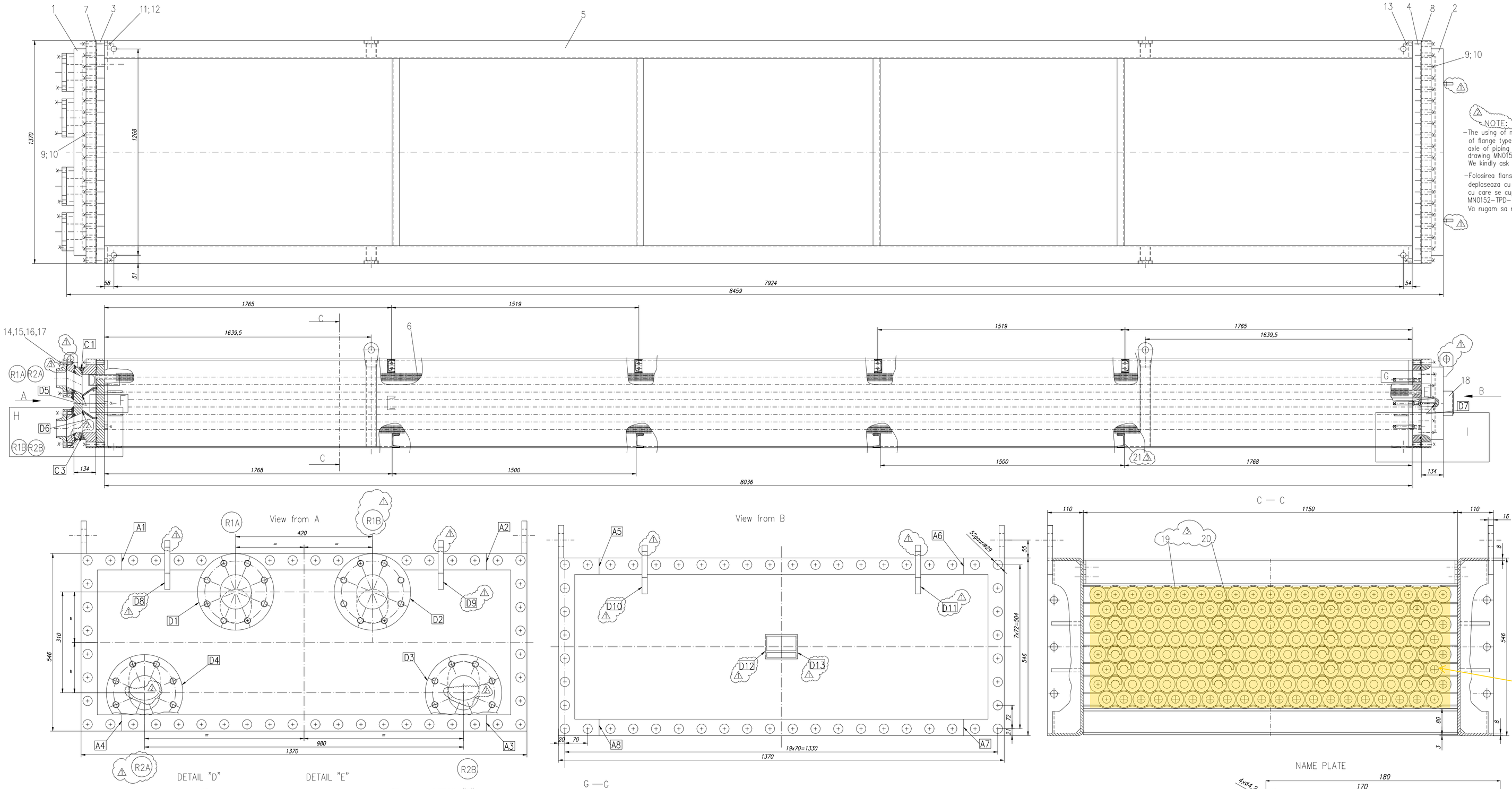


NOZZLE TABLE / TABELUL RACORDURILOR

MARK SIMB.	PCS. BUC.	SERVICE DESTINATIE	SIZE DN	RATING PN	PIPE / TEAVA OD x THK.SCH. DE x s	FLANGE / FLANSA STANDARD OR NORM	FACING ETANS	REINF. PAD Gasket retaining ring Inel ardere	OBSERVATII REMARKS
R1A R1B	2	INLET NOZZLE	100	40	–	EN 1092-1	MF	–	Flanges+gasket+stud bolt+hex nut
R2A R2B	2	OUTLET NOZZLE	100	40	–	EN 1092-1	MF	–	Flanges+gasket+stud bolt+hex nut

