approx +12.000m		"	327	711		140	1,0	-	2	23,35	
		1	Cap for steel expansion joints (ruond) at level approx. +15.000m		"	327	711		140	1,0	-	2	3,02	
		1	bend 90° (d = 711) at level approx. +12.000m		"	327	711		140	1,0	-	2	5,85	


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: III Air Ducts						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		-	hangers and attachments construction		"	-	-		-	-	-	-	-		

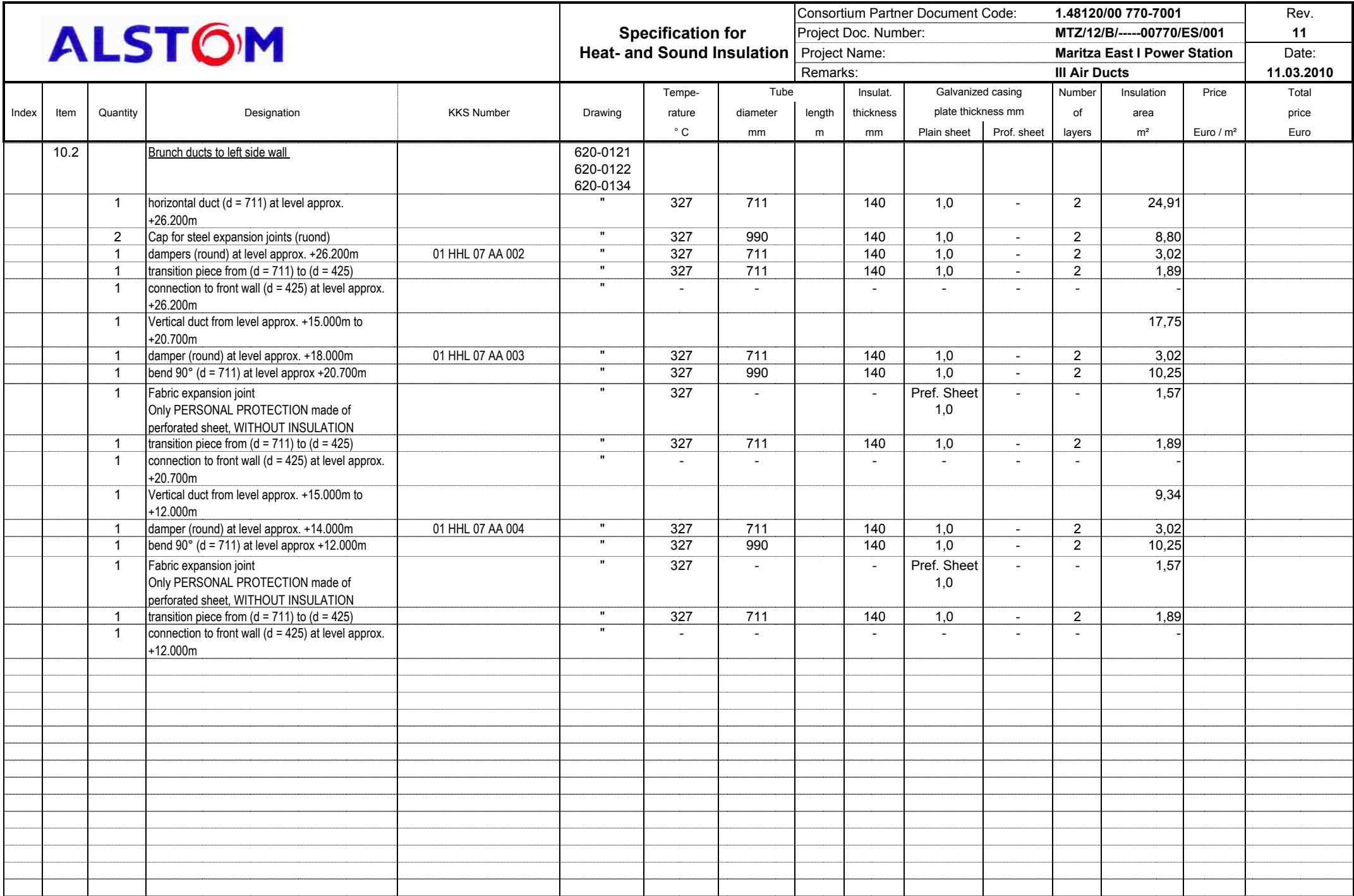
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

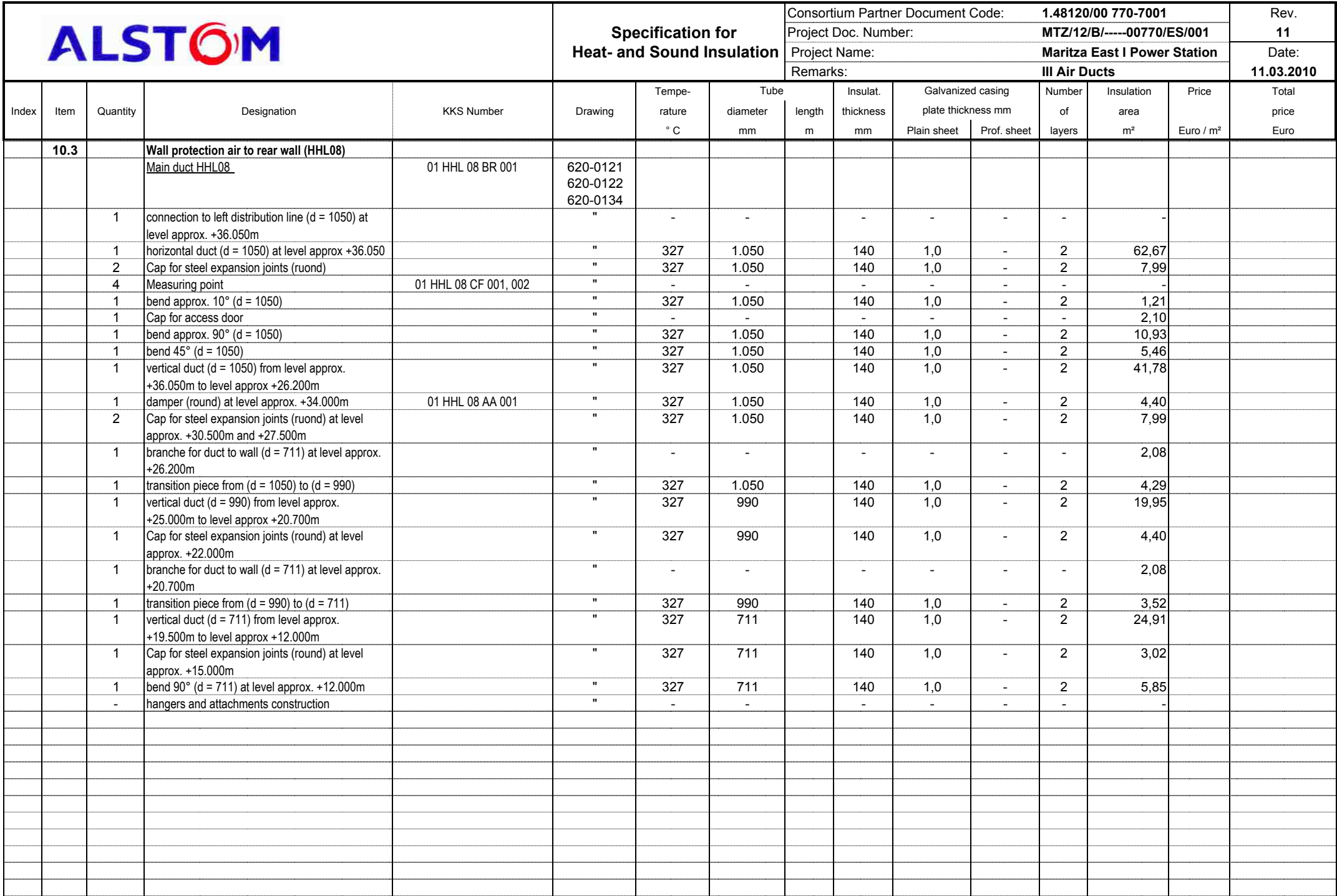
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	10.1		<u>Brunch ducts to front wall</u>		620-0121 620-0122 620-0134									
		3	dampers (round) at level approx. +26.200m, +20.700m, +12.000m	01 HHL 06 AA 002 - 004	"	327	711		140	1,0   -	2	9,06		
		3	bend 45° (d = 711)		"	327	711		140	1,0   -	2	8,77		
		3	Fabric expansion joint Only PERSONAL PROTECTION made of perforated sheet, WITHOUT INSULATION		"	327	-		-	Pref. Sheet 1,0	-	4,71		
		3	transition piece from (d = 711) to (d = 425)		"	327	711		140	1,0   -	2	5,68		
		3	connection to front wall (d = 425) at level approx. +26.200m, +20.700m, +12.000m		"	-	-		-	-   -	-	-		
	10.2		<b>Wall protection air to left side wall (HHL07)</b>											
			<u>Main duct HHL07</u>	01 HHL 07 BR 001	620-0121 620-0122 620-0134									
		1	connection to left distribution line (d = 1050) at level approx. +37.700m		"	-	-		-	-   -	-	-		
		1	horizontal duct (d = 1050) at level approx +37.700, approx 12m long		"	327	1.050		140	1,0   -	2	50,14		
		1	bend 45° (d = 1050)		"	327	1.050		140	1,0   -	2	5,46		
		2	Cap for steel expansion joints (ruond)		"	327	1.050		140	1,0   -	2	7,99		
		4	Measuring point	01 HHL 07 CF 001, 002	"	-	-		-	-   -	-	-		
		1	Cap for access door		"	327	-		140	1,0   -	2	2,10		
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0   -	2	10,93		
		1	vertical duct (d = 1050) from level approx. +37.700m to level approx +26.2000m		"	327	1.050		140	1,0   -	2	48,05		
		1	damper (round) at level approx. +34.000m	01 HHL 07 AA 001	"	327	1.050		140	1,0   -	2	4,40		
		1	branche for duct to wall (d = 711) at level approx. +26.200m		"	-	-		-	-   -	-	2,08		
	10.2	1	transition piece from (d = 1050) to (d = 990) at level approx. +25,400m		620-0121 620-0122 620-0134	327	1.050		140	1,0   -	2	4,29		
		1	vertical duct (d = 990) from level approx. +26.200m to level approx +15.000m		"	327	990		140	1,0   -	2	37,90		
		1	bend 90° (d = 990) at level approx +15.000m		"	327	990		140	1,0   -	2	10,25		
		1	horizontal duct (d = 990) at level approx +15.000m		"	327	990		140	1,0   -	2	15,96		
		2	Cap for steel expansion joints (ruond)		"	327	990		140	1,0   -	2	8,80		
		2	branche for duct to wall (d = 711) at level approx. +15.000m		"	-	-		-	-   -	-	4,15		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	10.3		<u>Brunch ducts to rear wall</u>		620-0121 620-0122 620-0134									
		3	dampers (round) at level approx. +26.200m, +20.700m, +12.000m	01 HHL 08 AA 002 - 004	"	327	711		140	1,0   -	2	9,06		
		3	bend 45° (d = 711)		"	327	711		140	1,0   -	2	8,77		
		3	Fabric expansion joint Only PERSONAL PROTECTION made of perforated sheet, WITHOUT INSULATION		"	327	-		-	Prof. Sheet 1,0	-	4,71		
		3	transition piece from (d = 711) to (d = 425)		"	327	711		140	1,0   -	2	5,68		
		3	connection to front wall (d = 425) at level approx. +26.200m, +20.700m, +12.000m		"	-	-		-	-   -	-	-		
		3	Measuring point	01 HHL 08 CT 501 - 503	"	-	-		-	-   -	-	-		
	10.4		<b>Wall protection air to right side wall (HHL09)</b>											
			<u>Main duct HHL09</u>	01 HHL 09 BR 001	620-0121 620-0122 620-0134									
		1	connection to left distribution line (d = 1050) at level approx. +36.050m		"	-	-		-	-   -	-	-		
		1	horizontal duct (d = 1050) at level approx +36.050		"	327	1.050		140	1,0   -	2	41,78		
		1	bend 45° (d = 1050)		"	327	1.050		140	1,0   -	2	5,46		
		2	Cap for steel expansion joints (round)		"	327	1.050		140	1,0   -	2	7,99		
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0   -	2	10,93		
		1	vertical duct (d = 1050) from level approx. +36.050m to level approx +27.650m		"	327	1.050		140	1,0   -	2	31,34		
		2	Cap for steel expansion joints (ruond) at level approx. +32.500m and +30.500		"	327	1.050		140	1,0   -	2	7,99		
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0   -	2	10,93		
		1	horizontal duct (d = 1050) at level approx +27.650		"	327	1.050		140	1,0   -	2	71,03		
		1	bend 35° (d = 1050)		"	327	1.050		140	1,0   -	2	4,25		
		4	Measuring point	01 HHL 09 CF 001, 002	"	-	-		-	-   -	-	-		
		1	damper	01 HHL 09 AA 001	"	327	1.050		140	1,0   -	2	4,40		
		2	Cap for steel expansion joints (ruond)		"	327	1.050		140	1,0   -	2	7,99		
		1	Cap for Access door		"	327	-		140	1,0   -	2	2,10		
		1	bend 90° (d = 1050)		"	327	1.050		140	1,0   -	2	10,93		
		1	branche for duct to wall (d = 711) at level approx. +26.200m		"	-	-		-	-   -	-	2,08		
		1	transition piece from (d = 1050) to (d = 990)		"	327	1.050		140	1,0   -	2	4,29		
		1	vertical duct (d = 990) from level approx. +25.000m to level approx +21.500m		"	327	990		140	1,0   -	2	19,95		
		1	Cap for steel expansion joints (round) at level approx. +22.000m		"	327	990		140	1,0   -	2	4,40		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: III Air Ducts						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		1	branche for duct to wall (d = 711) at level approx. +20.700m		"	-	-		-	-	-	-	2,08		

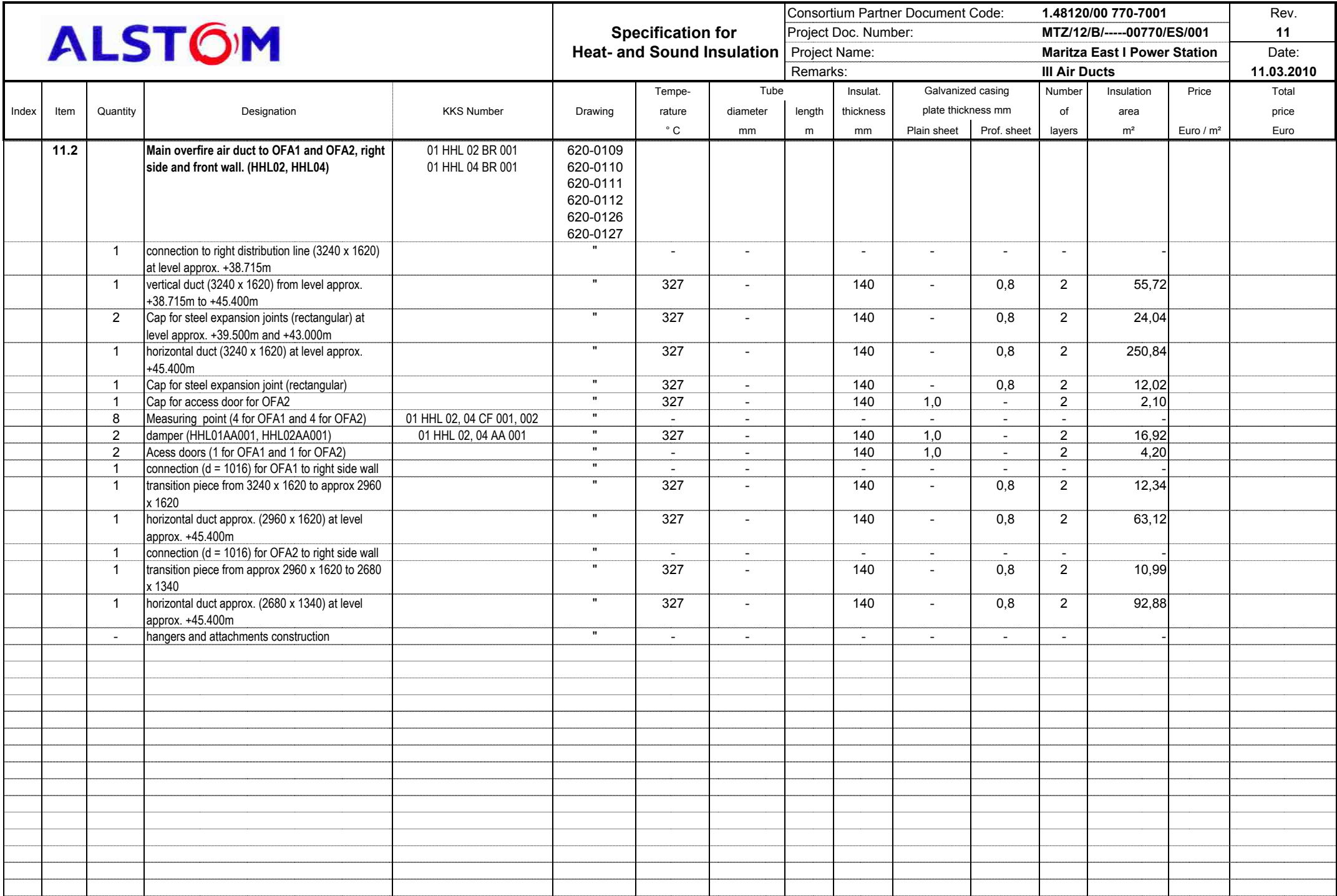
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

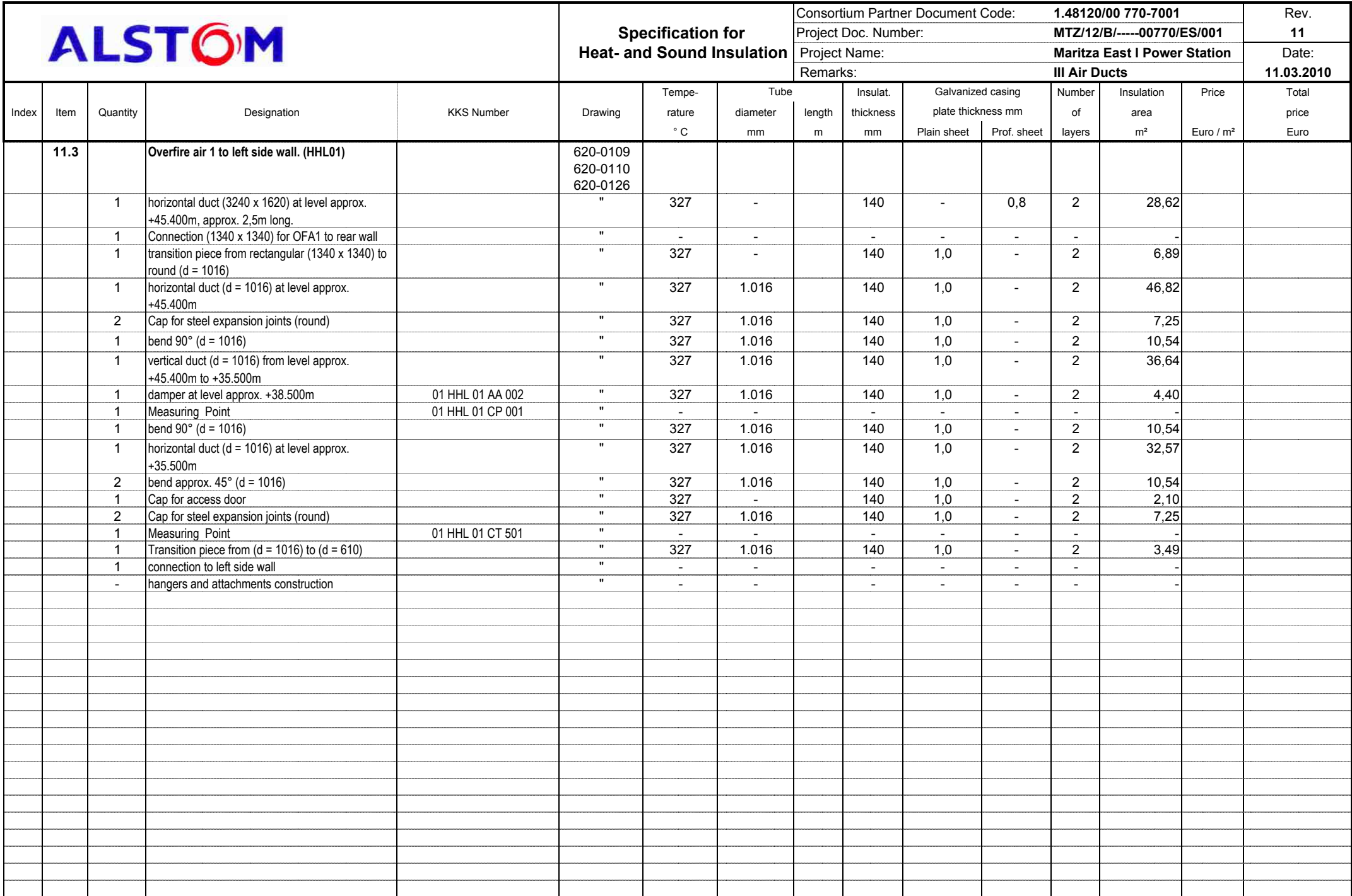
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	10.4	1	transition piece from (d = 990) to (d = 711)		620-0121 620-0122 620-0134	327	990		140	1,0   -	2	3,52		
		1	vertical duct (d = 711) from level approx. +20.000m to level approx +12.000m		"	327	711		140	1,0   -	2	24,91		
		1	Cap for steel expansion joints (round) at level approx. +16.000m		"	327	711		140	1,0   -	2	3,02		
		1	bend 90° (d = 711) at level approx. +12.000m		"	327	711		140	1,0   -	2	5,85		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		
			<u>Brunch ducts to right side wall</u>		"									
		3	dampers (round) at level approx. +26.200m, +20.700m, +12.000m	01 HHL 09 AA 002 - 004	"	327	711		140	1,0   -	2	9,06		
		3	duct 45° (d = 711)		"	327	711		140	1,0   -	2	8,77		
		3	Fabric expansion joint Only PERSONAL PROTECTION made of perforated sheet, WITHOUT INSULATION		"	327	-		-	Pref. Sheet 1,0   -	-	4,71		
		3	transition piece from (d = 711) to (d = 425)		"	327	711		140	1,0   -	2	5,68		
		3	connection to front wall (d = 425) at level approx. +26.200m, +20.700m, +12.000m		"	-	-		-	-   -	-	-		
		3	Measuring point	01 HHL 09 CT 501 - 503	"	-	-		-	-   -	-	-		
	11		<b>Overfire air</b>		620-0109 620-0110 620-0111 620-0112 620-0126 620-0127									
	11.1		<b>Main overfire air duct to OFA1 and OFA2, left side and rear wall. (HHL01, HHL03)</b>	01 HHL 01 BR 001 01 HHL 03 BR 001	"									
		1	connection to left distribution line (3240 x 1620) at level approx. +38.715m		"	-	-		-	-   -	-	-		
		1	vertical duct (3240 x 1620) from level approx. +38.715m to +45.400m		"	327	-		140	-   0,8	2	55,72		
		2	Cap for steel expansion joints (rectangular) at level approx. +39.500m and +43.000m		"	327	-		140	-   0,8	2	24,04		
		1	horizontal duct (3240 x 1620) at level approx. +45.400m, approx. 13m long.		"	327	-		140	-   0,8	2	142,44		
		2	dampers (HHL01AA001, HHL02AA001)	01 HHL 01, 03 AA 001	"	327	-		140	1,0   -	2	16,92		
		8	Measuring point (4 for OFA1 and 4 for OFA2)	01 HHL 01, 03 CF 001, 002	"	-	-		-	-   -	-	-		
		2	Cap for access door for OFA1 and OFA2 duct		"	-	-		140	1,0   -	2	4,20		
		-	hangers and attachments construction		"	-	-		-	-   -	-	-		

