ENEA Ricerca Sistema Elettrico	Sigla di identificazione	Distrib.	Pag.	di
	NNFISS – LP3 - 008	L	1	23

Titolo

Specifica Montaggio Sezione Sperimentale ICE

Descrittori

Tipologia del documento: **Rapporto Tecnico**

Collocazione contrattuale: Accordo di programma ENEA-MSE: tema di ricerca "Nuovo nucleare da fissione"

Argomenti trattati: Generation IV Reactor
Reattori Nucleari Veloci
Tecnologie dei metalli liquidi

Sommario

Nel documento sono descritte le operazioni di assemblaggio della Sezione di Prova IC preliminari al montaggio nel serbatoio S100 di CIRCE Base

Note Questo rapporto recepisce il rapporto FISING - IT-C-N-001 dell'08/07/2009

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Attività LP3-A

Copia n. **In carico a:**

REV.	DESCRIZIONE	DATA		REDAZIONE	CONVALIDA	APPROVAZIONE
2			NOME			
			FIRMA			
1			NOME			
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			FIRMA			

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1. SCOPO

Il presente documento individua le procedure da adottare per l'assiemaggio della sezione di prova ICE, i locali dell'esistente Ed. Reattore PEC in cui svolgere l'attività, e definisce in via di massima le attrezzature che si rendono necessarie per l'esecuzione del lavoro.

2. DESCRIZIONE

Nel contesto del presente documento con il termine “Sezione di Prova ICE” (SP-ICE), si intende un componente assemblato in grado di essere inserito nel serbatoio S100 di CIRCE Base e che dovrà essere successivamente collegato al circuito gas già utilizzato per l’esecuzione delle prove sulla sezione sperimentale CIRCE 2.

Si evidenzia che, rispetto a CIRCE, non è stata apportata nessuna modifica al circuito gas esistente, mentre sono stati aggiunti i sistemi ausiliari come rappresentato nello schema di processo.

Limitandosi all’argomento del documento, appare utile una descrizione di come è stata concepita la SP-ICE.

La SP-ICE è stata suddivisa nelle tre parti seguenti, oggetto di tre diverse forniture:

- SDP Struttura Portante della Sezione di Prova ICE (doc. IT-M-S-002)
- FPS Fuel Pin Simulator della Sezione di Prova ICE (doc. IT-M-S-001)
- W-DHR Scambiatore di Calore Prototipico per la Rimozione del Calore Residuo (doc. IT-T-S-001)

I disegni d’assieme in cui sono rappresentati i componenti di cui sopra sono:

- Struttura Portante della Sezione di Prova ICE ICE-SDP-0002
- Fuel Pin Simulator ICE-FPS-0500
- Assieme Scambiatore WDHR-0700

La struttura portante è a sua volta costituita dalle seguenti parti che è necessario manipolare separatamente per procedere all’assemblaggio di tutta la SP-ICE:

- Coperchio dis. ICE-SDP-0100
- Volume Morto dis. ICE-SDP-0200
- Convogliatore dis. ICE-SDP-0300
- Condotto Aspirazione dis. ICE-SDP-0370

Le parti di cui sopra sono di rilevante dimensione in altezza; nel seguito vengono descritte le varie fasi di operazione ipotizzando di eseguirle tutte in verticale, utilizzando il carro ponte in dotazione all'edificio Reattore e il locale 1.3.5 (Area di Servizio S-E) che si sviluppa da quota 2,15 m a quota 6,00 m corrispondente all'area di lavoro.

3. FASI PRINCIPALI

Con riferimento al disegno in Allegato (sequenza di montaggio ICE) si descrivono le varie fasi di lavorazione lì individuate.

3.1. FASE 1

Preparazione del locale L.1.3.5 Area di Servizio S-E

Si tratta di adeguare il locale alle operazioni previste e nel rispetto dei requisiti di sicurezza e in particolare:

- a quota +6.00 m (piano di lavoro) è necessario predisporre una apertura strettamente sufficiente per il passaggio del convogliatore (700x1200 mm) protetta da ringhiera
- a quota +2.15 m (raggiungibile con scaletta alla marinara) chiusura della attuale botola, lasciando una sola apertura del diametro di circa 600 mm anche questa adeguatamente protetta. Da rilevare che l'asse di questa apertura dovrà essere sfalsato rispetto a quella superiore a causa della pianta non simmetrica del convogliatore

Posizionamento di supporti al piano +2,15 m in grado di reggere temporaneamente, in verticale, convogliatore (210 kg) e volume morto (1500 kg); da rilevare che convogliatore e volume morto sono stati forniti assiemati e giacciono ora in orizzontale sul piano di lavoro: essi dovranno quindi essere preventivamente ribaltati utilizzando la gru polare. Poiché dopo l'inserimento nel locale attraverso le aperture di cui sopra dovrà essere staccata la fune del carro ponte, si ritiene necessario bloccare la struttura con dei traversi a quota +6,00 m per impedirne il ribaltamento.