RF, Raised Faced concentring or spiral serrated
Radius of cutting tool 1,6mm, Pitch 0,6...0,8mm; Ra=6,3...12,5µm

TECHNICAL CHARACTERISTICS/CARACT. TEHNICE

NAME DENUMIRE		Meas. unit Unit.de mas.	TUBE SIDE TEVI	SHELL SIDE INTRE TEVI
Design pressure (int./ext.) Presiunea de calcul (int./ext.)		bar g	34,3	ATM
Design temperature (min/max) Temperatura de calcul (min/max)		°C	-36/185	-36/26.8
Operating pressure Presiunea de lucru		bar g	–	ATM
Operating temperature-( ) Temperatura de lucru-(intrare/esire)		°C	153/45	–
FLUID	Name Denumire	–	Hidrogen gas +Naphtha	AIR
	Fluid Group Grupa fluidului	–	1	2
	Density Densitate	kg/m³	756.2	–
	Service's characteristics Caracteristicile mediului	–	T/TOXIC	N/NEUTER
Corrosion allowance Adaos de coroziune		mm	3*	3
Capacity Capacitate		L	492	–
Number of passes Numarul de treceri		–	4	1
Exch. surface Aria de transfer		m²	1780	
Number of tubes Numarul de tevi		–	164	
Dimens. of tube (ODxTHK.xL),pitch Dimensiunile tevii, pasul		mm	Ø25x2,5;L=8146	
Tube layout & pitch Distr. tevilor si pasul		mm	P=53	α =60°
Tube to tubesheet joint Imbinare teava placa tubul		–	EXPANDED+WELDED MANDRINARE+SUDARE	
Empty tube bundle weight(no Base Frame) Masa fascicol gol(fara struct de sustinere)		kg	–	
Proof exchanger weight Masa racitorului la proba hidraulica		kg	–	

NOTE:
- The using of neck flange type 11 EN1092-1 instead of flange type 01, move with 60 mm to outside the vertical axle of piping which will be connected, than 410 mm from drawing MN0152-TPD-TH-140-10-001, view B and D. We kindly ask you what option will be adopted.
- Folosirea flansei cu gat tip 11 EN1092-1 in locul flansei tip 01, deplaseaza cu 60 mm in exterior axa verticala a conductei cu care se cupleaza, fata de 410 mm din desen MN0152-TPD-TH-140-10-001 vederea B si vederea D. Va rugam sa ne comunicati ce varianta aplicam.

TECHNICAL REQUIREMENTS/ CONDITII TEHNICE

CALCULATION AND DESIGN	ASME CODE Sect.VIII,Div1 Ed. 2015 API 661 Ed. 2013	
FABRICATION, EXAMINATION, TESTING AND INSPECTION	ASME CODE Sect.VIII,Div1 Ed.2015 API 661 Ed. 2013 Directiva 2014/68/EU	CE
SIDE	TUBE SIDE	
Joint eff.	1	
Type of welds	Butt welds / Groove welds	Fillet welds
Nondestructive test	FULL UT / FULL UT	FULL UT
Hydrostatic test pressure	bar g	44,6
Test temperature	°C	15
Duration of hydrost. test	min	30
Design wind calculation		—
Seismic design calculation		—
Post weld heat treatment		YES- CHAMBER
Impact Test required		YES

MATERIALS/MATERIALE

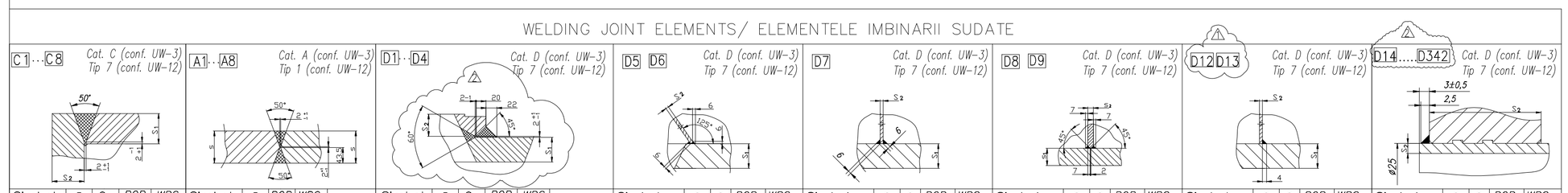
			Additional requirements Cerinte suplimentare
TUBE SIDE / IN TEVI	Body board Corp. camera	SA-516 Gr.70	Normalized,C ≤ 0,23% wt., CE ≤0,43%,100% UT examination for discontinuity flaws of steel plate
	Nozzles flanges Flanse racordURI	SA-516 Gr.70	
	Tubesheet Placa tubulara	SA-516 Gr.70	
	Tubes Tevi fascicol	SA-179+NI	Seamless, without longitudinal and circumferential weld joints
	Contraflanse Counter flanges	SA-105 / SA-350	Normalized, Carbon content ≤ 0,23% CE ≤ 0,43%
	External bolts / nuts Prezoane ext./Piulite ext.	SA-193 B7 M / SA-194 2H M	For GOST flanges ASME B16.5 / For GOST flanges DIN/EN 934(metricH=D
	Gaskets-Shell flanges Garnituri-flanse corp	GRAPHITE	

*-Excepting the fin tubes
*-Cu exceptia tevilor cu aripioare.