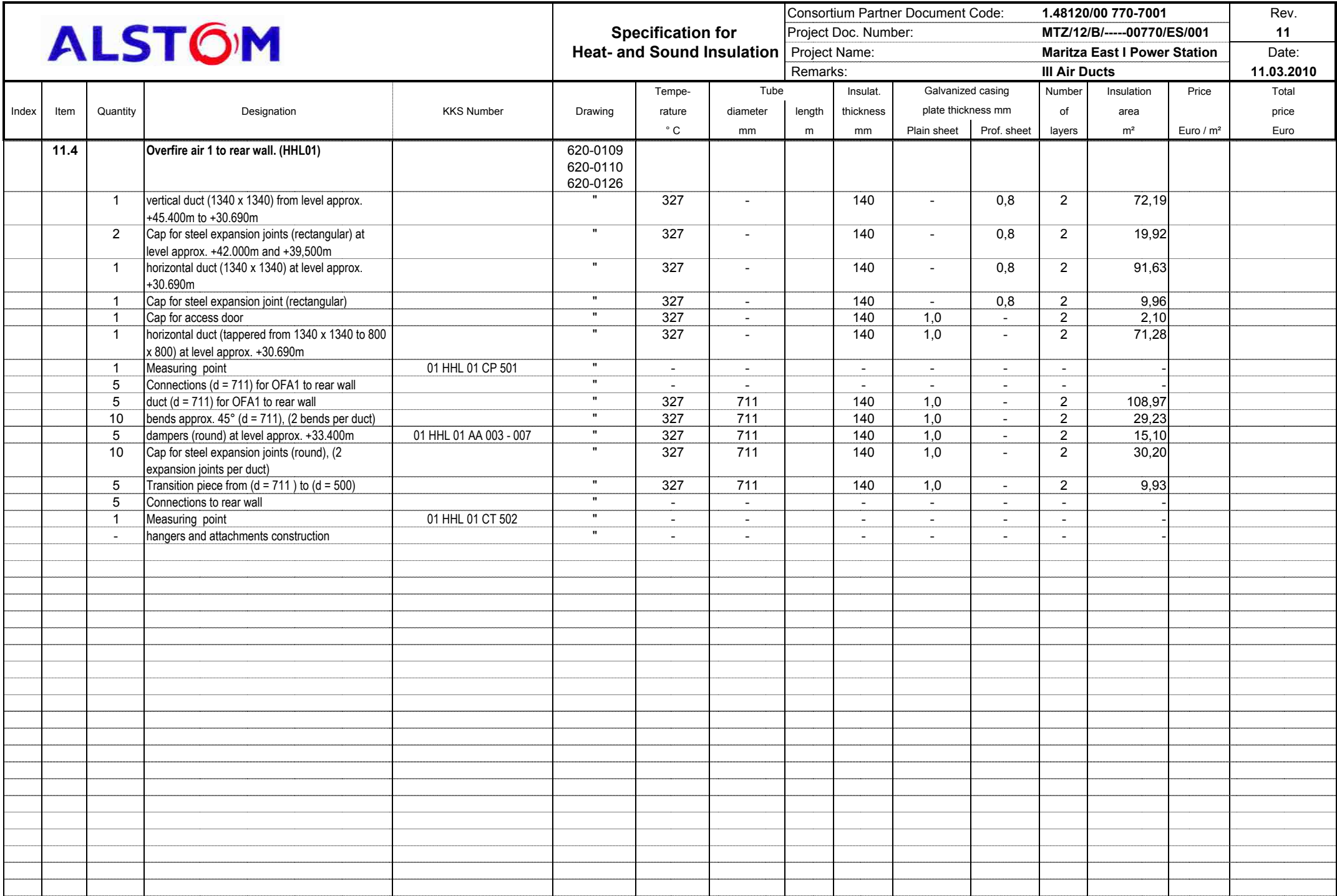
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>11.5</b>		<b>Overfire air 1 to right side wall. (HHL02)</b>		620-0109 620-0110 620-0126									
		1	connection (d = 1016) to main duct		"	-	-		-	-	-	-		
		1	vertical duct (d = 1016) from level approx. +44.500m to +35.500m		"	327	1.016		140	1,0	-	2	35,57	
		2	Cap for steel expansion joints (round) at level approx. +43.800m and +41.800m		"	327	1.016		140	1,0	-	2	7,25	
		1	Measuring point	01 HHL 02 CP 501	"	-	-		-	-	-	-		
		1	damper at level approx. +38.800m	01 HHL 02 AA 002	"	327	1.016		140	1,0	-	2	3,63	
		1	bend 90° (d = 1016)		"	327	1.016		140	1,0	-	2	10,54	
		1	horizontal duct (d = 1016) at level approx. +35.500m, approx. 9m long.		"	327	1.016		140	1,0	-	2	36,64	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		2	bend approx. 45° (d = 1016)		"	327	1.016		140	1,0	-	2	10,54	
		2	Cap for steel expansion joints (round)		"	327	1.016		140	1,0	-	2	7,25	
		1	Measuring point	01 HHL 02 CT 501	"	-	-		-	-	-	-		
		1	Transition piece from (d = 1016) to (d = 610)		"	327	1.016		140	1,0	-	2	3,49	
		1	connection to right side wall		"	-	-		-	-	-	-		
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>11.6</b>		<b>Overfire air 1 to front wall. (HHL02)</b>											
		1	vertical duct (1340 x 1340) from level approx. +45.400m to +30.690m		"	327	-		140	-	0,8	2	72,19	
		2	Cap for steel expansion joints (rectangular) at level approx. +43.000m and +40.700m		"	327	-		140	-	0,8	2	19,92	
		1	horizontal duct (1340 x 1340) at level approx. +30.690m		"	327	-		140	-	0,8	2	91,63	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	Cap for steel expansion joint (rectangular)		"	327	-		140	-	0,8	2	9,96	
		1	horizontal duct (1340 x 1340 to 800 x 800) at level approx. +30.690m		"	327	-		140	1,0	-	2	71,28	
		1	Measuring point	01 HHL 02 CP 001	"	-	-		-	-	-	-		
		5	Connections (d = 711) for OFA1 to front wall		"	-	-		-	-	-	-		
		5	duct (d = 711) for OFA1 to front wall		"	327	711		140	1,0	-	2	108,97	
		10	bends approx. 45° (d = 711), (2 bends per duct)		"	327	711		140	1,0	-	2	29,23	
		5	dampers (round) at level approx. +34.000m	01 HHL 02 AA 003 - 007	"	327	711		140	1,0	-	2	15,10	
		10	Cap for steel expansion joints (round), (2 expansion joints per duct)		"	327	711		140	1,0	-	2	30,20	
		5	Transition piece from (d = 711 ) to (d = 500)		"	327	711		140	1,0	-	2	9,93	
		5	Connections to rear wall		"	-	-		-	-	-	-		
		1	Measuring point	01 HHL 02 CT 502	"	-	-		-	-	-	-		
		-	hangers and attachments construction		"	-	-		-	-	-	-		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: III Air Ducts						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

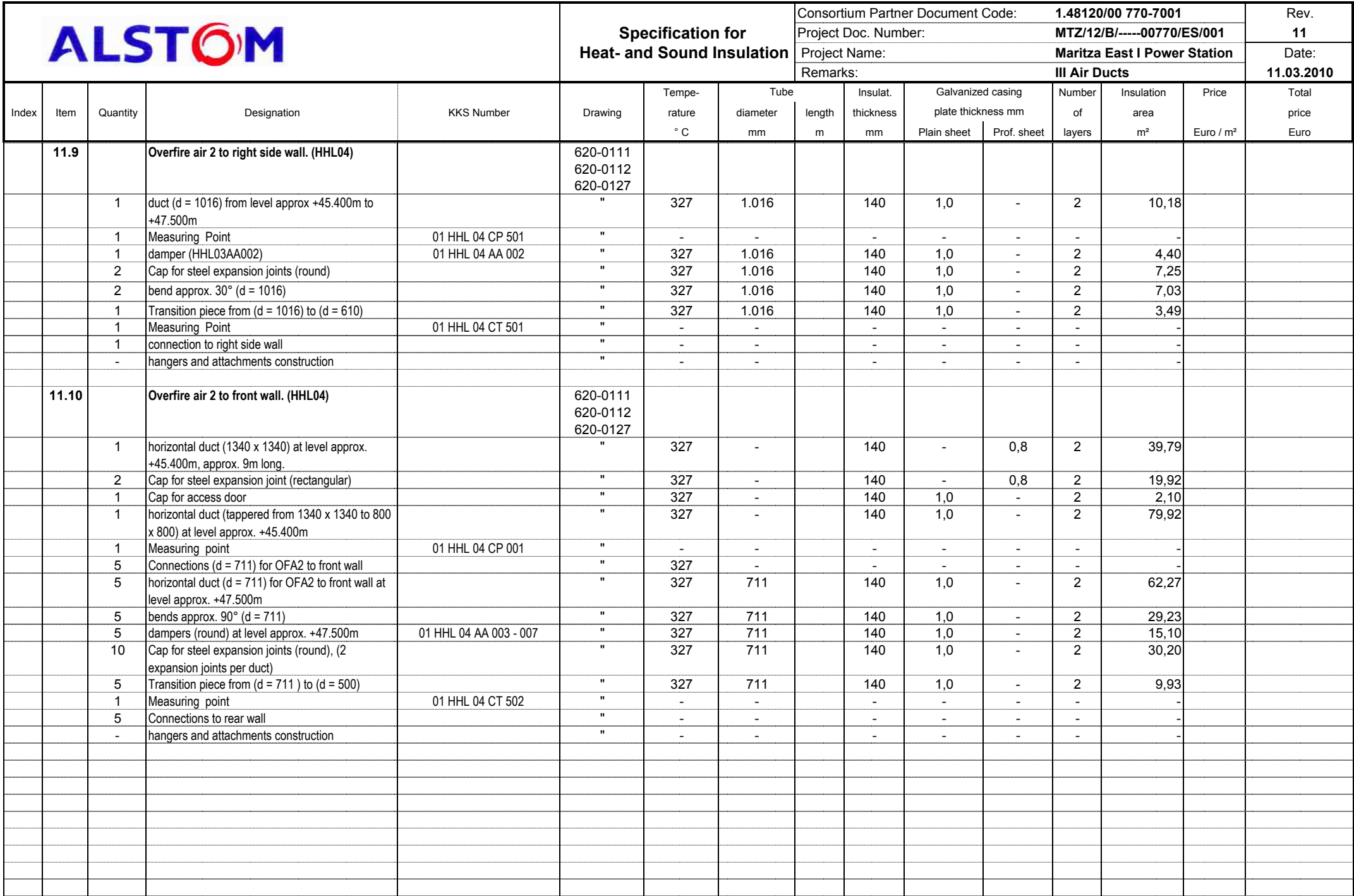
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

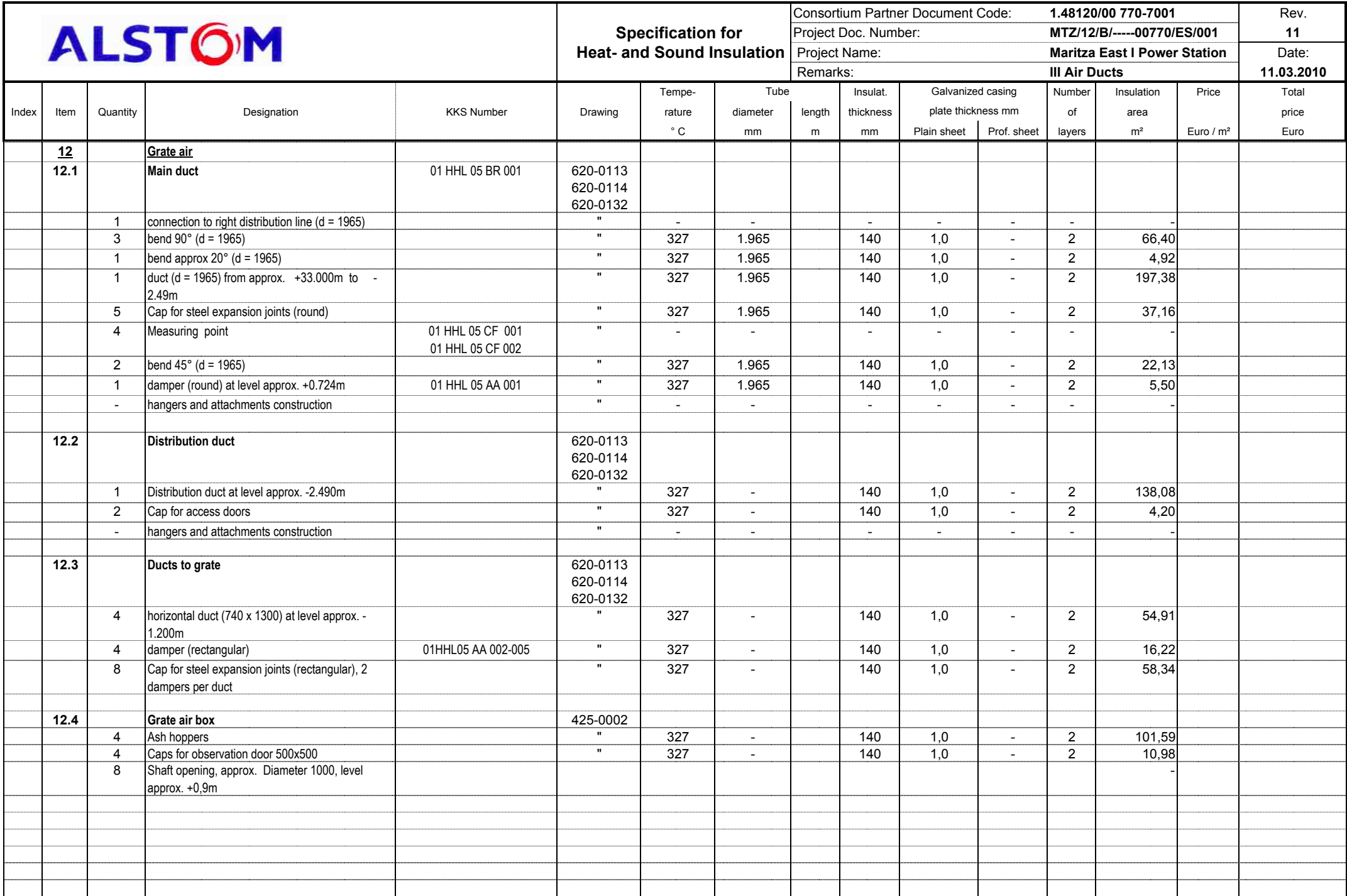
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>11.7</b>		<b>Overfire air 2 to left side wall. (HHL03)</b>		620-0111 620-0112 620-0127									
		1	transition piece from rectangular ( 1620 x 1620) to round (d = 1016)		"	327	-		140	1,0	-	2	6,59	
		1	horizontal duct (d = 1016) at level approx. +45.400m		"	327	1.016		140	1,0	-	2	61,07	
		2	Cap for steel expansion joints (round)		"	327	1.016		140	1,0	-	2	7,25	
		1	Measuring point	01 HHL 03 CP 001	"	-	-		-	-	-	-	-	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	bend 90° (d = 1016)		"	327	1.016		140	1,0	-	2	10,54	
		1	bend approx. 30° (d = 1016)		"	327	1.016		140	1,0	-	2	3,51	
		1	duct (d = 1016) from level approx +45.270m to +47.500m		"	327	1.016		140	1,0	-	2	8,14	
		1	damper	01 HHL 03 AA 002	"	327	1.016		140	1,0	-	2	4,40	
		2	Cap for steel expansion joints (round)		"	327	1.016		140	1,0	-	2	7,25	
		1	bend approx. 30° (d = 1016)		"	327	1.016		140	1,0	-	2	3,51	
		1	Transition piece from (d = 1016) to (d = 610)		"	327	1.016		140	1,0	-	2	3,49	
		1	Measuring point	01 HHL 03 CT 501	"	-	-		-	-	-	-	-	
		1	connection to left side wall		"	-	-		-	-	-	-	-	
		-	hangers and attachments construction		"	-	-		-	-	-	-	-	
	<b>11.8</b>		<b>Overfire air 2 to rear wall. (HHL03)</b>											
		1	horizontal duct (1340 x 1340) at level approx. +45.400m,		"	327	-		140	-	0,8	2	39,79	
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	Cap for steel expansion joint (rectangular)		"	327	-		140	-	0,8	2	9,96	
		1	horizontal duct (1340 x 1340 to 800 x 800) at level approx. +30.690m		"	327	-		140	1,0	-	2	79,92	
		1	Measuring point	01 HHL 03 CP 501	"	-	-		-	-	-	-	-	
		5	Connections (d = 711) for OFA2 to rear wall		"	-	-		-	-	-	-	-	
		5	horizontal duct (d = 711) for OFA2 to rear wall at level approx. +47.500m		"	327	711		140	1,0	-	2	62,27	
		5	bends approx. 90° (d = 711)		"	327	711		140	1,0	-	2	29,23	
		5	dampers (round) at level approx. +47.500m	01 HHL 03 AA 003 - 007	"	327	711		140	1,0	-	2	15,10	
		10	Cap for steel expansion joints (round), (2 expansion joints per duct)		"	327	711		140	1,0	-	2	30,20	
		5	Transition piece from (d = 711 ) to (d = 500)		"	327	711		140	1,0	-	2	9,93	
		5	Connections to rear wall		"	-	-		-	-	-	-	-	
		1	Measuring point	01 HHL 03 CT 502	"	-	-		-	-	-	-	-	
		-	hangers and attachments construction		"	-	-		-	-	-	-	-	

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

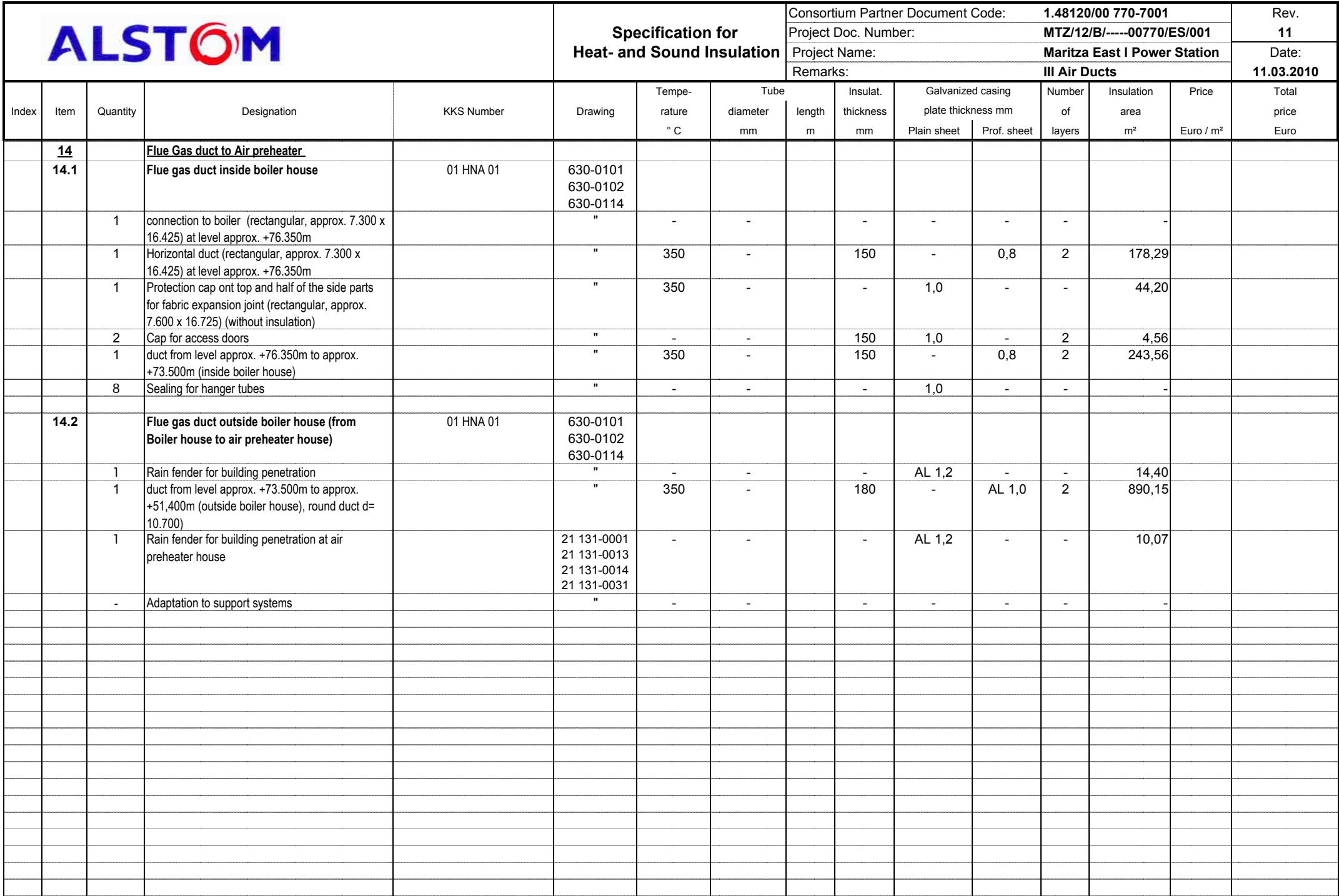
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