GENERAL NOTES/ NOTE GENERALE

1) PROJECT SPECIFICATION NO.: AIR COOLED HEAT EXCHANGER (SPECIFICATION SHEET) Doc. MN0152-TPD-TH-140-10-001; Air cooler AO-203 drawing No. Cc0-3458(for dimensions); Air cooler AO-203 pictures (for information).
TEMA DE PROIECTARE NO.:AIR COOLED HEAT EXCHANGER (SPECIFICATION SHEET) Doc. MN0152-TPD-TH-140-10-001; Air cooler AO-203 drawing No. Cc0-3458(for dimensions) Air cooler AO-203 pictures (for information).
2) WELDING IN ACC. TO ASME CODE , SECT.VIII, DIV.1 APPENDIX 28.
3) SUDURA SE VA EXECUTA IN CONFORMITATE SU ASME SECT.VIII , DIV.1 APPENDIX 28.
THE BOLT HOLES ON FLANGES AND FORGED NOZZLES SHALL STRADDLE THE LONGITUDINAL PLAN CONTAINING VESSEL'S C AND NOZZLE'S C OR AXES PARALLEL TO 0°-180°, 90°-270° AS MARKED ON THIS DWG. AND ON VESSEL ITSELF.
GAURILE PENTRU SURUBURI (DIN FLANSE SI RACORDURI FORJATE) VOR FI AMPLASATE SIMETRIC FATA DE PLANUL LONGITUDINAL CE CONTINE AXA VASULUI SI A RACORDULUI SAU FATA DE AXE PARALELE CU DIRECTIILE 0°-180°, 90°-270° MARCATE PE ACEST DESEN SI PE VAS.
4) ALL BOLTINGS SHALL BE TREATED WITH A RUST PREVENTIVE GREASE.
5) TOATE ORGANELE DE ASAMBLARE SE VOR ACOPERI CU UNSOARE CONSISTENTA.
ALL FLANGE FACES SHALL BE SERATED SPIRAL FINISHED WITH A ROUGHNESS IN RANGE OF 125 TO 250 Ra (3.2 TO 6.3 um) ACC. TO ASME B16.5/2009
SUPRAFATA DE ETANSARE A FLANSELOR VA FI CONFORM ASME B16.5/2009, RUGOZITATE 3.2...6.3um, SPIRALA CONTINUA CU PASUL DE 0.8 mm SI RAZA DE 1.6 mm
7) TEST GASKETS USED FOR FINAL SHOP TEST SHALL BE OF THE SAME TYPE AND MATERIAL AS THE SERVICE GASKETS. GASKETS SHALL NOT BE REPLACED AFTER SUCCESSFUL PRESSURE TESTING.
GARNITURILE PENTRU TESTUL HIDRAULIC VOR FI DE ACELASI TIP SI DIN ACELASI MATERIAL CU GARNITURILE INDICATE IN DOCUMENTATIE. ACESTEA NU SE VOR INLOCUI DACA TESTUL ESTE CORESPUNZATOR.
6) SURFACE PREPARATION: GRIT BLASTING(NO SAND BLASTING) ACC. CL-TR-CR-011 SPECIFICATION ; REMOVE ALL PARTICLES BY JETTING WITH DRY COMPRESSED AIR.
PREGATIREA SUPRAFETELOR PENTRU VOPSIRE: SABLARE CU GRIT SAU NISIP LA SA 2 1/2 CONF. CL-TR-CR-011 TOATE IMPURITATILE SE VOR INDEPARTA PRIN SUFLARE CU JET DE AER.
7) PAINTING IN ACC. TO . CL-TR-CR-011 SPECIFICATION
VOPSIREA SE VA FACE RESPECTIND CERINTELE DIN SPECIFICATIA CL-TR-CR-011
8) AT THE TIME OF ERECTION WORKS, THE EARTHING SHALL BE PERFORMED USING THE METALIC STRUCTURE LA MONTAJUL PE SANTIER, LEGAREA LA PAMANT SE VA REALIZA PRIN INTERMEDIUL STRUCTURII METALICE
9) PREPARATION FOR PACKAGING AND SHIPMENT OF EQUIPMENT ACCORDING TO CLIENT SPECIFICATION.
PREGATIREA PENTRU COLETARE SI LIVRAREA ECHIPAMENTULUI SE VA FACE CONFORM SPECIFICATIEI CLIENTULUI.