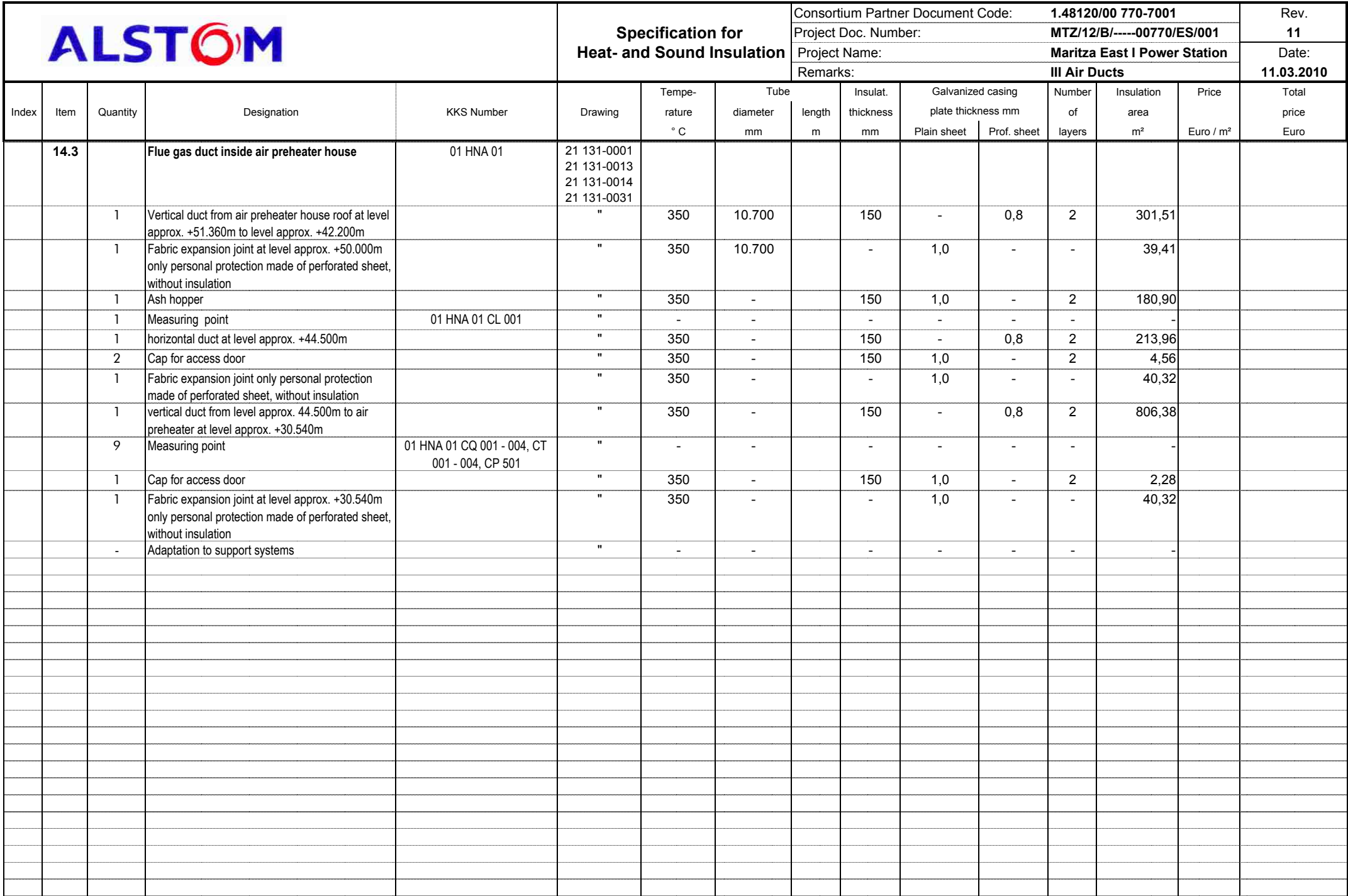
Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>13</b>		<b>Hot air recirculation ducts</b>											
	<b>13.1</b>		<b>Duct to right line</b>		620-0119 620-0120 620-0131									
		1	connection to duct from Air Preheater (d = 1800) at level approx. +36.900m		"	-	-		-	-	-	-		
		1	duct (d = 1800) from level approx. +36.900m to approx. 12,5m		"	327	1.800		140	1,0	-	2	293,90	
		4	Cap for steel expansion joint (round)		"	327	1.800		140	1,0	-	2	27,69	
		3	bends 90° (d = 1800)		"	327	1.800		140	1,0	-	2	55,37	
		1	damper (round), at level approx. +18.300m		"	327	1.800		140	1,0	-	2	5,09	
		5	Measuring point	01 HLA 40 CT 001, CP 501 - 504	"	-	-		-	-	-	-		
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		1	transition piece from round (d= 1800) to rectangular (2650 x 1360)		"	327	-		140	1,0	-	2	7,28	
		1	Duct (2650 x 1360)		"	327	-		140	-	0,8	2	25,50	
		1	transition piece/bend from (2650 x 1360) to (5200 x 800)		"	327	-		140	-	0,8	2	13,71	
		1	connection to secondary cold air suction duct		"	-	-		-	-	-	-		
		-	hangers and attachments construction		"	-	-		-	-	-	-		
	<b>13.2</b>		<b>Duct to left line</b>		"									
		1	connection to left distribution line (d = 1800) at level approx. +36.900m		"	-	-		-	-	-	-		
		1	vertical duct (d = 1800) from level approx. +36.900m to +12.500m		"	327	1.800		140	1,0	-	2	163,28	
		1	bends 90° (d = 1800)		"	327	1.800		140	1,0	-	2	18,46	
		1	damper (round), at level approx. +18.300m		"	327	1.800		140	1,0	-	2	5,09	
		5	Measuring point	01 HLA 50 CT 001, CP 501 - 504	"	-	-		-	-	-	-		
		1	Cap for access door		"	327	-		140	1,0	-	2	2,10	
		2	Cap for steel expansion joint (round), at level approx. +14.300m and 12.300m		"	327	1.800		140	1,0	-	2	13,85	
		1	transition piece from round (d= 1800) to rectangular (2650 x 1360)		"	327	-		140	1,0	-	2	7,28	
		1	Duct/bend (2650 x 1360)		"	327	-		140	-	0,8	2	25,50	
		1	transition piece from (2650 x 1360) to (5200 x 800)		"	327	-		140	-	0,8	2	13,71	
		1	connection to secondary cold air suction duct		"	-	-		-	-	-	-		
		-	hangers and attachments construction		"	-	-		-	-	-	-		

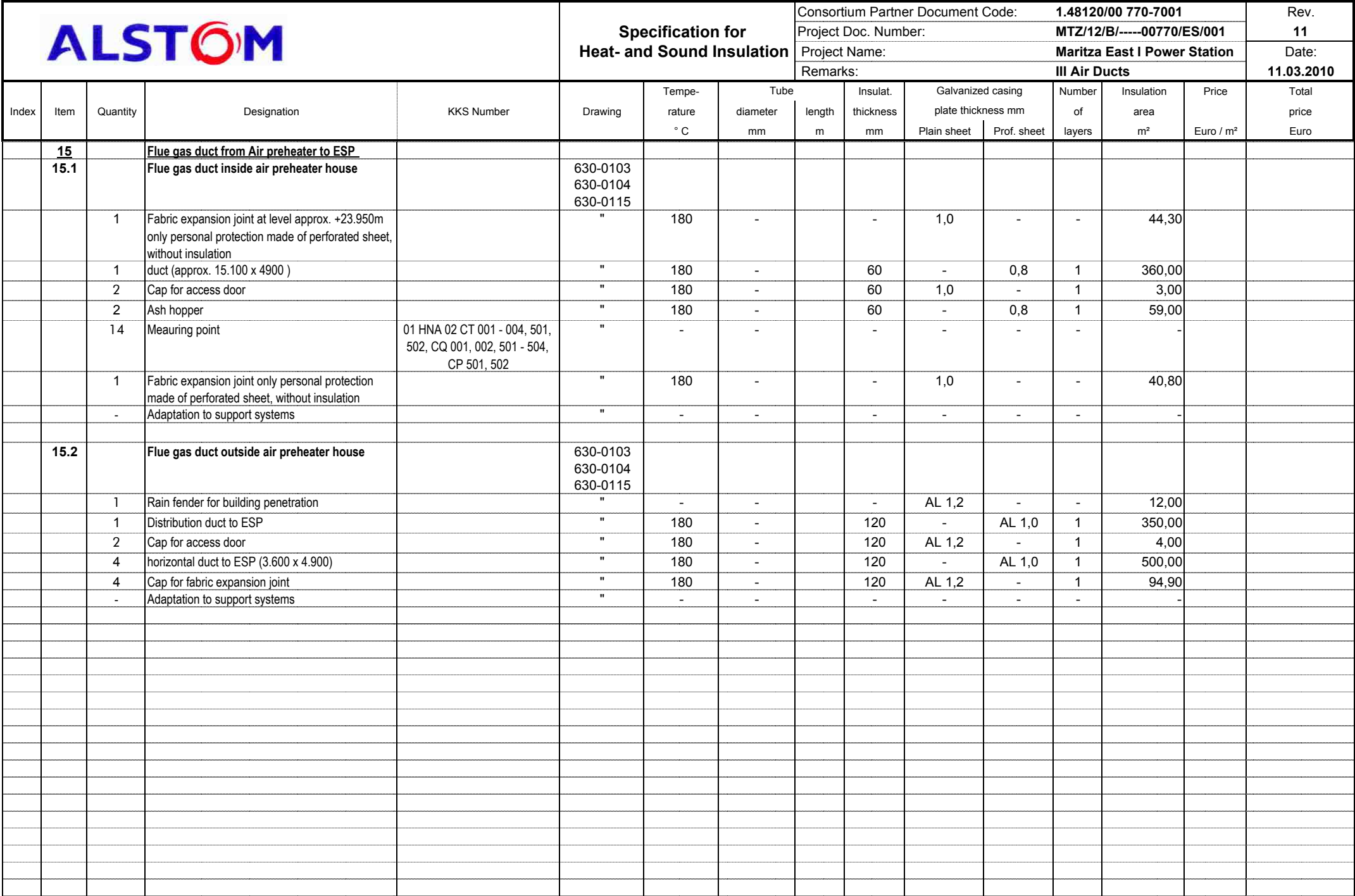
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001				Rev. 11		
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station				Date: 11.03.2010		
									Remarks: III Air Ducts						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

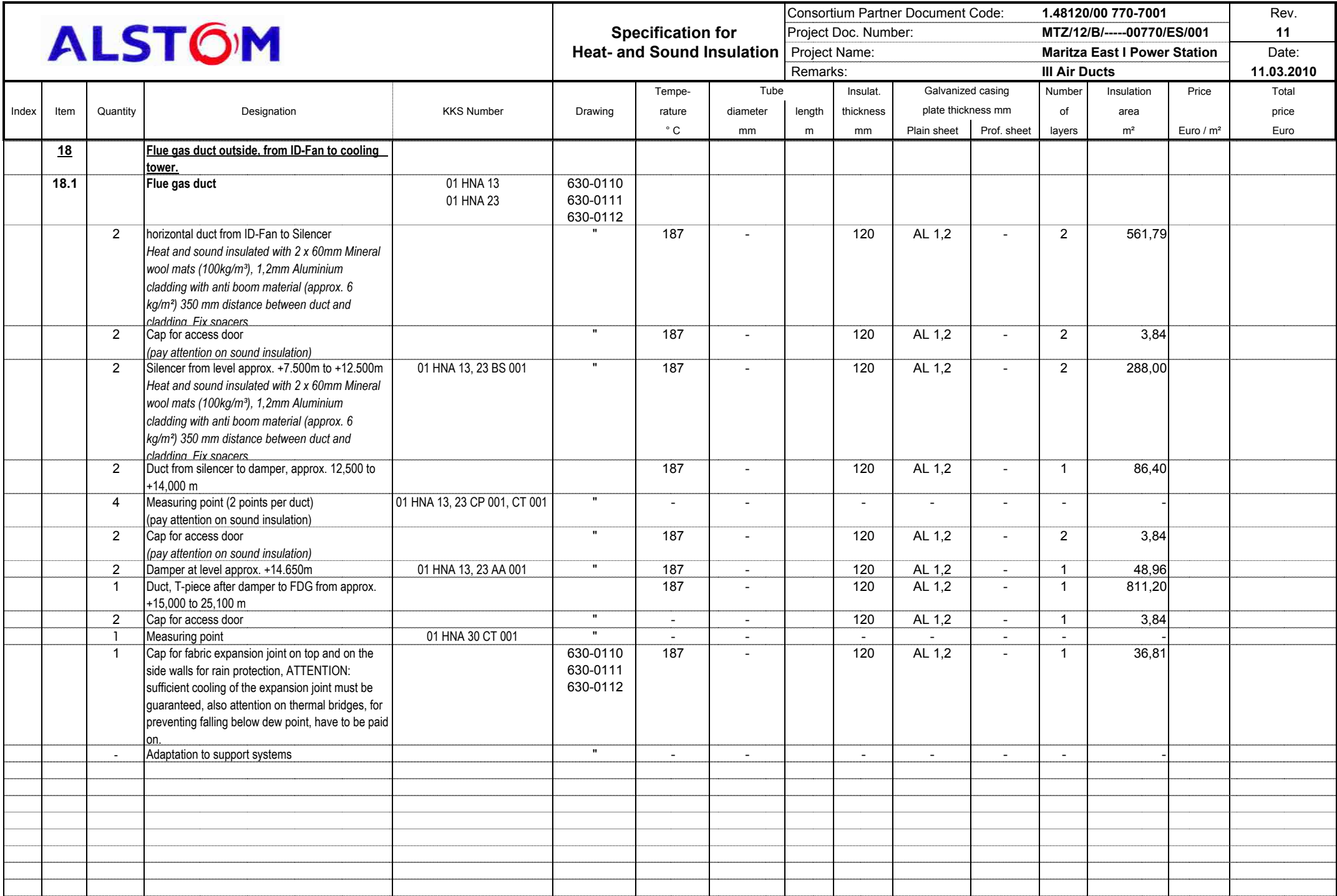
### Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **III Air Ducts**

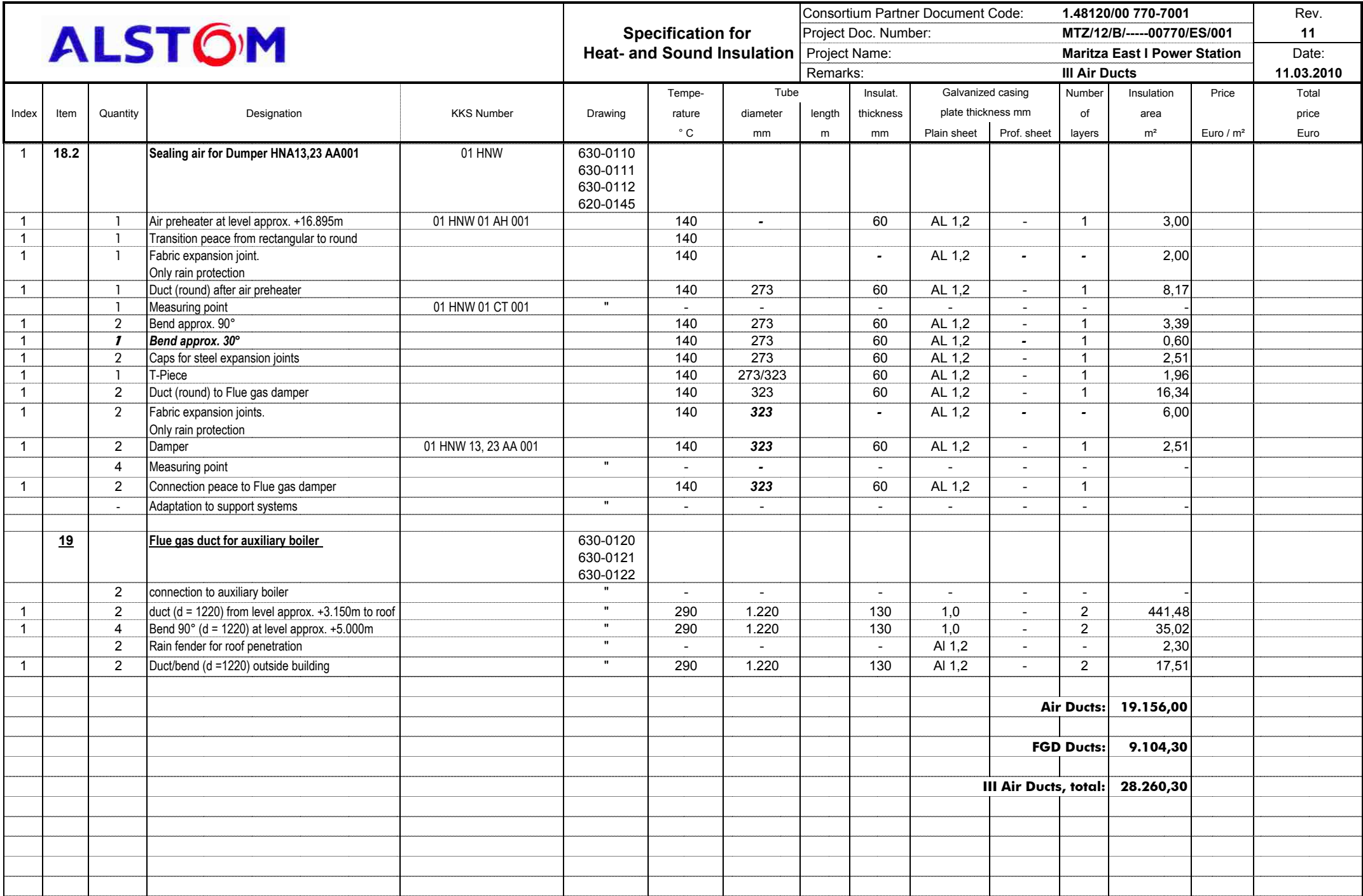
Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>16</b>		<b><u>Flue gas duct outside. from ESP to ID-Fan (sound insulation)</u></b>		630-0107 630-0108 630-0109									
		4	Fabric expansion joint Heat and sound insulated with 2 x 60mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding, Fix spacers.		"	180	-		120	AL 1,2	-	2	76,68	
		4	Duct (3600 x 4900) from ESP to connecting piece Heat and sound insulated with 2 x 60mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding, Fix spacers.		"	180	-		120	AL 1,2	-	2	582,12	
		4	Cap for access door (2 doors per duct) (pay attention on sound insulation)		"	180	-		120	AL 1,2	-	2	7,68	
		2	Connecting piece Heat and sound insulated with 2 x 60mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding, Fix spacers.		"	180	-		120	AL 1,2	-	2	655,58	
		2	Duct to ID Fan Heat and sound insulated with 2 x 60mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding. Fix spacers.		"	180	-		120	AL 1,2	-	2	333,04	
		20	Measuring point (10 points per duct) (pay attention on sound insulation)	01 HNA 12/22 CT 501 - 504, CQ 001, 002, 501 - 504	"	-	-		-	-	-	-	-	
		-	Adaptation to support systems		"	-	-		-	-	-	-	-	
1	<b>17</b>	2	<b><u>ID-Fan (outside)</u></b> Heat and sound insulated with 2 x 120mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding, spacers with elastic links.		195-003	180	-		<b>240</b>	AL 1,2	-	2	507,67	
1		4	Fabric expansion joint Heat and sound insulated with 2 x 120mm Mineral wool mats (100kg/m³), 1,2mm Aluminium cladding with anti boom material (approx. 6 kg/m²) 350 mm distance between duct and cladding. spacers with elastic links.		"	180	-		<b>240</b>	AL 1,2	-	2	71,19	

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					Date: 11.03.2010		
								Project Name: Maritza East I Power Station							
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: III Air Ducts							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

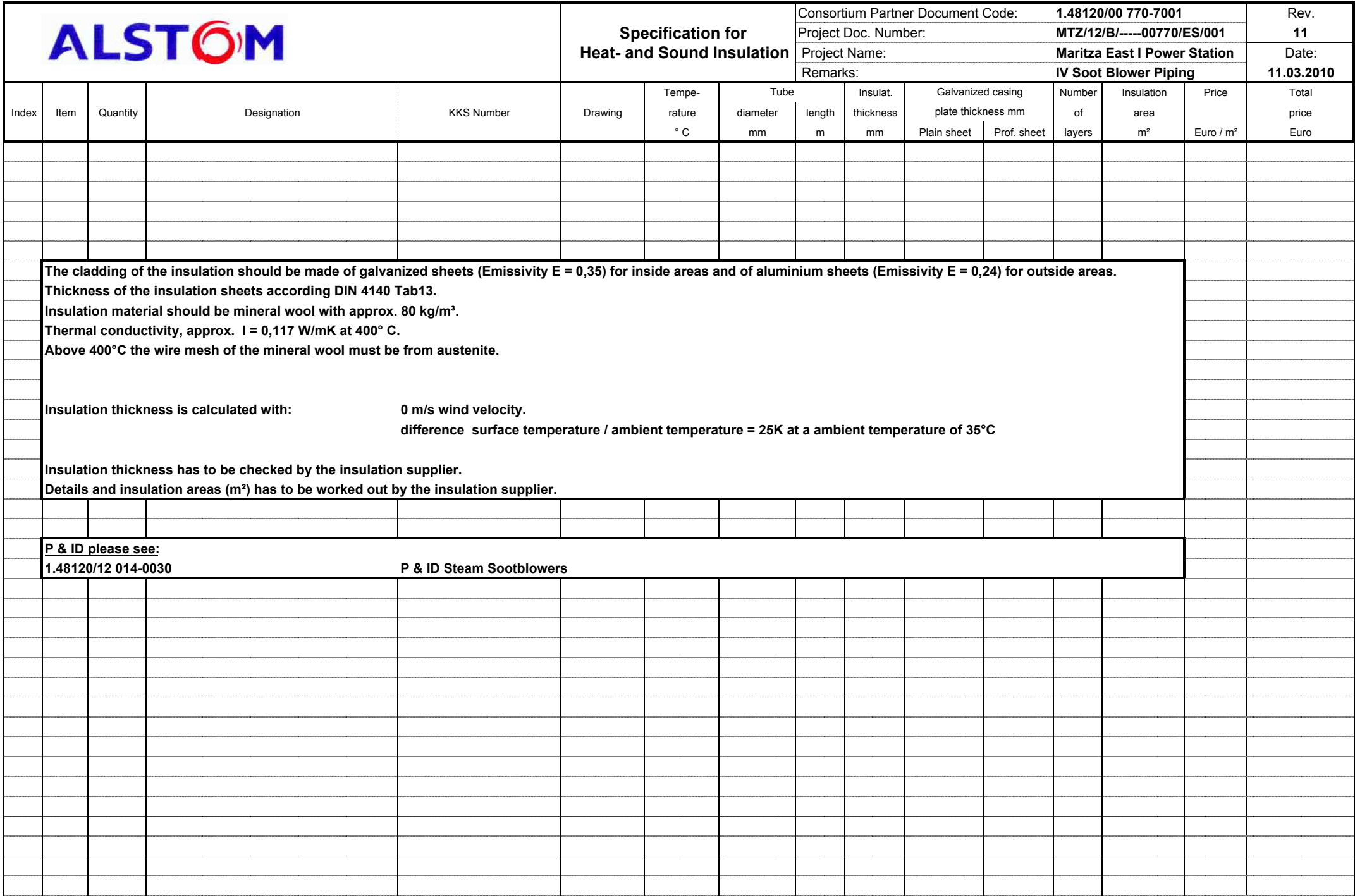





**Specification for  
Heat- and Sound Insulation**

Consortium Partner Document Code:	<b>1.48120/00 770-7001</b>	Rev.	
Project Doc. Number:	<b>MTZ/12/B/-----00770/ES/001</b>	<b>11</b>	
Project Name:	<b>Maritza East I Power Station</b>	Date:	
Remarks:	<b>III Air Ducts</b>	<b>11.03.2010</b>	

Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



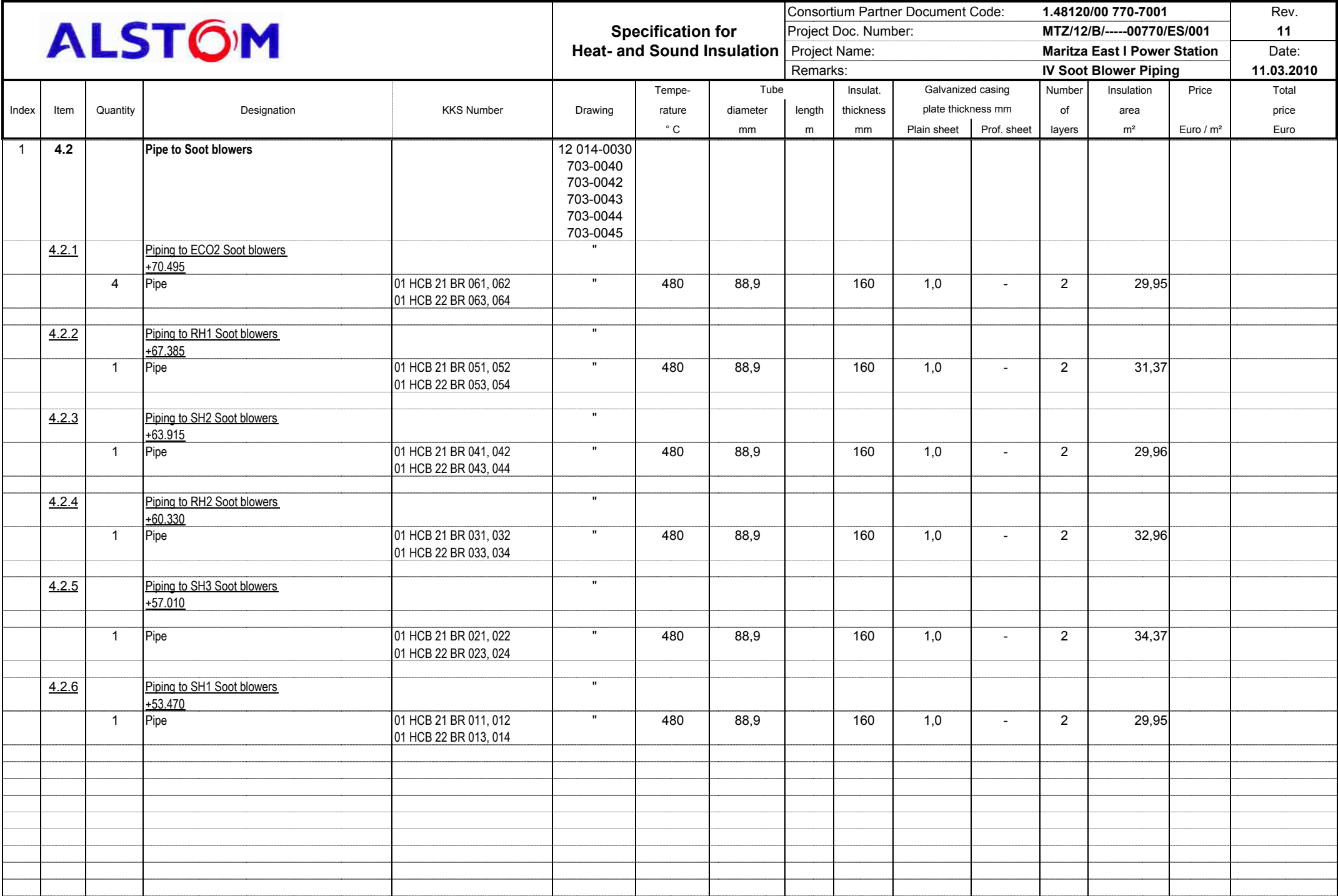
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: IV Soot Blower Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro


# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **IV Soot Blower Piping**


Rev. **11**  
 Date: **11.03.2010**

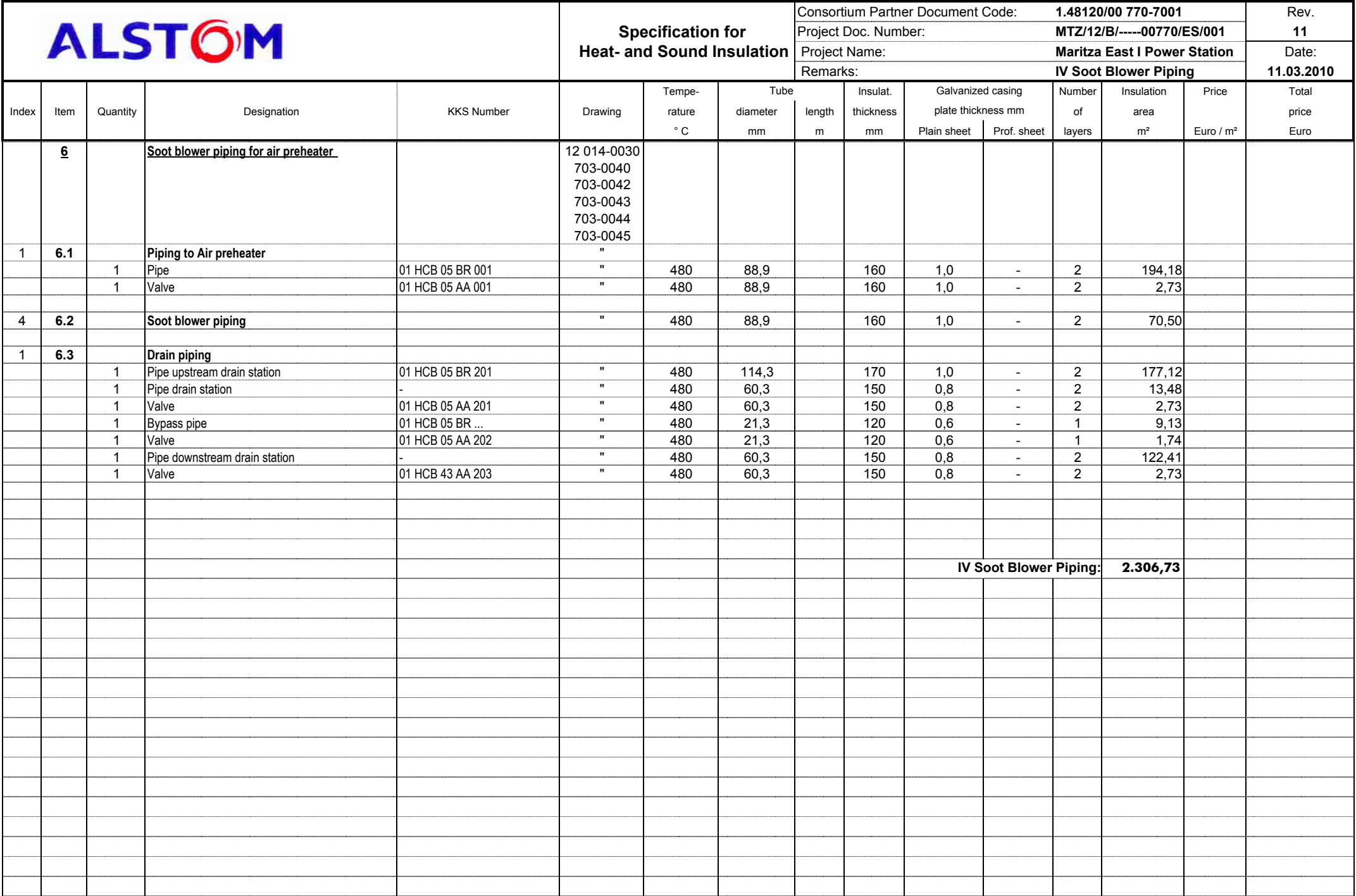
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
1	1		<u>Steam extraction</u>		12 014-0030 703-0040 703-0042 703-0043 703-0044 703-0045									
		1	Pipe	01 HCB 01 BR 001	"	480	88,9		160	1,0   -	2	20,79		
		1	Pipe	01 HCB 02 BR 001	"	480	88,9		160	1,0   -	2	25,55		
		1	Pipe	01 HCB 03 BR 001	"	480	139,7		180	1,0   -	2	84,93		
1	2		<u>Soot blower station</u>		"									
		2	Valve	01 HCB 03 AA 001, 002	"	480	139,7		180	1,0   -	2	9,20		
		1	Pipe	-	"	480	139,7		180	1,0   -	2	1,69		
		1	-	01 HCB 03 AT 001	"	480	-		180	1,0   -	2	1,69		
		1	Valve	01 HCB 03 AA 003	"	480	139,7		180	1,0   -	2	4,60		
		1	Pipe	01 HCB 03 BR 002	"	480	219,1		200	1,0   -	2	11,08		
		1	Drain pipe <i>Personal protection, approx only 3m after soot blower station, or up to the first valve.</i>	01 HCB 03 BR ...	"	480	21,3		120	0,6   -	1	4,42		
		1	Valve <i>Personal protection only.</i>	01 HCB 03 AA201	"	480	21,3		120	0,6   -	1	6,63		
		1	Measurement pipe for HCB03CP001- 003 <i>Personal protection, only to the 1st Valve or max. only 3m after soot blower station.</i>	01 HCB 03 BR ...	"	480	60,3		150	0,8   -	2	3,59		
1	3		<u>Main distribution pipe</u>		"									
		1	Pipe	01 HCB 04 BR 001	"	480	139,7		180	1,0   -	2	107,01		
		1	Valve	01 HCB 04 AA 001	"	480	139,7		180	1,0   -	2	4,60		
	4		<u>Pipe to left side wall</u>											
1	4.1		<u>Distribution piping</u>		"									
		2	Pipe	01 HCB 21, 22 BR 001	"	480	114,3		170	1,0   -	2	368,34		
		4	Valve	01 HCB 21, 22 AA 001, 002	"							16,28		
		1	Pipe upstream drain station	01 HCB 23 BR 201	"	480	114,3		170	1,0   -	2	2,33		
		2	Funnel for measuring point	01 HCB 23 CT 201, 501	"	-	-		-	-   -	-	-		
		1	Pipe drain station	-	"	480	60,3		150	0,8   -	2	107,38		
		1	Valve	01 HCB 23 AA 201	"	480	60,3		150	0,8   -	2	2,73		
		1	Bypass pipe	01 HCB 23 BR ...	"	480	21,3		120	0,6   -	1	1,85		
		1	Valve	01 HCB 23 AA 202	"	480	21,3		120	0,6   -	1	1,74		
		1	Pipe downstream drain station	-	"	480	60,3		150	0,8   -	2	1,25		
		1	Valve	01 HCB 23 AA 203	"	480	60,3		150	0,8   -	2	2,73		




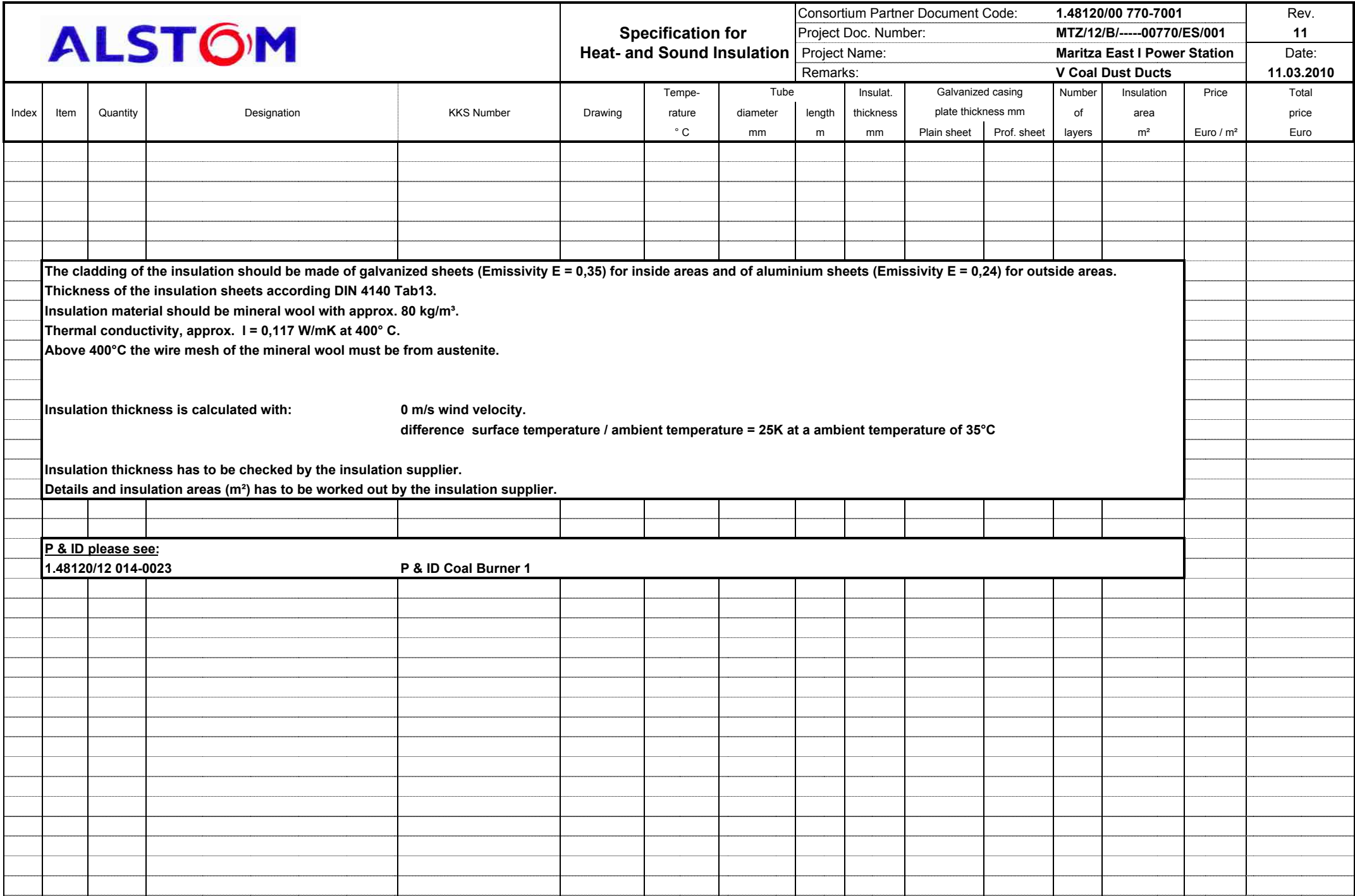
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: IV Soot Blower Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet	Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>5</b>		<u>Pipe to right side wall</u>		12 014-0030 703-0040 703-0042 703-0043 703-0044 703-0045										
1	<b>5.1</b>		<b>Distribution piping</b>		"										
		2	Pipe	01 HCB 41, 42 BR 001	"	480	114,3		170	1,0	-	2	361,58		
		4	Valve	01 HCB 41, 42 AA 001, 002	"								16,28		
		1	Pipe upstream drain station	01 HCB 43 BR 201	"	480	114,3		170	1,0	-	2	3,88		
		2	Funnel for measuring point	01 HCB 43 CT 201, 501	"	-	-		-	-	-	-	-		
		1	Pipe drain station	-	"	480	60,3		150	0,8	-	2	151,18		
		1	Valve	01 HCB 43 AA 201	"	480	60,3		150	0,8	-	2	2,73		
		1	Bypass pipe	01 HCB 43 BR ...	"	480	21,3		120	0,6	-	1	1,85		
		1	Valve	01 HCB 43 AA 202	"	480	21,3		120	0,6	-	1	1,74		
		1	Pipe downstream drain station	-	"	480	60,3		150	0,8	-	2	2,58		
		1	Valve	01 HCB 43 AA 203	"	480	60,3		150	0,8	-	2	2,73		
1	<b>5.2</b>		<b>Pipe to Soot blowers</b>												
	<u>5.2.1</u>		<u>Piping to ECO2 Soot blowers</u> <u>+70.495</u>		"										
		1	Pipe	01 HCB 41 BR 061, 062 01 HCB 42 BR 063, 064	"	480	88,9		160	1,0	-	2	28,55		
	<u>5.2.2</u>		<u>Piping to RH1 Soot blowers</u> <u>+67.385</u>		"										
		1	Pipe	01 HCB 41 BR 051, 052 01 HCB 42 BR 053, 054	"	480	88,9		160	1,0	-	2	31,37		
1	<u>5.2.3</u>		<u>Piping to SH2 Soot blowers</u> <u>+63.915</u>		"										
		1	Pipe	01 HCB 41 BR 041, 042 01 HCB 42 BR 043, 044	"	480	88,9		160	1,0	-	2	29,96		
	<u>5.2.4</u>		<u>Piping to RH2 Soot blowers</u> <u>+60.330</u>		"										
		1	Pipe	01 HCB 41 BR 031, 032 01 HCB 42 BR 033, 034	"	480	88,9		160	1,0	-	2	32,95		
	<u>5.2.5</u>		<u>Piping to SH3 Soot blowers</u> <u>+57.010</u>		"										
		1	Pipe	01 HCB 41 BR 021, 022 01 HCB 42 BR 023, 024	"	480	88,9		160	1,0	-	2	33,67		
	<u>5.2.6</u>		<u>Piping to SH1 Soot blowers</u> <u>+53.470</u>		"										
		1	Pipe	01 HCB 41 BR 011, 012 01 HCB 42 BR 013, 014	"	480	88,9		160	1,0	-	2	29,96		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: IV Soot Blower Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: IV Soot Blower Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

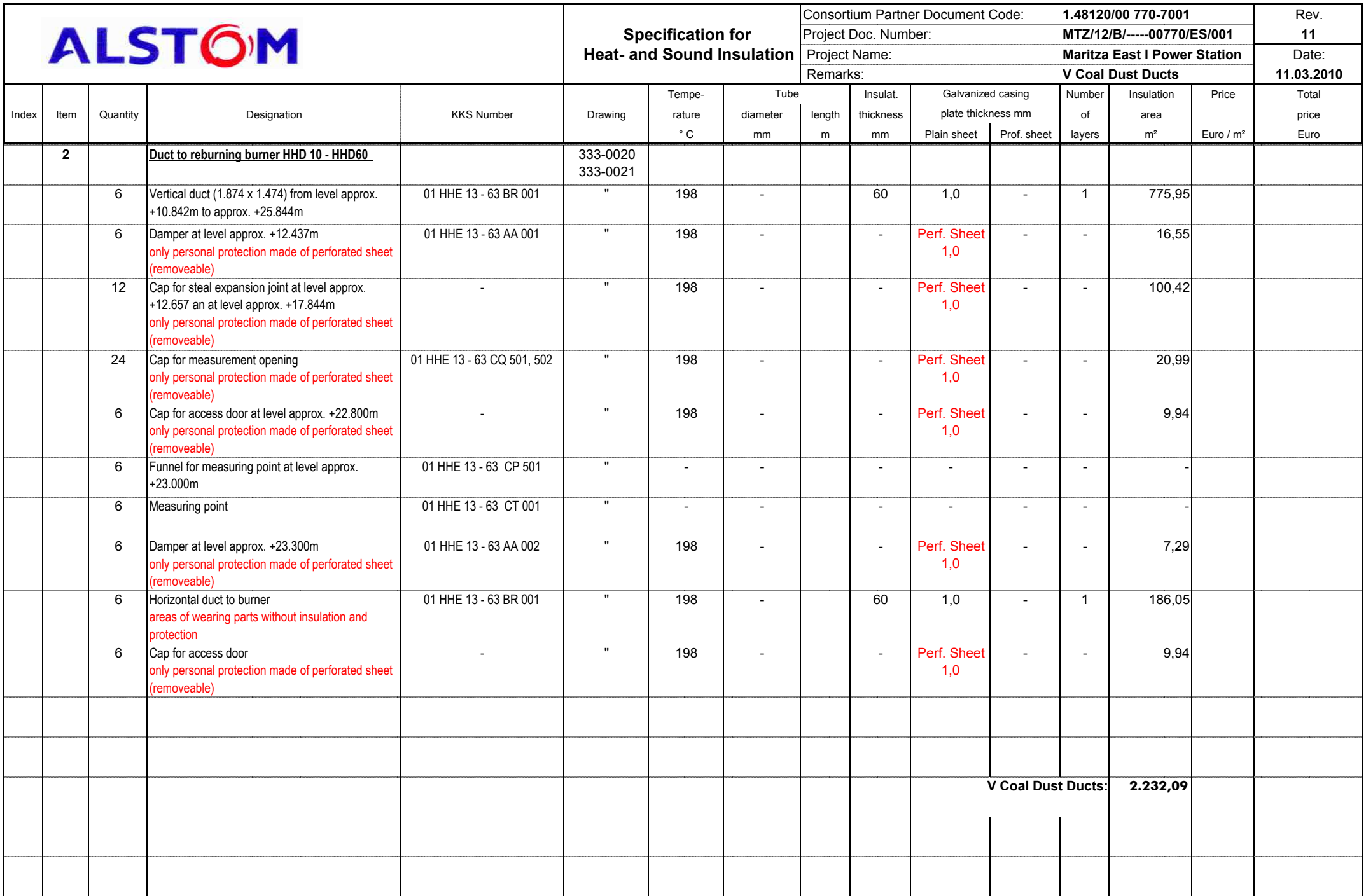



# Specification for Heat- and Sound Insulation

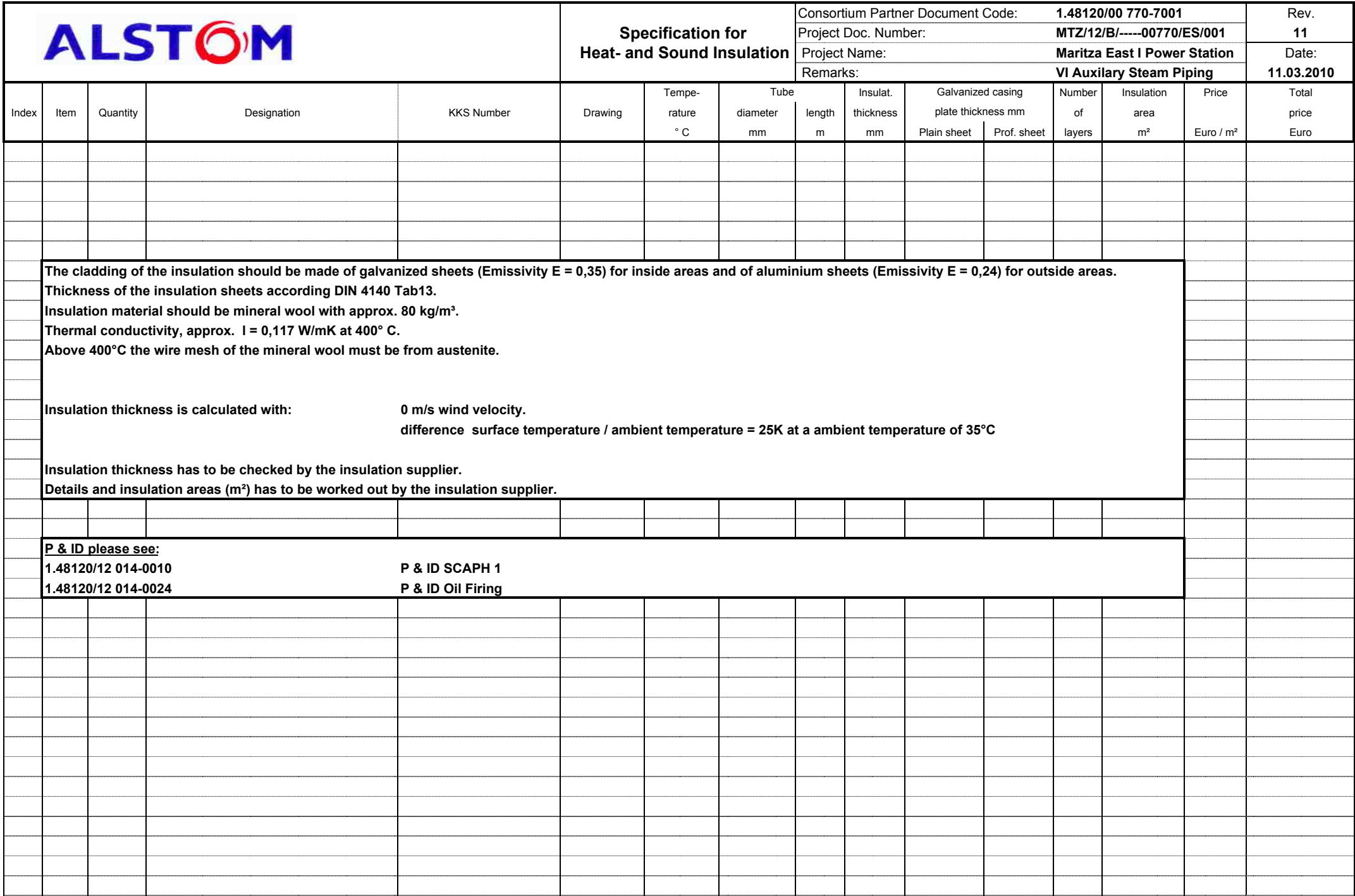
Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **V Coal Dust Ducts**


Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1</b>		<b><u>Coal dust ducts to burner HHA10 - HHA60</u></b>		333-0001 333-0002									
		6	Vertical duct (approx 2.460 x 1.450) from level approx. +10.842m to approx. +17.000m	01 HHE 10 - 60 BR 001	"	198	-		60	1,0	-	1	252,41	
		24	Measuring point at level approx. +11.642m	01 HHE 10 - 60 CT 001 - 004	"	-	-		-	-	-	-	-	
		6	Measuring point	01 HHE 10 - 60 CP 501	"	-	-		-	-	-	-	-	
		12	Cap for steal expansion joint at level approx. +11.842m and at level approx.. +14.257m <i>only personal protection made of perforated sheet (removeable)</i>	-	"	198	-		-	Perf. Sheet 1,0	-	-	141,45	
		6	Damper at level approx. +12.437m <i>only personal protection made of perforated sheet (removeable)</i>	01 HHE 10 - 60 AA 001	"	198	-		-	Perf. Sheet 1,0	-	-	23,88	
		12	Cap for access door at level approx. +13.650m <i>only personal protection made of perforated sheet (removeable)</i>	-	"	198	-		-	Perf. Sheet 1,0	-	-	19,87	
		12	Damper at level approx. +13.900m <i>only personal protection made of perforated sheet (removeable)</i>	01 HHE 11 - 61, 12 - 62 AA 001	"	198	-		-	Perf. Sheet 1,0	-	-	14,58	
		12	Cap for opening at level approx. +14.000m <i>only personal protection made of perforated sheet (removeable)</i>	-	"	198	-		-	Perf. Sheet 1,0	-	-	10,49	
		24	Cap for opening at level approx. +15.100m <i>only personal protection made of perforated sheet (removeable)</i>	-	"	198	-		-	Perf. Sheet 1,0	-	-	20,99	
		12	Horizontal duct (1.100 x 1.450) to burner (connection to burner at level approx. +15.498m and at level approx. +18.159m) <i>areas of wearing parts without insulation and protection</i>	01 HHE 11 - 61, 12 - 62 BR 001	"	198	-		60	1,0	-	1	601,42	
		24	Measuring point	01 HHE 11 - 61, 12 - 62 CQ 501, 502	"	-	-		-	-	-	-	-	
		12	Cap for access door (1 access door per duct) <i>only personal protection made of perforated sheet (removeable)</i>	-	"	198	-		-	Perf. Sheet 1,0	-	-	19,87	
		12	Connection to main coal burner	-	"	-	-		-	-	-	-	-	



					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev.		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					11		
								Project Name: Maritza East I Power Station					Date:		
								Remarks: V Coal Dust Ducts					11.03.2010		
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: VI Auxiliary Steam Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VI Auxiliary Steam Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	1		<u>Auxiliary steam for SCAPH</u>		252-0040_1 252-0041_1									
2	1.1		<u>Main steam piping</u>		252-0101									
		1	Pipe	LBG 60 BR 001	"	325	273		130	1,0   -	2	251,17		
		1	T-Piece, connection for Oil Firing system.	LBG 60 BR 001	"	325	273		130	1,0   -	2	1,68		
2		19	Bend approx 90°	LBG 60 BR 001	"	325	273		130	1,0   -	2	32,06		
2		4	Bend approx 45°	LBG 60 BR 001	"	325	273		130	1,0   -	2	3,37		
		1	T-Piece, connection for SCAPH2	LBG 60 BR 001	"	325	273		130	1,0   -	2	1,68		
		25	Hanger construction	-	"	-	-		-	-   -	-	-		
2	1.2		<u>Auxiliary steam to SCAPH1</u>		252-0040_1 252-0041_1									
2		1	Pipe	LBG 60 BR 002	252-0102	325	219		130	1,0   -	2	158,01		
		7	Bend approx 90°	LBG 60 BR 002	"	325	219		130	1,0   -	2	8,93		
		2	Valve	LBG 60 AA 001, 002	"	325	219		130	1,0   -	2	6,28		
		1	T-Piece	LBG 60 BR 002	"	325	219		130	1,0   -	2	1,34		
		15	Hanger construction	-	"	-	-		-	-   -	-	-		
2		1	Transition Piece	LBG 61 BR 001	252-0103	325	457		140	1,0   -	2	41,68		
		1	Pipe	LBG 61 BR 001	"	325	457		140	1,0   -	2	50,94		
2		2	Bend approx 90°	LBG 60 BR 002	"	325	457		140	1,0   -	2	7,4		
		2	Stud for pressure measuring point	LBG 61 CP 001, 002	"	325	-		-	-   -	-	-		
		2	Pressure Measurement pipe for LBG61CP001&2 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	325	60,3		80	0,6   -	1	0,51		
		1	T-Piece	-	"	325	457		140	1,0   -	2	3,17		
		3	Hanger construction	-	"	-	-		-	-   -	-	-		
2		1	Transition Piece	LBG 61 BR 010	252-0104	325	457		140	1,0   -	2	41,68		
		1	Pipe to SCAPH	LBG 61 BR 010	"	325	273		130	1,0   -	2	60,77		
2		4	Bend approx 90°	LBG 61 BR 010	"	325	273		130	1,0   -	2	6,75		
		1	Valve	LBG 61 AA 001	"	325	273		130	1,0   -	2	3,51		
		4	Hanger construction	-	"	-	-		-	-   -	-	-		
2		1	Transition Piece	LBG 61 BR 020	252-0112	325	457		140	1,0   -	2	41,68		
		1	Pipe to SCAPH	LBG 61 BR 020	"	325	355,6		140	1,0   -	2	59,9		
2		3	Bend approx 90°	LBG 61 BR 020	"	325	355,6		140	1,0   -	2	7,93		
		1	Valve	LBG 61 AA 002	"	325	355,6		140	1,0   -	2	4,71		
		4	Hanger construction	-	"	-	-		-	-   -	-	-		


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: VI Auxiliary Steam Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheetProf. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

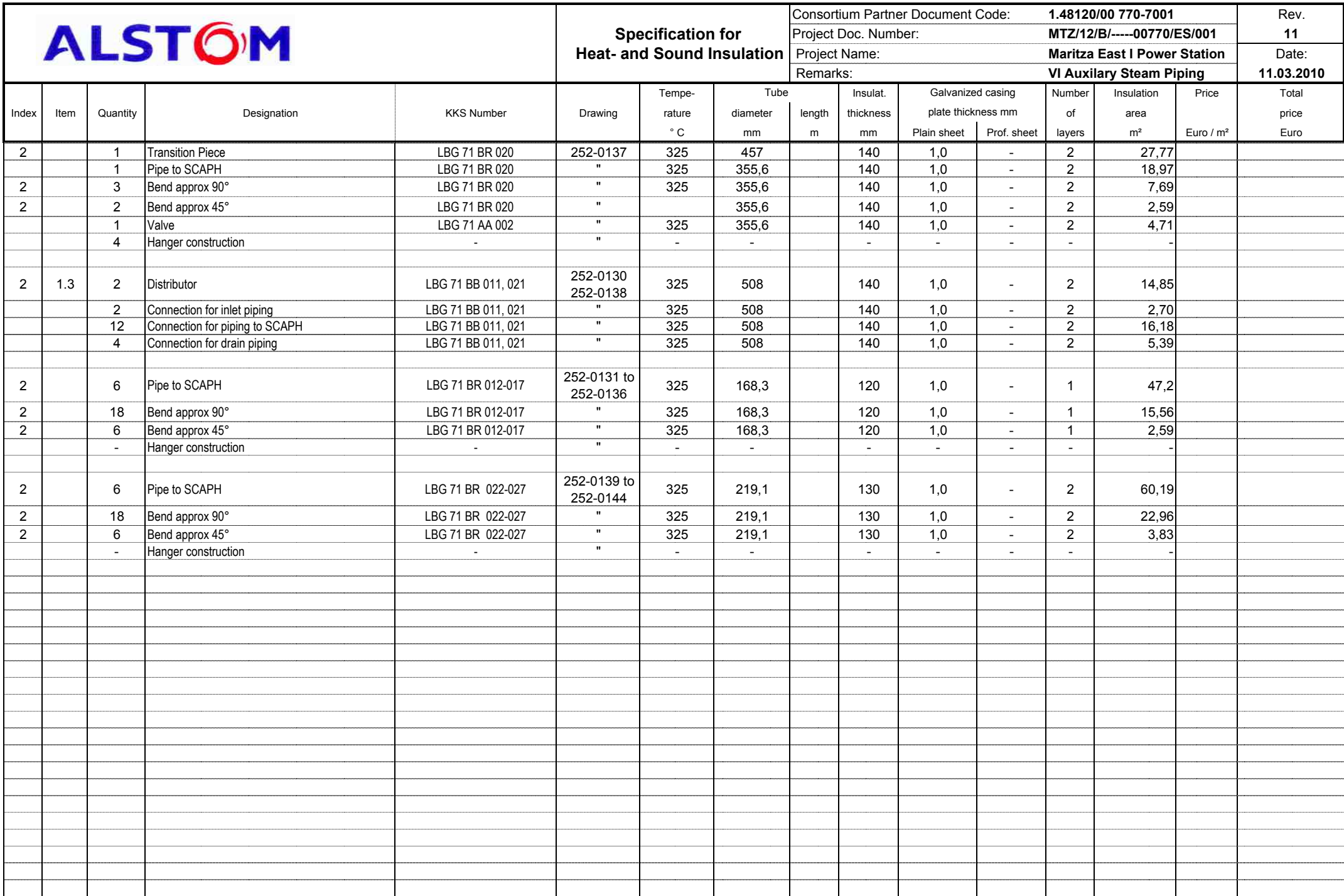
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VI Auxiliary Steam Piping**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	1.2	2	Distributor	LBG 61 BB 011, 021	252-0105 252-0113	325	508		140	1,0   -	2	14,85		
		2	Connection for inlet piping	LBG 61 BB 011, 021	"	325	508		140	1,0   -	2	2,70		
		12	Connection for piping to SCAPH	LBG 61 BB 011, 021	"	325	508		140	1,0   -	2	16,18		
		4	Connection for drain piping	LBG 61 BB 011, 021	"	325	508		140	1,0   -	2	5,39		
2		6	Pipe to SCAPH	LBG 61 BR 012-017	252-0106 to 252-0111	325	168,3		120	1,0   -	1	53,8		
2		18	Bend approx 90°	LBG 61 BR 012-017	"	325	168,3		120	1,0   -	1	15,56		
2		6	Bend approx 45°	LBG 61 BR 012-017	"	325	168,3		120	1,0   -	1	2,59		
		-	Hanger construction	-	"	-	-		-	-   -	-	-		
2		6	Pipe to SCAPH	LBG 61 BR 022-027	252-0114 to 252-0119	325	219,1		130	1,0   -	2	68,6		
2		18	Bend approx 90°	LBG 61 BR 022-027	"	325	219,1		130	1,0   -	2	22,96		
2		6	Bend approx 45°	LBG 61 BR 022-027	"	325	219,1		130	1,0   -	2	3,83		
		-	Hanger construction	-	"	-	-		-	-   -	-	-		
2	1.3		<b>Auxiliary steam to SCAPH2</b>		252-0040_1 252-0041_1									
2		1	Pipe	LBG 70 BR 002	252-0127	325	219		130	1,0   -	2	19,56		
2		1	Bend approx 90°	LBG 70 BR 002	"	325	219		130	1,0   -	2	1,28		
		2	Valve	LBG 70 AA 001, 002	"	325	219		130	1,0   -	2	6,28		
		1	T-Piece	LBG 70 BR 002	"	325	219		130	1,0   -	2	1,34		
		3	Hanger construction	-	"	-	-		-	-   -	-	-		
2		1	Transition Piece	LBG 71 BR 001	252-0128	325	457		140	1,0   -	2	23,15		
		1	Pipe	LBG 71 BR 001	"	325	457		140	1,0   -	2	9,26		
2		2	Bend approx 90°	LBG 70 BR 002	"	325	457		140	1,0   -	2	7,59		
		2	Stud for pressure measuring point	LBG 71 CP 001, 002	"	325	-		-	-   -	-	-		
		2	Pressure Measurement pipe for LBG71CP001&2 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	325	60,3		80	0,6   -	1	0,51		
		1	T-Piece	-	"	325	457		140	1,0   -	2	3,24		
		4	Hanger construction	-	"	-	-		-	-   -	-	-		
2		1	Transition Piece	LBG 71 BR 010	252-0129	325	457		140	1,0   -	2	27,77		
		1	Pipe to SCAPH	LBG 71 BR 010	"	325	273		130	1,0   -	2	20,08		
2		4	Bend approx 90°	LBG 71 BR 010	"	325	273		130	1,0   -	2	6,75		
		1	Valve	LBG 71 AA 001	"	325	273		130	1,0   -	2	3,51		
		4	Hanger construction	-	"	-	-		-	-   -	-	-		

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: VI Auxiliary Steam Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: VI Auxiliary Steam Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	1.4		Piping after SCAPH1		252-0040_1 252-0041_1									
2	1.4.1		From SCAPH to condensate tank		252-0120 252-0121									
		4	Pipe after SCAPH	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	19,17	
2		4	Bend approx 45°	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	0,7	
2		4	Bend approx 90°	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	1,39	
		2	T- Piece	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	0,97	
		2	Pipe after SCAPH	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	21,53	
2		16	Bend approx 90°	LCN 10 BR 010, 020	"	212	114,3		60	0,6	-	1	5,56	
		2	Temperatur measuring points	LCN 10 CT 001, 002	"	-	-		-	-	-	-	-	
		2	Valve	LCN 10 AA 001, 002	"	212	114,3		60	0,6	-	1	2,32	
		6	Hanger construction	-	"	-	-		-	-	-	-	-	
2	1.4.2		From SCAPH Distributor to condensate tank		252-0040_1 252-0041_1									
		4	Pipe after distributor	LCN 10 BR 201, 202	"	212	60,3		50	0,6	-	1	7,88	
		-	Bend	LCN 10 BR 201, 202	"	212	60,3		50	0,6	-	1	1,38	
		2	T- Piece	LCN 10 BR 201, 202	"	212	60,3		50	0,6	-	1	0,9	
		4	Pipe after T-Piece	LCN 10 BR 201, 202	"	212	60,3		50	0,6	-	1	7,88	
		-	Bend	LCN 10 BR 201, 202	"	212	60,3		50	0,6	-	1	1,38	
		2	Valve	LCN 10 AA 201, 202	"	212	60,3		50	0,6	-	1	1,8	
		1	T- Piece	LCN 10 BR 210	"	212	60,3		50	0,6	-	1	0,9	
		1	Pipe to condensate tank	LCN 10 BR 210	"	212	60,3		50	0,6	-	1	3,94	
		-	Bend		"	212	60,3		50	0,6	-	1	0,69	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
2	1.4.3		Condensate tank		252-0040_1 252-0041_1									
2		1	Condensate tank	LCN 10 BB 001	"	212	approx. 1000		80	1,0	-	1	163,19	
		1	Stud for pressure measuring point	LCN 10 CP 001	"	212	-		-	-	-	-	-	
		1	Pressure Measurement pipe for LCN10CP001 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	-		50	0,5	-	1	0,16	
		2	Stud for level measuring point	LCN 10 CL 001, 002	"	212	-		-	-	-	-	-	
		2	Pressure Measurement pipe for LCN10CL001, 002 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,32	


					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001						
									Project Name: Maritza East I Power Station					Date: 11.03.2010	
									Remarks: VI Auxiliary Steam Piping						
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

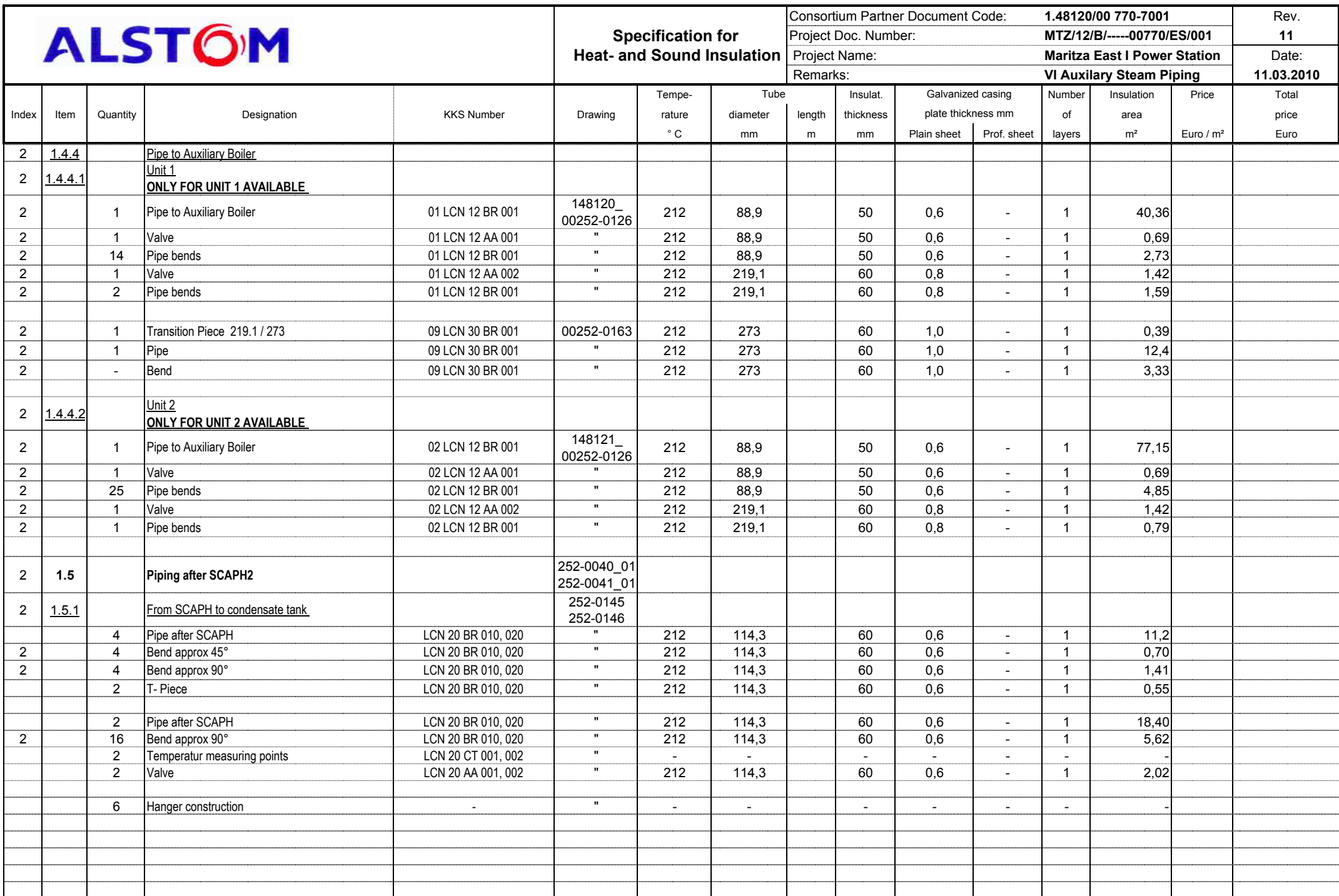
# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VI Auxiliary Steam Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1.4.3</b>		After condensate tank											
2		1	Pipe to condensate pump	LCN 10 BR 030	252-0122	212	88,9		50	0,6	-	1	28,88	
2		10	Pipe bends	LCN 10 BR 030	"	212	88,9		50	0,6	-	1	2,31	
		1	Temperatur measuring point	LCN 10 CT 003	-	-	-		-	-	-	-	-	
		1	T-Piece for pipe connection	LCN 10 BR 030	"	212	88,9		50	0,6	-	1	0,38	
		1	T-Piece for drain connection	LCN 10 BR 030	"	212	88,9		50	0,6	-	1	0,36	
		1	Valve	LCN 10 AA 003	"	212	88,9		50	0,6	-	1	0,90	
		1	Stud for pressure measuring point	LCN 10 CP 002	"	212	-		-	-	-	-	-	
		1	Pressure Measurement pipe for LCN10CP002 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,16	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
1		1	Drain pipe personal protection, only to the 1st Valve or max. only 3m after main piping.	LCN 10 BR 220	"	212	48,3		50	0,5	-	1	0,95	
2		1	Condensate pump	LCN 10 AP 001	252-0040 252-0041	212	-		70	0,8	-	1	5,00	
2		1	Pipe downstream condensate pump	LCN 10 BR 031	252-0123	212	88,9		50	0,6	-	1	43,97	
2		14	Pipe bends	LCN 10 BR 031	"	212	88,9		50	0,6	-	1	3,93	
		1	Valve	LCN 10 AA 004	"	212	88,9		50	0,6	-	1	0,23	
		2	Stud for measuring point	LCN 10 CP 003, CQ 001	"	212	-		-	-	-	-	-	
		2	Measurement pipe for LCN10CP003, CQ001 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	-		50	0,5	-	1	0,32	
		1	T-Piece for drain connection	LCN 10 BR 031	"	212	88,9		50	0,6	-	1	0,36	
		4	T-Piece for pipe connection	LCN 10 BR 031	"	212	88,9		50	0,6	-	1	1,44	
		1	Valve	LCN 10 AA 007	"	212	88,9		50	0,6	-	1	0,90	
		1	Valve	LCN 10 AA 008	"	212	219,1		60	0,8	-	1	1,78	
2		1	Pipe to Flash Tank (IBD)	LCN 10 BR 031	"	212	219,1		60	0,8	-	1	4,51	
2		2	Pipe bends	LCN 10 BR 031	"	212	219,1		60	0,8	-	1	1,70	
		17	Hanger construction	-	"	-	-		-	-	-	-	-	
2		1	Pipe	LCN 10 BR 033	252-0124	212	88,9		50	0,6	-	1	1,97	
		1	Valve	LCN 10 AA 005	"	212	88,9		50	0,6	-	1	0,90	
2		3	Bend approx 90°	LCN 10 BR 033	"	212	88,9		50	0,6	-	1	0,69	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
2		1	Pipe	LCN 10 BR 032	252-0040 252-0041	212	60,3		50	0,6	-	1	1,97	
		1	Valve	LCN 10 AA 006	"	212	60,3		50	0,6	-	1	0,90	
		3	Bend	LCN 10 BR 032	"	212	60,3		50	0,6	-	1	0,69	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
2		1	Pipe to condenser HP flash tank	LCN 11 BR 001	252-0125	212	88,9		50	0,6	-	1	21,66	

					Specification for Heat- and Sound Insulation				Consortium Partner Document Code: 1.48120/00 770-7001					Rev.	
									Project Doc. Number: MTZ/12/B/-----00770/ES/001					11	
									Project Name: Maritza East I Power Station					Date:	
									Remarks: VI Auxiliary Steam Piping					11.03.2010	
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2		10	Pipe bends	LCN 11 BR 001	"	212	88,9		50	0,6	-	1	2,31		