WELDING JOINT ELEMENTS/ ELEMENTELE IMBINARII SUDATE



Simbol	s_1	s_2	PQR	WPS	Non destructive test: FUL UT / Test nedistructiv: FUL UT
C1...C8	45	50			
A1...A8	89				Non destructive test: FUL UT / Test nedistructiv: FUL UT
D1...D4	50	45			Non destructive test: FUL PT / Test nedistructiv: FUL PT
D5,D6	50	8			Non destructive test: FUL PT/MT / Test nedistructiv: FUL PT/MT
D7	50	8			Non destructive test: FUL PT/MT / Test nedistructiv: FUL PT/MT
D8	50	16			Non destructive test: FUL PT/MT / Test nedistructiv: FUL PT/MT
D7	50	4			Non destructive test: FUL PT/MT / Test nedistructiv: FUL PT/MT
D7	50	2,5			Non destructive test: FUL PT / Test nedistructiv: FUL PT

Poz.	Name	Drawing/ Standard	Pcs.	Material	Remarks	Net weight kg/pc.
21	CLEMA FIXARE FIXING CLAMP	UC132-403.21	32	Al99		
20	CALARET FIXING ELEMENT	UC132-403.20	28	Al99		
19	BANDA ONDULATA WAVE BAND	UC132-403.19	36	Al99		
18	PLACA DE TIMBRU CU SUPORT NAME PLATE WITH SUPPORT	UC132-403.18.00	4			
17	PIULITA M20 HEX NUT M20	STAS 8121/3	32	SA 194 2H M		
16	PREZON 1A M20x90 STUD BOLT 1A M20x90	UC132-403.16	32	SA 193 B7 M		
15	GARNITURA CAMPROFILE/B7A CAMPROFILE GASKET/B7A	UC132-403.15	4	SS304/Graphite	Ø149xØ118x4	
14	FLANSA Dn100 Pn40 11 F FLANGES Dn100 Pn40 11 F	EN 1092-1	4	SA 105/SA 350		
13	BOLT GHIDARE GUIDE STUD BOLT	UC132-403.13	6	SA 193 B7		
12	SAIBA A20 WASHER	STAS 5200/2	6			
11	SURUB M20x70 SCREW	SR ISO 4017	6	Gr.10.9		
10	PIULITA M27 HEX NUT M27	STAS 8121/3	104	SA 194 2H M		
9	PREZON 1A M27x145 STUD BOLT 1A M27x145	UC132-403.09	104	SA 193 B7 M		
8	GARNITURA CAMPROFILE CI CAMPROFILE GASKET CI	UC132-403.08.00	1			
7	GARNITURA CAMPROFILE CD CAMPROFILE GASKET CD	UC132-403.07.00	1			
6	TEAVA CU ARIPIOARE FINNED TUBE	UC132-403.06.00	164			
5	RAMA SECTIE BASE FRAME	UC132-403.05.00	1			
4	PLACA TUBULARA MOBILA MOBILE TUBE SHEET	UC132-403.04.00	1			
3	PLACA TUBULARA FIXA STATIONARY TUBE SHEET	UC132-403.03.00	1			
2	CAMERA DE INTOARCERE RETURN CHAMBER	UC132-403.02.00	1			
1	CAMERA DE DISTRIBUTIE DISTRIBUTION CHAMBER	UC132-403.01.00	1			

Rev.	Date	Designed	Checked	Approved
A	10.04.2017	ing. C.G.	ing. Z. Al.	ing. P.Al.
A	03.04.2017	ing. C.G.	ing. Z. Al.	ing. P.Al.
A	21.03.2017	ing. C.G.	ing. Z. Al.	ing. P.Al.

Designed by	ing. Croitoru G.
Desenat	ing. Croitoru G.
Verificat	ing. Zota Al.
Contr.STAS	ing. Zota Al.
Aprobat	ing. Popa Alexe

Masa neta:

S.C. COMES S.A.
http://www.comes.ro/
Savinesti – Neamt
Romania

Date: 16.01.2017

Rev.	Date	Proiectat	Verificat	Aprobat

UC132-403.00

Rev. 3

Inlocuieste desen nr.:

Nr.inventar:

SECTIE TUBULARA AO-203/2,3,5,6

AIR COOLER AO-203/2,3,5,6

A0 (1188x840)