					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: VI Auxiliary Steam Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VI Auxiliary Steam Piping**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<u>1.5.2</u>		From SCAPH Distributor to condensate tank		252-0040_1 252-0041_1									
2		4	Pipe after distributor	LCN 20 BR 201, 202	"	212	60,3		50	0,6	-	1	7,88	
2		-	Bend	LCN 20 BR 201, 202	"	212	60,3		50	0,6	-	1	1,38	
2		2	T- Piece	LCN 20 BR 201, 202	"	212	60,3		50	0,6	-	1	0,9	
2		4	Pipe after T-Piece	LCN 20 BR 201, 202	"	212	60,3		50	0,6	-	1	7,88	
2		-	Bend	LCN 20 BR 201, 202	"	212	60,3		50	0,6	-	1	1,38	
2		2	Valve	LCN 20 AA 201, 202	"	212	60,3		50	0,6	-	1	1,8	
2		1	T- Piece	LCN 20 BR 210	"	212	60,3		50	0,6	-	1	0,9	
2		1	Pipe to condensate tank	LCN 20 BR 210	"	212	60,3		50	0,6	-	1	3,94	
2		-	Bend		"	212	60,3		50	0,6	-	1	0,69	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
2	<u>1.5.3</u>		Condensate tank		252-0040_1 252-0041_1									
2		1	Condensate tank	LCN 20 BB 001	"	212	approx. 1000		80	1,0	-	1	163,19	
		1	Stud for pressure measuring point	LCN 20 CP 001	"	212	-		-	-	-	-	-	
		1	Pressure Measurement pipe for LCN10CP001 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,16	
		2	Stud for level measuring point	LCN 20 CL 001, 002	"	212	-		-	-	-	-	-	
		2	Pressure Measurement pipe for LCN10CL001, 002 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,32	
2			After condensate tank		252-0147									
		1	Pipe to condensate pump	LCN 20 BR 030	"	212	88,9		50	0,6	-	1	28,21	
2		10	Bend bends	LCN 20 BR 030	"	212	88,9		50	0,6	-	1	2,25	
		1	Temperatur measuring point	LCN 20 CT 003	-	-	-		-	-	-	-	-	
		1	T-Piece for pipe connection	LCN 20 BR 030	"	212	88,9		50	0,6	-	1	0,36	
		1	T-Piece for drain connection	LCN 20 BR 030	"	212	88,9		50	0,6	-	1	0,36	
		1	Valve	LCN 20 AA 003	"	212	88,9		50	0,6	-	1	0,90	
		1	Stud for pressure measuring point	LCN 20 CP 002	"	212	-		-	-	-	-	-	
		1	Pressure Measurement pipe for LCN20CP002 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,16	
		10	Hanger construction	-	"	-	-		-	-	-	-	-	


					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev.		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001					11		
								Project Name: Maritza East I Power Station					Date:		
								Remarks: VI Auxiliary Steam Piping					11.03.2010		
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		1	Drain pipe personal protection, only to the 1st Valve or max. only 3m after main piping.	LCN 20 BR 220	"	212	33,4		50	0,5	-	1	0,95		

# Specification for Heat- and Sound Insulation


Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VI Auxiliary Steam Piping**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	1.5.3	1	Condensate pump	LCN 20 AP 001	252-0040 252-0041	212	-		80	0,8	-	1	5,00	
2		1	Pipe downstream condensate pump	LCN 20 BR 031	252-0148	212	88,9		50	0,6	-	1	73,47	
2		20	Pipe bends	LCN 20 BR 031	"	212	88,9		50	0,6	-	1	4,51	
		1	Valve	LCN 20 AA 004	"	212	88,9		50	0,6	-	1	0,9	
		2	Stud for measuring point	LCN 20 CP 003, CQ 001	"	212	-		-	-	-	-	-	
		2	Measurement pipe for LCN20CP003, CQ001 personal protection, only to the 1st Valve or max. only 0,5m after main piping.	-	"	212	60,3		50	0,6	-	1	0,32	
		1	T-Piece for drain connection	LCN 20 BR 031	"	212	88,9		50	0,6	-	1	0,36	
		4	T-Piece for pipe connection	LCN 20 BR 031	"	212	88,9		50	0,6	-	1	1,44	
		1	Valve	LCN 20 AA 007	"	212	88,9		50	0,6	-	1	0,90	
		1	Valve	LCN 20 AA 008	"	212	219,1		60	0,8	-	1	1,78	
2		1	Pipe to Flash Tank (IBD)	LCN 20 BR 031	"	212	219,1		60	0,8	-	1	3,19	
2		2	Pipe bends	LCN 20 BR 031	"	212	219,1		60	0,8	-	1	1,59	
		34	Hanger construction	-	"	-	-		-	-	-	-	-	
2		1	Pipe	LCN 20 BR 033	252-0149	212	88,9		50	0,6	-	1	1,31	
		1	Valve	LCN 20 AA 005	"	212	88,9		50	0,6	-	1	0,90	
2		3	Bend approx 90°	LCN 20 BR 033	"	212	88,9		50	0,6	-	1	0,69	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
2		1	Pipe	LCN 20 BR 032	252-0040 252-0041	212	60,3		50	0,6	-	1	7,88	
2		1	Valve	LCN 20 AA 006	"	212	60,3		50	0,6	-	1	0,9	
2		-	Bend	LCN 20 BR 032	"	212	60,3		50	0,6	-	1	1,38	
		-	Hanger construction	-	"	-	-		-	-	-	-	-	
		1	Pipe to condenser HP flash tank	LCN 21 BR 001	252-0150	212	88,9		50	0,6	-	1	29,52	
2		13	Pipe bends	LCN 21 BR 001	"	212	88,9		50	0,6	-	1	2,93	
2	1.5.4		Pipe to Auxiliary Boiler											
2	1.5.4.1		Unit 1 <b>ONLY FOR UNIT 1 AVAILABLE</b>											
2		1	Pipe to Auxiliary Boiler	01 LCN 22 BR 001	148120_ 00252-0151	212	88,9		50	0,6	-	1	8,9	
2		1	Valve	01 LCN 22 AA 001	"	212	88,9		50	0,6	-	1	0,69	
2		6	Pipe bends	01 LCN 22 BR 001	"	212	88,9		50	0,6	-	1	4,85	
2		1	Valve	01 LCN 22 AA 002	"	212	219,1		60	0,8	-	1	1,42	
2		1	Pipe bends	01 LCN 22 BR 001	"	212	219,1		60	0,8	-	1	0,79	

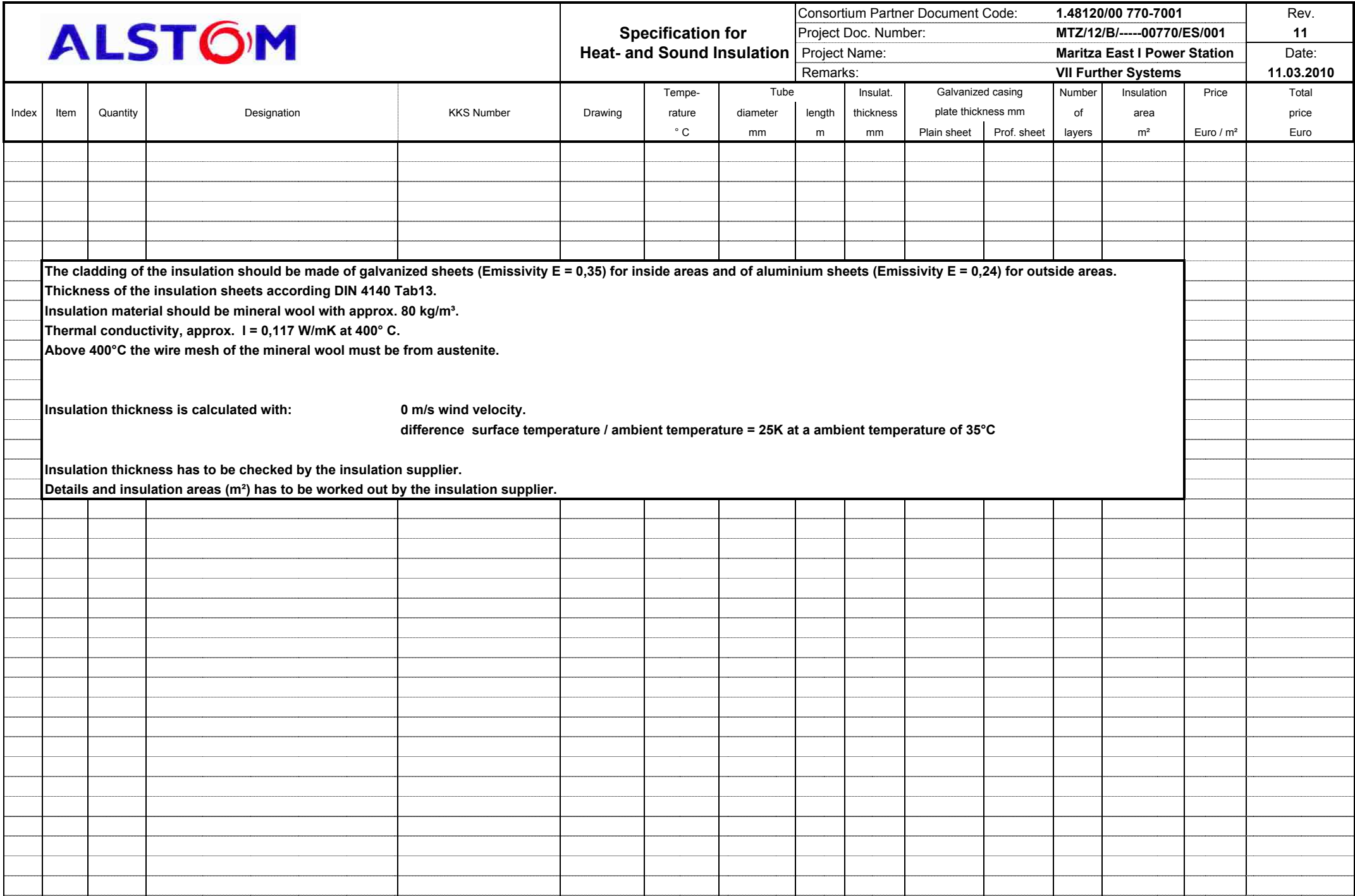
					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: VI Auxiliary Steam Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										Plain sheet	Prof. sheet				

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<u>1.5.4.2</u>		<u>Unit 2</u> <u>ONLY FOR UNIT 2 AVAILABLE</u>											
2		1	Pipe to Auxiliary Boiler	02 LCN 22 BR 001	148121_00252-0151	212	88,9		50	0,6   -	1	68,21		
2		1	Valve	02 LCN 22 AA 001	"	212	88,9		50	0,6   -	1	0,69		
2		17	Pipe bends	02 LCN 22 BR 001	"	212	88,9		50	0,6   -	1	4,85		
2		1	Valve	02 LCN 22 AA 002	"	212	219,1		60	0,8   -	1	1,42		
2		1	Pipe bends	02 LCN 22 BR 001	"	212	219,1		60	0,8   -	1	0,79		
	<b>2</b>		<b>Auxiliary steam for Oil Firing</b>											
	<b>2.1</b>		<b>Main steam piping</b>		513-0015									
		1	Connection to LBG60	-	"	-	-		-	-   -	-			
		1	Valve	01 LBG 65 AA 001	"	307								
		1	Main Steam pipe	01 LBG 65 BR 001	"	307								
		1	Main Steam pipe to ring main	01 HJM 01 BR 001	"	307	60,3		90	0,6   -	1	18,87		
		10	Pipe bends	"	"	307	60,3		90	0,6   -	1	2,32		
		1	Ring main	01 HJM 01 BR 001	"	307	60,3		90	0,6   -	1	75,49		
		4	Pipe bends	"	"	307	60,3		90	0,6   -	1	0,93		
		4	T-Piece for pipe connection to Oil burner	"	"	307	60,3		90	0,6   -	1	1,56		
1		1	Drain pipe personal protection, only to the 1st Valve or max. only 3m after main piping.		"	307	33,4		80	0,6   -	1	1,71		
		4	T-Piece for Measurement pipe		"	307	60,3		90	0,6   -	1	0,97		
		4	Pressure Measurement pipe for HJM01CP301, 302, 303, 504 personal protection, only to the 1st Valve or max. only 0,5m after main piping.		"	307	60,3		90	0,6   -	1	1,14		
	<b>2.2</b>		<b>Auxiliary steam to Oil burner 1</b>		513-0015									
		1	Pipe	01 HJM 10 BR 001	"	307	33,7		80	0,6   -	1	3,04		
		5	Pipe bends	"	"	307	33,7		80	0,6   -	1	<b>0,7</b>		
		1	Measuring point HJM01CT001		"	307	33,7		80	0,6   -	1	0,4		
			<b>Valve Station</b>		"									
		3	Valve	01 HJM 10 AA 001- 003	"	307	33,7		80	0,6   -	1	2,88		
		1	-	01 HJM 10 AT 001	"	307	33,7		80	0,6   -	1	0,96		

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: VI Auxiliary Steam Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheetProf. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro

VI Auxilary Steam Piping:	2.534,15
---------------------------	----------

					Specification for Heat- and Sound Insulation			Consortium Partner Document Code: 1.48120/00 770-7001					Rev. 11		
								Project Doc. Number: MTZ/12/B/-----00770/ES/001							
								Project Name: Maritza East I Power Station					Date: 11.03.2010		
								Remarks: VI Auxiliary Steam Piping							
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro



# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VII Further Systems**

Rev.  
**11**  
 Date:  
**11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>1</b>		<b>Cooling water circuit</b> Insulation with mineral wool mats. Subconstr. by pipe section segments. 1st. Aluminium foil between heating cable and mineral wool. 2nd. Aluminium foil above wool to prevent entering condensation water. 20 mm space betw. matting and cladding. Drain holes in outer cladding.		12 014-0100 727-0001									
		2	Pipe outside Boiler house <i>trace heated</i>	01 PGH 02 BR 011 01 PGH 03 BR 009	1.48120/00 727-0136	-	323,9	129,6	60	AL 1,0   -	1	196,99		
		8	Bend 90°	"	1.48120/00 727-0141	-	323,9		60	AL 1,0   -	1	13,92		
		4	Bend 45°	"	"	-	323,9		60	AL 1,0   -	1	3,48		
		2	Reducer	"	"	-	323,9/273		60	AL 1,0   -	1	0,70		
		6	Tee	"	"	-	323,9/76,1		60	AL 1,0   -	1	7,50		
		1	Pipe	"	"	-	76,1	0,7	60	AL 0,8   -	1	0,52		
		2	Draining pipe	"	"	-	21,3	7,7	40	AL 0,8   -	1	3,39		
		4	Bend 45°	"	"	-	21,3		40	AL 0,8   -	1	0,16		
		2	Valve	01 PGH 02 AA 002 PGH 03 AA 001	01 "	-	21,3		40	AL 0,8   -	1	1,00		
		2	Pipe outside Boiler house <i>trace heated</i>	01 PGH 02 BR 012 01 PGH 03 BR 008	1.48120/00 727-0137	-	273	28,8	60	AL 1,0   -	1	39,17		
		2	Bend 90°	"	1.48120/00 727-0140	-	273		60	AL 1,0   -	1	2,68		
		4	Bend 45°	"	"	-	273		60	AL 1,0   -	1	2,68		
		2	Tee	"	"	-	273/139.7		60	AL 1,0   -	1	1,96		
		2	Pipe outside Boiler house to Gypsum Dewatering Building <i>trace heated</i>	01 PGH 02 BR 013 01 PGH 03 BR 007	1.48120/00 727-0138 1.48120/00 727-0139	-	273	49,3	60	AL 1,0   -	1	67,05		
		8	Bend 90°	"		-	273		60	AL 1,0   -	1	10,72		

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VII Further Systems**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		2	Nozzle for automated venting	"	"	-	33,7		40	AL 0,8   -	1	0,18		
		2	Pipe outside Boiler house to ID Fans <i>trace heated</i>	01 PGH 24 BR 001, 050	1.48120/00 727-0171	-	139,7	51,9	60	AL 1,0   -	1	48,79		
		6	Bend 90°	"	1.48120/00 727-0172	-	139,7		60	AL 1,0   -	1	3,18		
		2	Reducer	"	"	-	139,7/114,3		60	AL 1,0   -	1	0,24		
		2	Tee	"	"	-	139,7/114,3		60	AL 1,0   -	1	1,16		
		2	Pipe to ID Fan motor <i>trace heated</i>	01 PGH 26, 28 BR 001	1.48120/00 727-0173	-	114,3	26,6	60	AL 1,0   -	1	22,88		
		10	Bend 90°	"	1.48120/00 727-0175	-	114,3		60	AL 1,0   -	1	4,20		
		2	Valve	01 PGH 26, 28 AA 001	"	-	114,3		60	AL 1,0   -	1	3,08		
		2	Reducer	01 PGH 26, 28 BR 001	"	-	114,3/76,1		60	AL 1,0   -	1	0,20		
		2	Flange	"	"	-	76,1		60	AL 0,8   -	1	1,20		
		1	Nozzle for automated venting	"	"	-	33,7		40	AL 0,8   -	1	0,09		
		2	Nozzle for instrument	-	"	-	33,7		40	AL 0,8   -	1	0,18		
		2	Instrument	01 PGH 26, 28 CT 001	"	-	33,7		40	AL 0,8   -	1	1,16		
		3	Draining pipe	01 PGH 26, 28 BR 001	"	-	21,3	2,4	40	AL 0,8   -	1	1,06		
		3	Valve	01 PGH 26, 28 AA 201	"	-	21,3		40	AL 0,8   -	1	1,50		
		2	Pipe from ID Fan motor <i>trace heated</i>	01 PGH 26, 28 BR 050	1.48120/00 727-0174	-	114,3	21,4	60	AL 1,0   -	1	18,40		
		9	Bend 90°	"	1.48120/00 727-0176	-	114,3		60	AL 1,0   -	1	3,78		
		2	Valve	01 PGH 26, 28 AA 002	"	-	114,3		60	AL 1,0   -	1	3,08		
		2	Reducer	01 PGH 26, 28 BR 050	"	-	114,3/76,1		60	AL 1,0   -	1	0,20		

# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VII Further Systems**

Rev. **11**  
 Date: **11.03.2010**

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		2	Flange	"	"	-	76,1		60	AL 0,8   -	1	1,20		
		3	Draining pipe	"	"	-	21,3	2,9	40	AL 0,8   -	1	1,28		
		1	Bend 45°	"	"	-	21,3		40	AL 0,8   -	1	0,05		
		3	Valve	01 PGH 26, 28 AA 202	"	-	21,3		40	AL 0,8   -	1	1,50		
		3	Pipe from Compressor building <i>trace heated</i>	01 PGH 20, 21, 22 BR001 09 PGH 22 BR 001	1.48120/00 727-0165	-	76,1	8,3	60	AL 0,8   -	1	6,14		
		3	Bend 90°	"	727-0167	-	76,1		60	AL 0,8   -	1	0,81		
		2	Bend 45°	"	727-0169 727-0177	-	76,1		60	AL 0,8   -	1	0,28		
		1	Tee	"	"	-	76,1/76,1		60	AL 0,8   -	1	0,40		
		1	Flange	"	"	-	76,1		60	AL 0,8   -	1	0,60		
		1	Valve	01 PGH 22 AA 002	"	-	76,1		60	AL 0,8   -	1	1,18		
		4	Pipe to Compressor building <i>trace heated</i>	01 PGH 20, 21, 22 BR050 09 PGH 22 BR 050	1.48120/00 727-0166	-	76,1	9,0	60	AL 0,8   -	1	6,66		
		2	Bend 90°	"	727-0168 727-0170	-	76,1		60	AL 0,8   -	1	0,54		
		2	Bend 45°	"	727-0178	-	76,1		60	AL 0,8   -	1	0,28		
		1	Tee	"	"	-	76,1/76,1		60	AL 0,8   -	1	0,40		
		1	Valve	01 PGH 22 AA 001	"	-	76,1		60	AL 0,8   -	1	1,18		
		2	Connecting Pipe between Unit 1 + Unit 2 <i>trace heated</i> <b>Pipes are not installed yet</b>	02 PGH 22 BR 001, 02 PGH 22 BR 050		-	76,1		60	AL 0,8   -	1		EP	
	1.1		<b>Service Water</b> <b>Only once for both Units available</b>											



**Specification for  
Heat- and Sound Insulation**

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VII Further Systems**

Rev. **11**  
 Date: **11.03.2010**


Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
		1	Pipe to vacuum cleaning station with connection to mixer <i>trace heated</i>	02 GHG 80 BR 001	1.48121/00 794-0131 Sheet 8 / 9	-	33,7	5,7	40	AL 0,8	-	1	2,74		
		4	Bend 90°	"	"	-	33,7		40	AL 0,8	-	1	0,40		
		1	Valve	02 GHG 80 AA 018	"	-	33,7		40	AL 0,8	-	1	0,58		

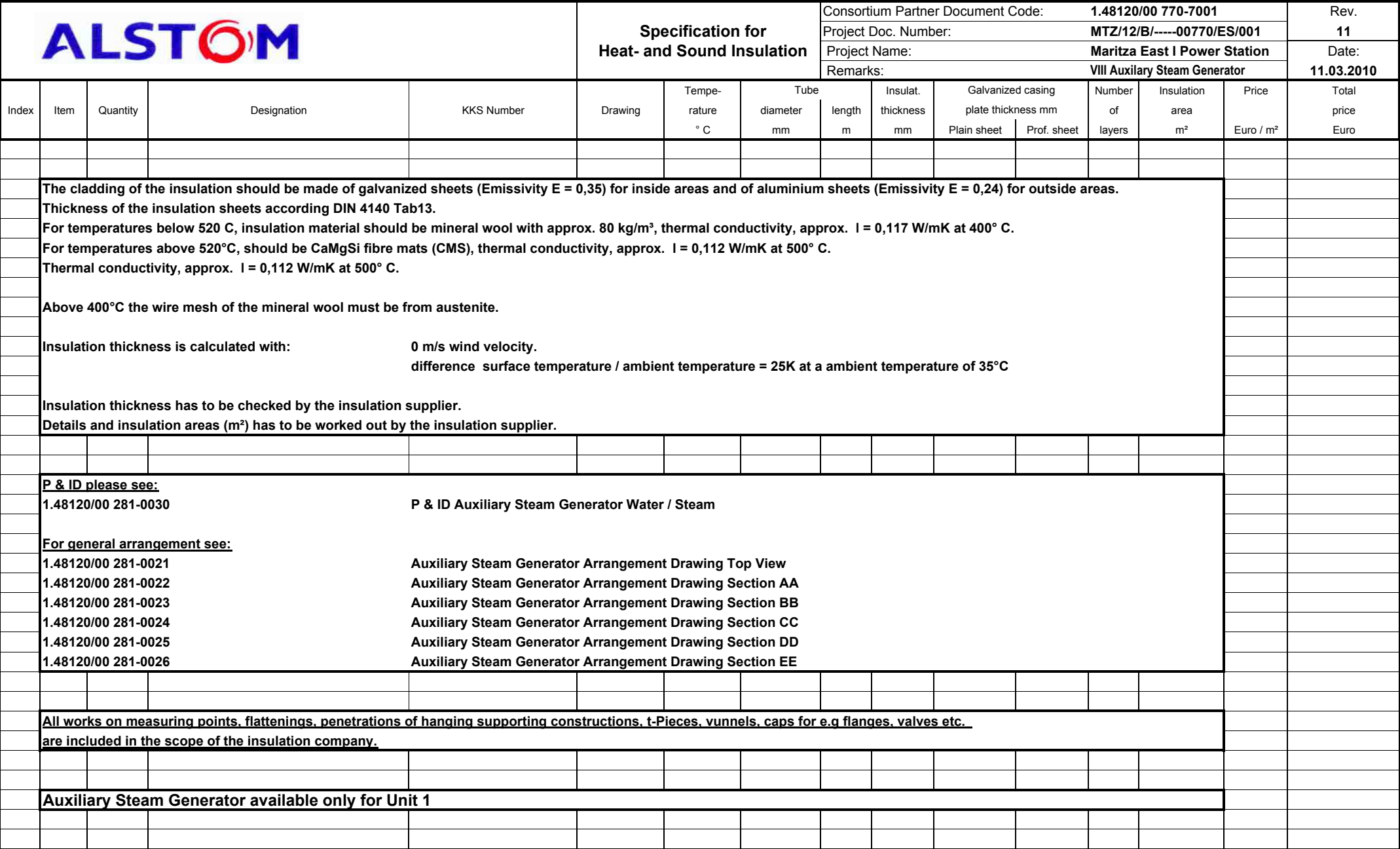
# Specification for Heat- and Sound Insulation

Consortium Partner Document Code: **1.48120/00 770-7001**  
 Project Doc. Number: **MTZ/12/B/-----00770/ES/001**  
 Project Name: **Maritza East I Power Station**  
 Remarks: **VII Further Systems**

Rev. **11**  
 Date: **11.03.2010**

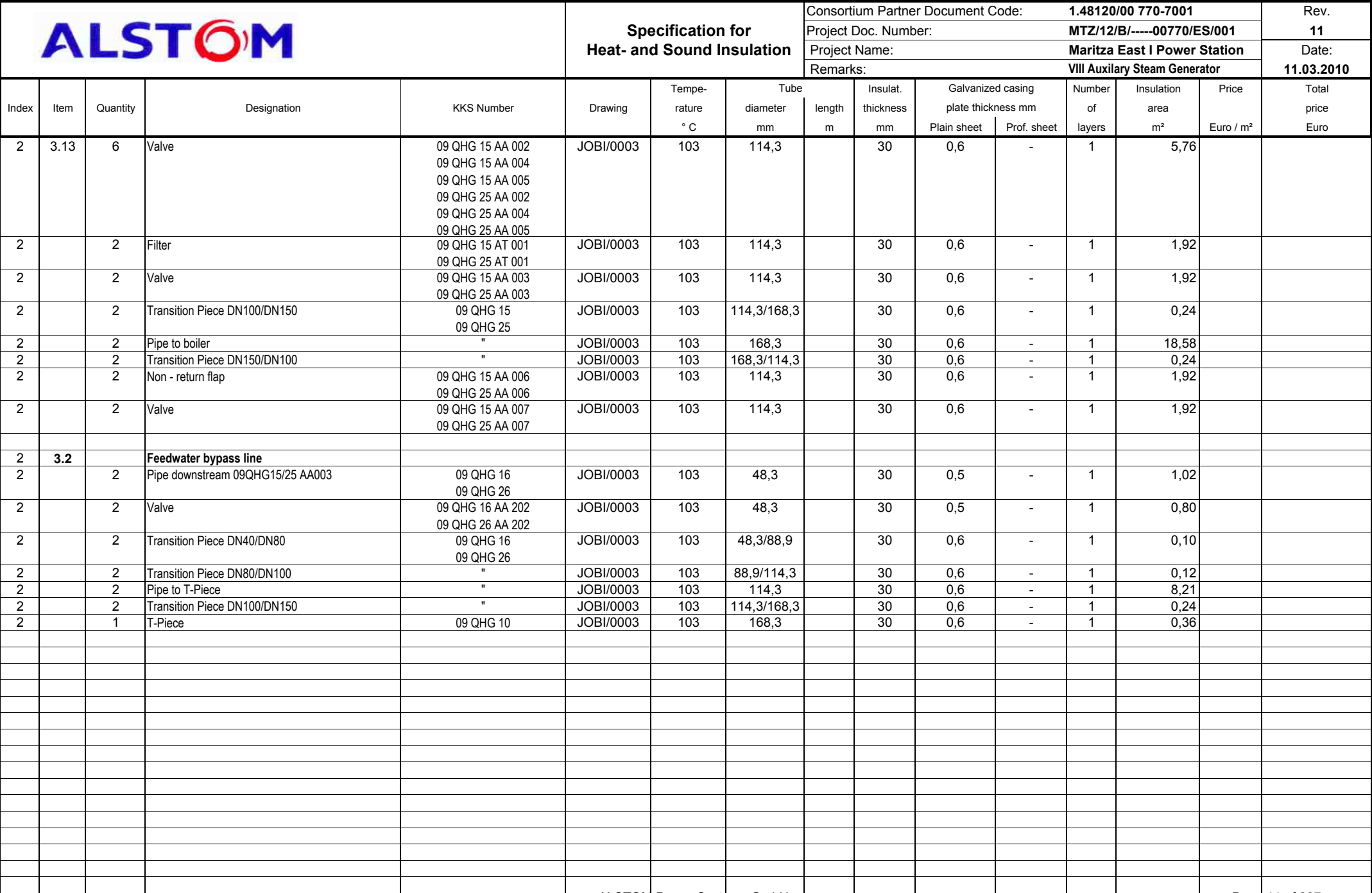
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
	<b>2</b>		<b>Ash disposal 2nd pass</b>		12 014-0061 650-0002									
	<b>2.1</b>		<b>Ash pipe</b>											
		1	Connection to Flue gas duct ash hopper		"	350	660		150	1,0   -	2	118,06		
		1	Damper at level approx. +34.900m		"	350	323,9		140	1,0   -	2	6,03		
		1	rotary vane feeder		"	350	323,9		140	1,0   -	2	6,03		
		1	Pipe from approx. +35.900m to approx. - 2.000m		"	350	323,9		140	1,0   -	2	71,06		
		1	Bend approx. 16°		"	350	323,9		140	1,0   -	2	0,38		
		1	connection for ventilation pipe		"	-	-		-	-   -	-	-		
		1	Bend approx. 30°		"	350	323,9		140	1,0   -	2	0,71		
	<b>2.2</b>		<b>Ventilation pipe</b>											
		1	Connection to Ash pipe									-		
		1	Pipe from approx. +5.956m to approx. +43.000m		"	< 350	355,6		130	1,0   -	2	66,16		
		6	Bend approx. 30°		"	< 350	355,6		130	1,0   -	2	0,64		
		1	Bend approx. > 90°		"	< 350	355,6		130	1,0   -	2	1,92		
	<b>3</b>		<b>Small Piping</b>											
		1	Piping				33,7	500	50	0,5   -	1	210,02		
		250	Valves				33,7		50	0,5   -	1	72,50		

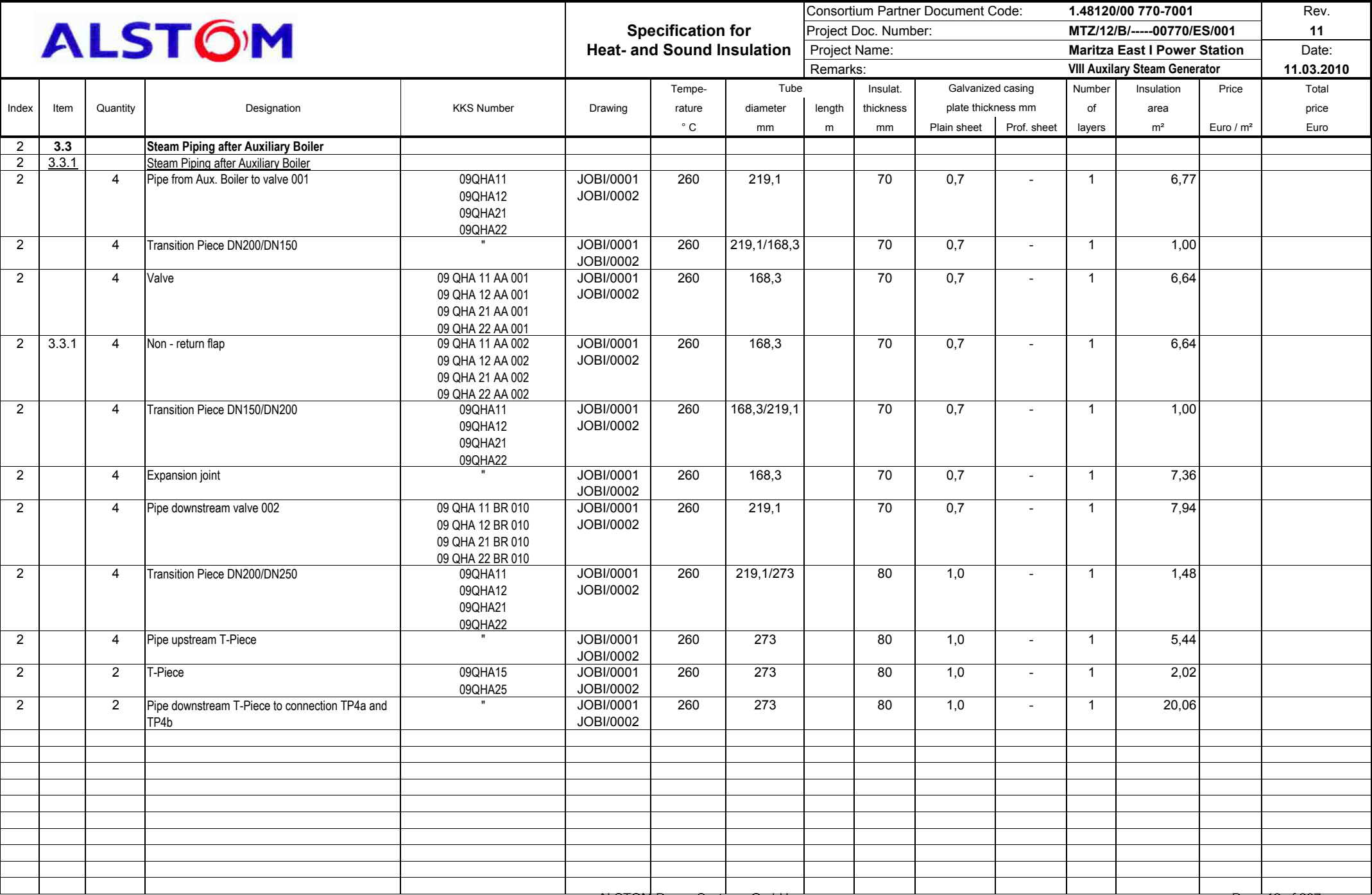
					<b>Specification for Heat- and Sound Insulation</b>			Consortium Partner Document Code: <b>1.48120/00 770-7001</b>					Rev. <b>11</b>	
								Project Doc. Number: <b>MTZ/12/B/-----00770/ES/001</b>					Date:	
								Project Name: <b>Maritza East I Power Station</b>					Date:	
								Remarks: <b>VII Further Systems</b>					<b>11.03.2010</b>	
Index	Item	Quantity	Designation	KKS Number	Drawing	Tempe- rature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
										<b>VII Further Systems:</b>		<b>1.046,21</b>		

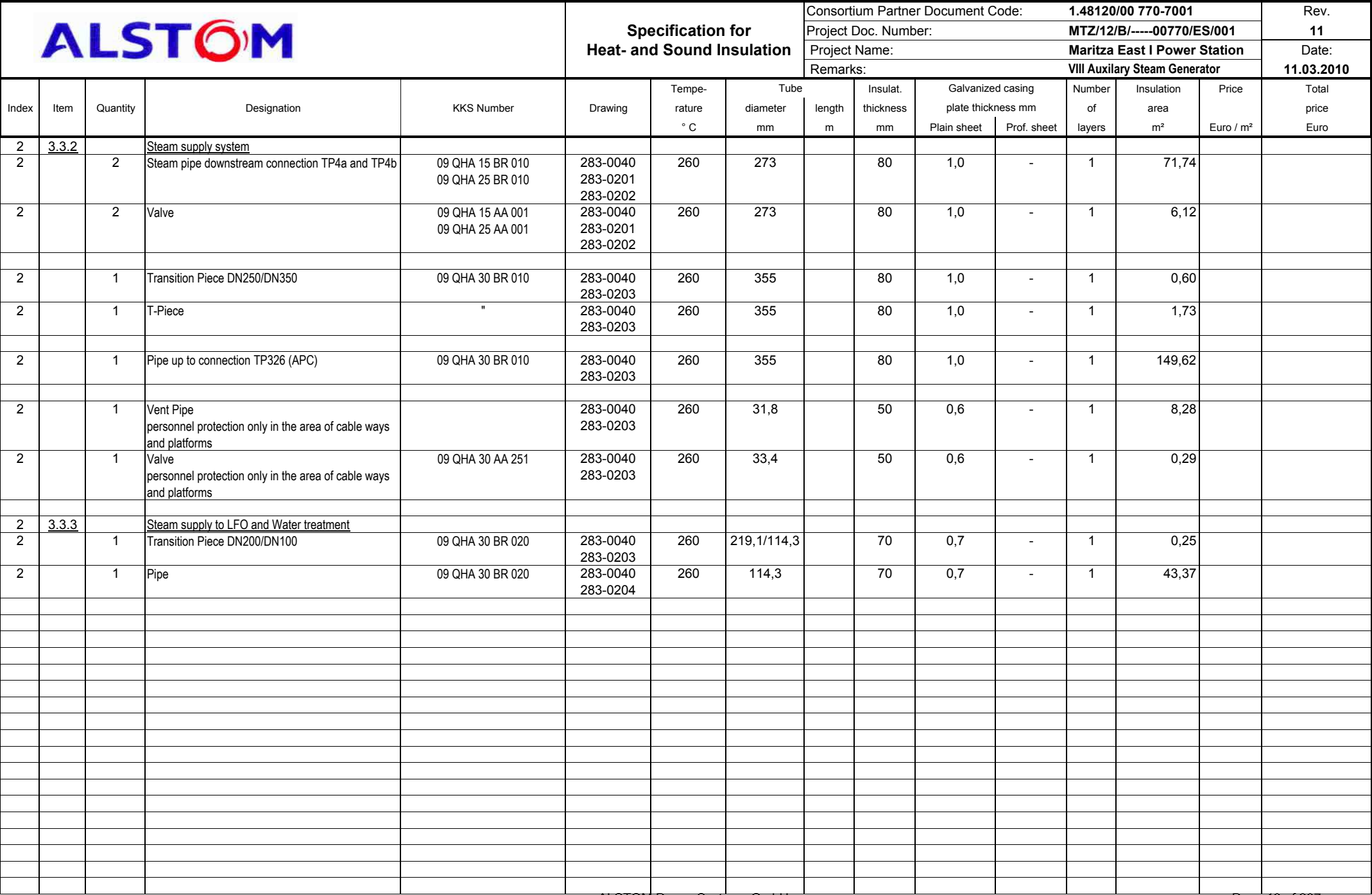


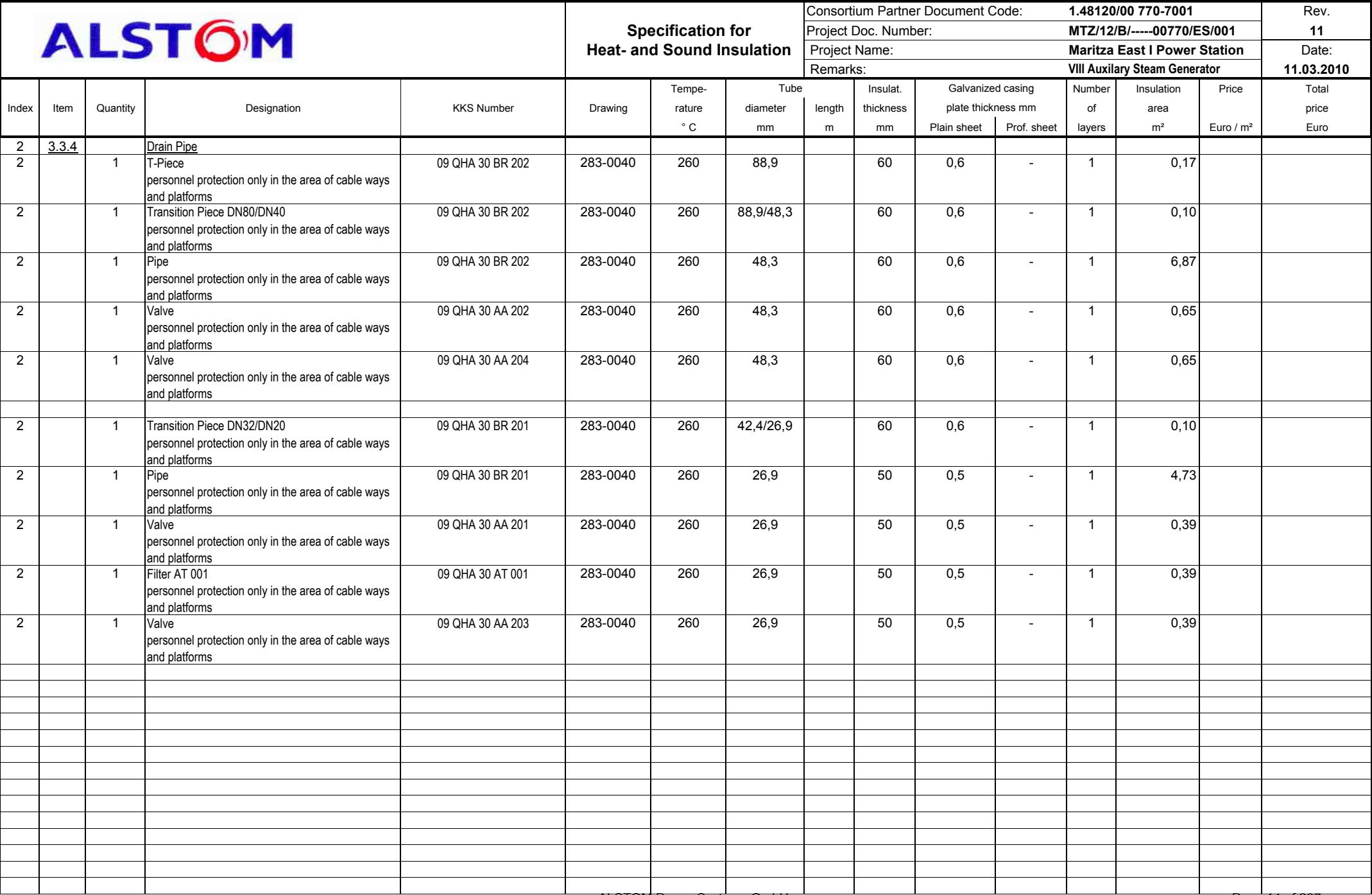
Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<b>1</b>		<b>Auxiliary boiler</b>											
2	<b>1.1</b>		<b>Auxiliary boiler</b>											
2		2	Front plate comments on the drawing 109942 and on the insulation specification TI031 have to be followed	09 QHA 10 09 QHA 20	108378 109630 109942 TI031	-	-		150	1,0	2	36,17		
2		4	Connection of burners.	-	"	-	-		-	-		-		
2		2	Auxiliary boiler comments on the drawing 109942 and on the insulation specification TI031 have to be followed	09 QHA 10 09 QHA 20	108378 109630 109942 TI031	200	4500		100	1,0	1	228,90		
2		4	Duct to superheaters		Not insulated, the ducts are covered with refractory lining from inside									
2		4	Superheaters insulated with 100mm CMS and 100mm Min.W comments on the drawing 109942 and on the insulation specification TI031 have to be followed	09 QHA 11 AC 001 09 QHA 12 AC 001 09 QHA 21 AC 001 09 QHA 22 AC 001	108378 109630 109942 TI031	750	-	100mm CMS + 100mm Min.W	1,0	-	2	156,80		
2		2	Rear plate comments on the drawing 109942 and on the insulation specification TI031 have to be followed	09 QHA 10 09 QHA 20	108378 109630 109942 TI031	>290	-		130	1,0	2	42,68		
2		2	Connection duct to flue gas duct comments on the drawing 109942 and on the insulation specification TI031 have to be followed	-	108378 109630 109942 TI031	290	-		130	1,0	2	112,32		
2	<b>1.2</b>		<b>Steam connection pipe</b>											
2		4	Pipe from boiler to superheater	09 QHA 10 09 QHA 20	108378 109630 109942 TI031	200	273		50	0,7	1	44,29		
2	<b>2</b>		<b>Feedwater tank</b>											
2		1	Feedwater tank	09 QHG 10 BB 001	108378	103	2500		30	1,0	1	110,49		
2		1	Deaerator	09 QHG 10 BB 002	108378	103	2000		30	1,0	1	31,03		

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<b>3</b>		<b>Piping</b>											
2	<b>3.1</b>		<b>Feed water piping</b>											
2	<b>3.1.1</b>		<b>Feed water piping after feed water tank to pumps</b>											
2		4	Piping	09 QHG 11 09 QHG 12 09 QHG 21 09 QHG 22	JOB1/0003	80	273		30	0,7   -	1	11,67		
2		4	Valve	09 QHG 11 AA 001 09 QHG 12 AA 001 09 QHG 21 AA 001 09 QHG 22 AA 001	JOB1/0003	80	273		30	0,7   -	1	9,04		
2		4	Filter	"	JOB1/0003	80	273		30	0,7   -	1	12,00		
2		4	Expansion joint	"	JOB1/0003	80	273		30	0,7   -	1	10,84		
2		-	Measuring points	-	JOB1/0003	-	-	-	-	-   -	-	-		
2	<b>3.1.2</b>		<b>Feed water pumps</b>											
2		4	Pump	09 QHG 11 AP 001 09 QHG 12 AP 001 09 QHG 21 AP 001 09 QHG 22 AP 001	JOB1/0003	80	-		30	0,7   -	1	8,00		
2	<b>3.1.3</b>		<b>Feed water downstream pumps</b>											
2		4	Pipe up to T-Piece	09 QHG 11 09 QHG 12 09 QHG 21 09 QHG 22	JOB1/0003	103	114,3		30	0,6   -	1	3,56		
2		4	Non - return flap	09 QHG 11 AA 002 09 QHG 12 AA 002 09 QHG 21 AA 002 09 QHG 22 AA 002	JOB1/0003	103	114,3		30	0,6   -	1	3,08		
2		4	Valve	"	JOB1/0003	103	114,3		30	0,6   -	1	3,08		
2		2	T-Piece	09 QHG 11 09 QHG 12 09 QHG 21 09 QHG 22	JOB1/0003	103	168,3		30	0,6   -	1	0,72		
2		2	Pipe DN 150	09 QHG 15 09 QHG 25	JOB1/0003	103	168,3		30	0,6   -	1	13,9		
2		4	Transition Piece DN150/DN100	"	JOB1/0003	103	168,3/114,3		30	0,6   -	1	0,75		
2		4	T-Piece	"	JOB1/0003	103	114,3		30	0,6   -	1	0,25		
2		4	Pipe DN 100	09 QHG 15 09 QHG 11 09 QHG 25 09 QHG 22	JOB1/0003	103	114,3		30	0,6   -	1	7,93		



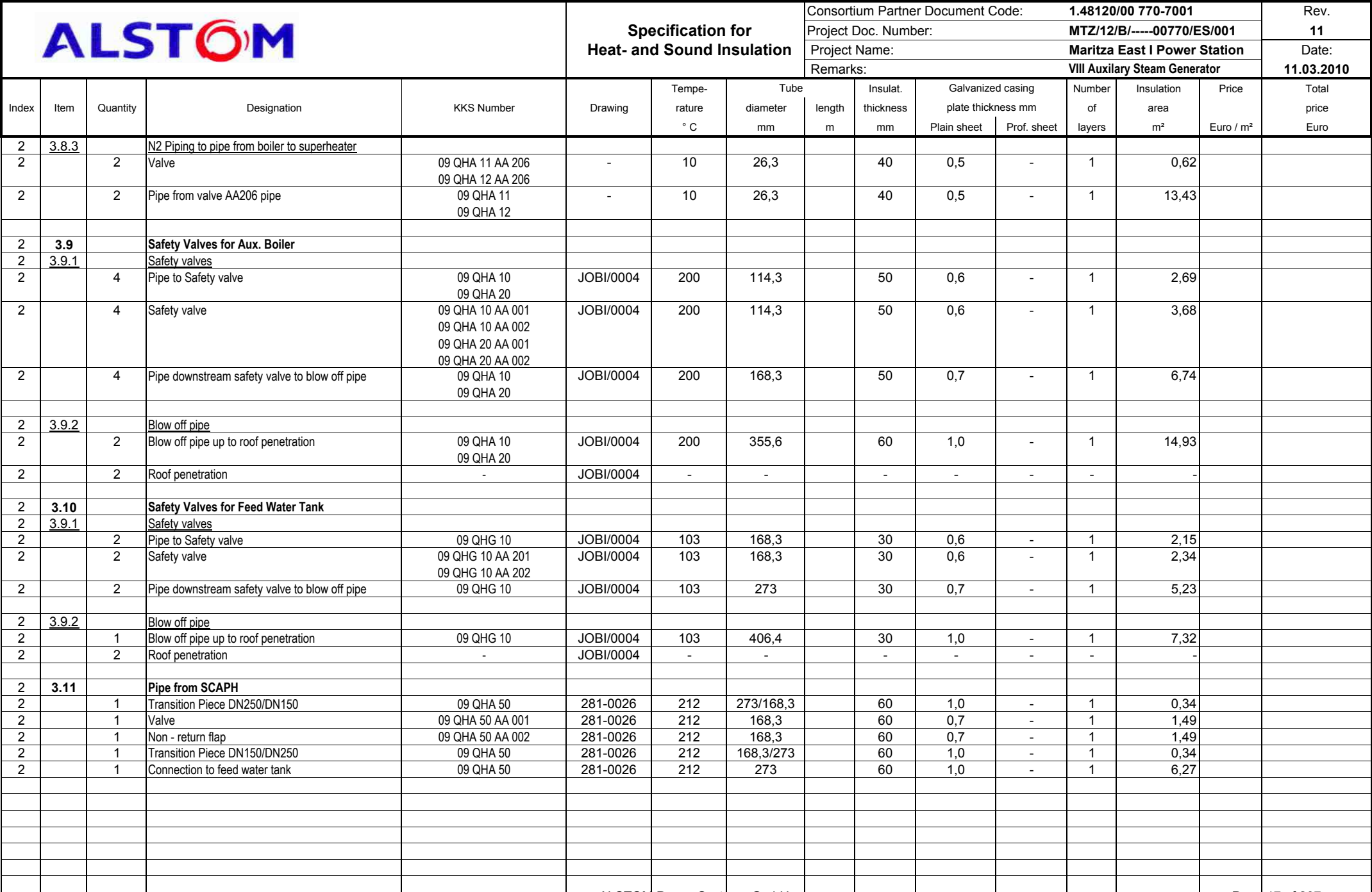




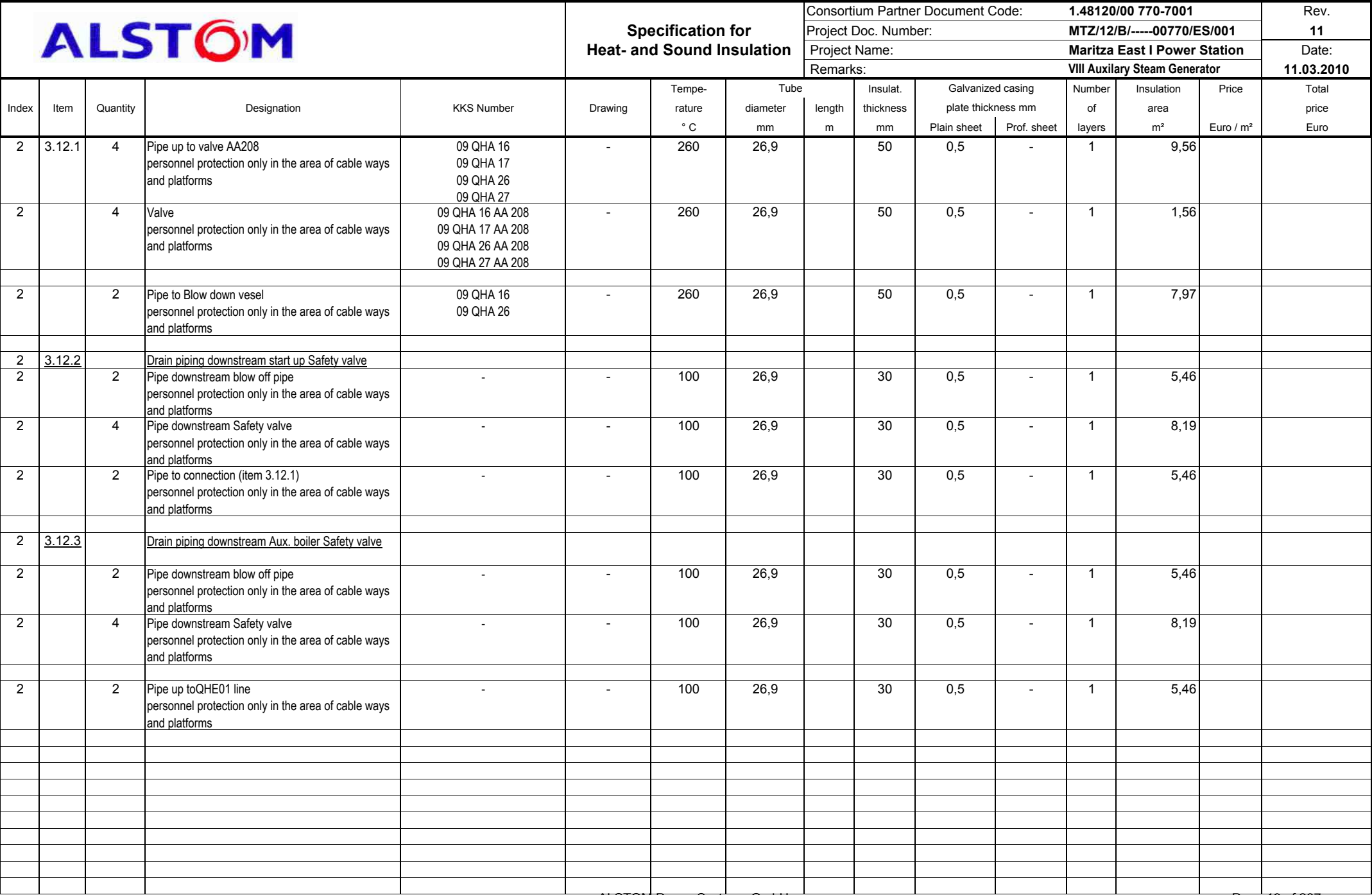


Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<b>3.4</b>		<b>Safety Valves for Aux. Start up system</b>											
2	<u>3.4.1</u>		<u>Safety valves</u>											
2		4	Pipe to Safety valve	09 QHA 37 09 QHA 38 09 QHA 47 09 QHA 48	JOB/0001 JOB/0002	260	168,3		70	0,7   -	1	3,87		
2		4	Safety valve	09 QHA 37 AA 202 09 QHA 38 AA 202 09 QHA 47 AA 202 09 QHA 48 AA 202	JOB/0001 JOB/0002	260	168,3		70	0,7   -	1	6,64		
2		4	Pipe downstream safety valve to blow off pipe	09 QHA 37 09 QHA 38 09 QHA 47 09 QHA 48	JOB/0001 JOB/0002	260	168,3		70	0,7   -	1	11,64		
2	<u>3.4.2</u>		<u>Blow off pipe</u>											
2		2	Blow off pipe up to roof penetration	09 QHA 13 09 QHA 23	JOB/0001 JOB/0002	260	355,6		80	1,0   -	1	16,19		
2	<u>3.4.3</u>		<u>Piping downstream Heating up Pipe</u>											
2		4	Pipe from Heating up Pipe to blow off pipe	09 QHA 37 09 QHA 38 09 QHA 47 09 QHA 48	JOB/0001 JOB/0002	260	114,3		70	0,7   -	1	3,99		
2		4	Valve	09 QHA 37 AA 003 09 QHA 38 AA 003 09 QHA 47 AA 003 09 QHA 48 AA 003	JOB/0001 JOB/0002	260	114,3		70	0,7   -	1	3,19		
2	<b>3.5</b>		<b>Heating up piping</b>											
2	<u>3.5.1</u>		<u>Pipe after steam pipe</u>											
2		4	Pipe	09 QHA 33 09 QHA 34 09 QHA 43 09 QHA 44	JOB/0001 JOB/0002 JOB/0004	260	139,7		70	0,7   -	1	5,27		
2		4	Non - return flap	09 QHA 33 AA 004 09 QHA 34 AA 004 09 QHA 43 AA 004 09 QHA 44 AA 004	JOB/0001 JOB/0002 JOB/0004	260	139,7		70	0,7   -	1	5,60		
2		4	Valve	09 QHA 33 AA 005 09 QHA 34 AA 005 09 QHA 43 AA 005 09 QHA 44 AA 005	JOB/0001 JOB/0002 JOB/0004	260	139,7		70	0,7   -	1	5,60		

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<b>3.5.2</b>		<u>Heating up pipe to Feed Water Tank</u>												
2		1	Horizontal pipe	09 QHA 50	JOB/0004	260	139,7		70	0,7	-	1	16,78		
2		1	Vertical pipe to Fees Water Tank	09 QHA 50	JOB/0004	260	139,7		70	0,7	-	1	2,20		
2		1	Valve	09 QHA 50 AA 001	JOB/0004	260	139,7		70	0,7	-	1	1,40		
2		1	Filter	09 QHA 50 AT 001	JOB/0004	260	139,7		70	0,7	-	1	1,40		
2		1	Valve	09 QHA 50 AA 002	JOB/0004	260	139,7		70	0,7	-	1	1,40		
2	<b>3.5.3</b>		<u>SH Steam Bypass</u>												
2		4	Piping	09 QHA 31 09 QHA 32 09 QHA 41 09 QHA 42	JOB/0001 JOB/0002	200	26,9		40	0,5	-	1	13,47		
2		4	Valve	09 QHA 31 AA 210 09 QHA 32 AA 210 09 QHA 41 AA 210 09 QHA 42 AA 210	JOB/0001 JOB/0002	200	26,9		40	0,5	-	1	0,31		
2	<b>3.6</b>		<b>Non pressure condensate with O2</b>												
2		2	Valve downstream TP8	09 LCN 31 AA 001 09 LCN 31 AA 002	JOB/0004	80	114,3		30	0,6	-	1	1,54		
2		1	Pipe to deaerator	09 LCN 31	JOB/0004	80	114,3		30	0,6	-	1	3,56		
2		1	Expansion joint	09 LCN 31	JOB/0004	80	114,3		30	0,6	-	1	0,92		
2	<b>3.7</b>		<b>Vent pipe deaerator</b>												
2		1	Pipe downstream deaerator up to valve AA001	09 QHG 10	JOB/0004	110	114,3		30	0,6	-	1	1,23		
2		1	Filter	09 QHG 10 AT 001	JOB/0004	110	114,3		30	0,6	-	1	0,92		
2		1	Valve	09 QHG 10 AA 001	JOB/0004	110	114,3		30	0,6	-	1	0,77		
2		1	Transition Piece DN100/DN150	09 QHG 10	JOB/0004	110	114,3/168,3		30	0,6	-	1	0,12		
2		1	Pipe DN150 up to roof penetration	09 QHG 10	JOB/0004	110	168,3		30	0,6	-	1	2,18		
2	<b>3.8</b>		<b>N2 Piping</b>												
2	<b>3.8.1</b>		<u>N2 Piping to deaerator venting</u>												
2		1	Pipe up to the second bend	09 QHG 10	JOB/0004	10	26,3		30	0,5	-	1	0,62		
2	<b>3.8.2</b>		<u>N2 Piping to start up pipe</u>												
2		4	Valve	09 QHA 35 AA 215 09 QHA 36 AA 215 09 QHA 45 AA 215 09 QHA 46 AA 215	JOB/0001 JOB/0002	10	26,3		50	0,5	-	1	1,56		
2		4	Pipe from valve AA215 to start up pipe	09 QHA 35 09 QHA 36 09 QHA 45 09 QHA 46	JOB/0001 JOB/0002	10	26,3		50	0,5	-	1	7,97		



Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet   Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<b>3.12</b>		<b>Drain and vent piping</b>											
2	<b>3.12.1</b>		<b>Drain piping downstream steam piping</b>											
2		4	Pipe up to valve AA216 personnel protection only in the area of cable ways and platforms	09 QHA 18 09 QHA 19 09 QHA 28 09 QHA 29	JOB1/0001 JOB1/0002	260	26,9		50	0,5   -	1	9,56		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 18 AA 216 09 QHA 19 AA 216 09 QHA 28 AA 216 09 QHA 29 AA 216	JOB1/0001 JOB1/0002	260	26,9		50	0,5   -	1	1,56		
2		4	Pipe downstream Valve AA216 to connection (item 3.12.2 and item 3.12.3) personnel protection only in the area of cable ways and platforms	09 QHA 18 09 QHA 19 09 QHA 28 09 QHA 29	-	100	26,9		30	0,5   -	1	1,56		
2		2	Pipe up to QHE01 line personnel protection only in the area of cable ways and platforms	09 QHA 10 09 QHA 20	-	100	26,9		30	0,5   -	1	13,64		
2		4	Pipe up to valve AA203 personnel protection only in the area of cable ways and platforms	09 QHA 16 09 QHA 17 09 QHA 26 09 QHA 27	-	260	26,9		50	0,5   -	1	9,56		
2		4	Pipe up to valve AA204 personnel protection only in the area of cable ways and platforms	09 QHA 16 09 QHA 17 09 QHA 26 09 QHA 27	-	260	26,9		50	0,5   -	1	9,56		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 16 AA 203 09 QHA 17 AA 203 09 QHA 26 AA 203 09 QHA 27 AA 203	-	260	26,9		50	0,5   -	1	1,56		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 16 AA 204 09 QHA 17 AA 204 09 QHA 26 AA 204 09 QHA 27 AA 204	-	260	26,9		50	0,5   -	1	1,56		
2		4	Steam Trap personnel protection only in the area of cable ways and platforms	09 QHA 16 AT 201 09 QHA 17 AT 201 09 QHA 26 AT 201 09 QHA 27 AT 201	-	260	26,9		50	0,5   -	1	1,56		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 16 AA 205 09 QHA 17 AA 205 09 QHA 26 AA 205 09 QHA 27 AA 205	-	260	26,9		50	0,5   -	1	1,56		
2		4	Pipe downstream valve AA203 personnel protection only in the area of cable ways and platforms	09 QHA 16 09 QHA 17 09 QHA 26 09 QHA 27	-	260	26,9		50	0,5   -	1	9,56		



Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<u>3.12.4</u>		<u>Drain piping downstream feed water tank Safety valve</u>												
2		1	Pipe downstream blow off pipe personnel protection only in the area of cable ways and platforms	-	-	100	26,9		30	0,5	-	1	4,09		
2		2	Pipe downstream Safety valve personnel protection only in the area of cable ways and platforms	-	-	100	26,9		30	0,5	-	1	5,46		
2		1	Pipe to connection (item 3.12.5) personnel protection only in the area of cable ways and platforms	-	-	100	26,9		30	0,5	-	1	4,09		
2		1	Pipe up to GEHE 01 line personnel protection only in the area of cable ways and platforms	-	-	100	26,9		30	0,5	-	1	4,09		
2	3.12.4	1	QHE 01 line personnel protection only in the area of cable ways and platforms	-	-	100	33,7		30	0,5	-	1	4,41		
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 01 AA 003		100	33,7		30	0,5	-	1	0,29		
2		1	Pipe to drain pit personnel protection only in the area of cable ways and platforms	-	-	100	33,7		30	0,5	-	1	4,41		
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 30 AA 004		100	33,7		30	0,5	-	1	0,29		
2	<u>3.12.5</u>		<u>Drain and vent pipe downstream feed water tank</u>												
2		1	Vent pipe personnel protection only in the area of cable ways and platforms	09 QHG 10	-	100	60,3		30	0,5	-	1	7,55		
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHG 10 AA 203	-	100	60,3		30	0,5	-	1	0,46		
2		1	Drain pipe to connection (item 3.12.4) personnel protection only in the area of cable ways and platforms	-	-	100	26,9		30	0,5	-	1	7,55		

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm Plain sheet    Prof. sheet	Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	<u>3.12.6</u>		<u>Drain pipe feed water tank</u>											
2		1	Pipe personnel protection only in the area of cable ways and platforms	09 QHE 02	-	103	17,2		30	0,5	-	1	7,01	
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 02 AA 001	-	103	17,2		30	0,5	-	1	0,23	
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 02 AA 002	-	103	21,3		30	0,5	-	1	0,25	
2		1	Pipe personnel protection only in the area of cable ways and platforms	09 QHE 01	-	103	60,3		30	0,5	-	1	7,55	
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 01 AA 001	-	103	60,3		30	0,5	-	1	0,46	
2		1	Valve personnel protection only in the area of cable ways and platforms	09 QHE 01 AA 002	-	103	60,3		30	0,5	-	1	0,46	
2	<u>3.12.7</u>		<u>Drain pipe aux steam generator</u>											
2		2	Pipe downstream aux stem generator to valve AA201 personnel protection only in the area of cable ways and platforms	09 QHE 10 09 QHE 20	-	200	33,7		40	0,5	-	1	5,36	
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 201 09 QHE 20 AA 201	-	200	33,7		40	0,5	-	1	0,66	
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 202 09 QHE 20 AA 202	-	200	33,7		40	0,5	-	1	0,66	
2		2	Pipe to CF001 personnel protection only in the area of cable ways and platforms	09 QHE 10 09 QHE 20	-	200	33,7		40	0,5	-	1	10,00	
2		2	CF001 personnel protection only in the area of cable ways and platforms	09 QHE 10 CF 001 09 QHE 20 CF 001	-	200	33,7		40	0,5	-	1	5,36	
2		2	Non - return flap personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 204 09 QHE 20 AA 204	-	200	33,7		40	0,5	-	1	5,36	
2		2	Pipe to AA205 personnel protection only in the area of cable ways and platforms	09 QHE 10 09 QHE 20	-	200	33,7		40	0,5	-	1	5,36	
2		2	Non - return flap personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 205 09 QHE 20 AA 205	-	200	33,7		40	0,5	-	1	5,36	

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	3.12.7	2	Pipe to water cooler personnel protection only in the area of cable ways and platforms	09 QHE 10 09 QHE 20	-	200	17,2		30	0,5	-	1	6,06		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 203 09 QHE 20 AA 203	-	200	17,2		30	0,5	-	1	0,46		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 10 AA 005 09 QHE 20 AA 005	-	200	21,3		40	0,5	-	1	0,62		
2		2	Pipe downstream aux stem generator to valve AA001 personnel protection only in the area of cable ways and platforms	09 QHE 11 09 QHE 21	-	200	48,3		40	0,6	-	1	6,06		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 11 AA 001 09 QHE 21 AA 001	-	200	48,3		40	0,6	-	1	0,90		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 11 AA 002 09 QHE 21 AA 002	-	200	48,3		40	0,6	-	1	0,90		
2		2	Transition Piece DN40/DN65 personnel protection only in the area of cable ways and platforms	09 QHE 11 09 QHE 21	-	200	48,3/76,1		50	0,6	-	1	0,10		
2		2	Pipe to valve AA003 personnel protection only in the area of cable ways and platforms	09 QHE 11 09 QHE 21	-	200	76,1		50	0,6	-	1	11,06		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 11 AA 003 09 QHE 21 AA 003	-	200	73		50	0,6	-	1	1,38		
2		2	Pipe to valve AA303 personnel protection only in the area of cable ways and platforms	09 QHE 11 09 QHE 21	-	200	33,7		40	0,5	-	1	5,36		
2		2	Valve personnel protection only in the area of cable ways and platforms	09 QHE 11 AA 303 09 QHE 21 AA 303	-	200	33,7		40	0,5	-	1	0,66		
2		2	Pipe to drain pit personnel protection only in the area of cable ways and platforms	09 QHE 11 09 QHE 21	-	200	33,7		40	0,5	-	1	5,36		

Index	Item	Quantity	Designation	KKS Number	Drawing	Temperature ° C	Tube diameter mm	length m	Insulat. thickness mm	Galvanized casing plate thickness mm		Number of layers	Insulation area m²	Price Euro / m²	Total price Euro
2	3.12.8		Drain pipe downstream pipe to superheater												
2		4	Pipe up to valve AA201 personnel protection only in the area of cable ways and platforms	09 QHA 13 09 QHA 14 09 QHA 23 09 QHA 24	-	260	26,9		50	0,5	-	1	15,94		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 13 AA 201 09 QHA 14 AA 201 09 QHA 23 AA 201 09 QHA 24 AA 201	-	260	26,9		50	0,5	-	1	3,12		
2		8	Pipe up to valve AA202 and AA203 personnel protection only in the area of cable ways and platforms	09 QHA 13 09 QHA 14 09 QHA 23 09 QHA 24	-	260	26,9		50	0,5	-	1	31,88		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 13 AA 202 09 QHA 14 AA 202 09 QHA 23 AA 202 09 QHA 24 AA 202	-	260	26,9		50	0,5	-	1	3,12		
2		4	Valve personnel protection only in the area of cable ways and platforms	09 QHA 13 AA 203 09 QHA 14 AA 203 09 QHA 23 AA 203 09 QHA 24 AA 203	-	260	26,9		50	0,5	-	1	3,12		
2		4	Steam Trap personnel protection only in the area of cable ways and platforms	09 QHA 13 AT 001 09 QHA 14 AT 001 09 QHA 23 AT 001 09 QHA 24 AT 001	-	260	-		50	0,5	-	1	3,12		
2		4	Pipe up to valve AA204 personnel protection only in the area of cable ways and platforms	09 QHA 13 09 QHA 14 09 QHA 23 09 QHA 24	-	260	26,9		50	0,5	-	1	15,94		
2		4	Non - return flap personnel protection only in the area of cable ways and platforms	09 QHA 13 AA 204 09 QHA 14 AA 204 09 QHA 23 AA 204 09 QHA 24 AA 204	-	260	26,9		50	0,5	-	1	3,12		
2		4	Pipe up to blow down vesel personnel protection only in the area of cable ways and platforms	09 QHA 13 09 QHA 14 09 QHA 23 09 QHA 24	-	260	26,9		50	0,5	-	1	15,94		