3.2. FASE 2

Montaggio del Coperchio (800 kg) sul volume morto (utilizzare guarnizioni e bulloneria già fornite col componente)

Bloccaggio con adeguata fasciatura del tubo riser al volume morto per impedirne lo spostamento nella fase successiva in cui il riser sarà temporaneamente distaccato dal convogliatore.

Al termine di questa fase si suggerisce, se già disponibile in cantiere, di eseguire il montaggio dello scambiatore W-DHR sulla relativa flangia del coperchio, almeno come prova, anticipando l'operazione n 11. Se si verificherà che la presenza dello scambiatore non intralcia con le operazioni da eseguire sulla FPS, tale montaggio potrà essere definitivo.

3.3. FASE 3

Distacco del convogliatore dal volume morto e trasferimento in area di lavoro del gruppo coperchio-volume morto assiemato nella fase 2. In area di lavoro si potrà utilizzare la rastrelliera esistente a fianco della parete della Cella di Trasferimento PEC, preventivamente liberata dall'attuale struttura della Sez. di prova CIRCE 1.

Al termine di questa fase il carro ponte è disponibile, il convogliatore è appoggiato sul sostegno a quota 2,15 m e l'assieme coperchio- volume morto è appoggiato in rastrelliera.

3.4. FASE 4

In questa fase si opera sulla FPS , componente che richiede una particolare attenzione per la sua peculiarità.

Va realizzata una adeguata protezione dei cavi fuoriuscenti dall'alto (circa 3.5 m) raccogliendoli attorno al tubo collegato alla FPS, ma in modo tale da poter essere in seguito estratti agevolmente.

Va eseguito il ribaltamento della FPS (500 kg) con procedura che minimizzi la sollecitazione meccanica sul fascio di barrette.

La FPS va inserita nel convogliatore con appoggio provvisorio sulla flangia superiore dello stesso convogliatore e va bloccata in orizzontale con traversi alla quota + 6,00 m per impedirne il ribaltamento e poter quindi liberare il carro ponte.

3.5. FASE 5

L'assieme coperchio-volume morto appoggiato in rastrelliera va portato tramite carro ponte in area di servizio 1.3.5 e inserito nella FPS fino ad eseguire il collegamento della coupling flange al volume morto (guarnizioni e bulloneria fornite coi componenti).

Il collegamento va eseguito con particolare cura, anche rispetto alle coppie di serraggio, e al termine è necessario eseguire una prova di tenuta utilizzando un apposito componente di cui al disegno allegato ICE-FPS-0018, con modalità da definire.

3.6. FASE 6

Completamento dei collegamenti meccanici del volume morto con il riser ; da notare che tali collegamenti non hanno il requisito di tenuta e quindi non richiedono l'impiego di guarnizioni.

3.7. FASE 7

Collegamento del convogliatore al tubo di aspirazione (separato dal gruppo che sostiene il tubo di Venturi.

Anche questo collegamento non ha requisiti di tenuta, ma per la sua esecuzione è prevista una flangia intermedia per consentire il centraggio della FPS nella zona del tubo esagonale.

Da notare che nel disegno citato con le sequenze di montaggio, è stato previsto di inserire preventivamente nel locale 1.3.5 tubo aspirazione e tubo Venturi: in questo caso il tubo di aspirazione andrà posizionato in asse alla FPS, preventivamente sollevata col carro ponte, con sistemi manuali. In alternativa, se i vuole operare con un argano è necessario spostare la FPS per lasciare il posto necessario all'operazione.

3.8. FASE 8

Collegamento del tubo di Venturi al tubo di aspirazione. Valgono le stesse considerazioni del punto precedente.

Questo collegamento fornisce il centraggio inferiore della griglia del bundle dell'FPS e ne va quindi controllata la corretta esecuzione.

3.9. FASI 9-10-11-12

Nel disegno allegato si ipotizza una sequenza di lavori solo ai fini di individuarli nel dettaglio e nell'ipotesi che l'operatore lavori solo alle quote 6,00 e 2,15 m spostando il componente col carro ponte. Ma a questo punto i lavori possono essere condotti in modo anche diverso. In particolare potrebbe essere opportuno appoggiare in modo stabile il componente su supporti a quota del piano di lavoro utilizzando la flangia del coperchio, facendo scendere il componente anche al di sotto del locale 1.3.5 allargando di conseguenza la apertura a quota 2,15 m. In tale situazione il componente non sarà più spostato in altezza e sarà l'operatore a spostarsi anche nel locale inferiore al 1.3.5 a seconda delle esigenze.

In ogni caso, indipendentemente dalla scelta della procedura, i lavori da eseguire comprendono:

- inserimento dello scambiatore W-DHR
- svolgimento dei cavi elettrici precedentemente ripiegati della FPS
- montaggio dei collettori aria di raffreddamento barrette (da realizzare perché non compresi nella fornitura FPS)
- montaggio tubi alimentazione argon (ventilazione e riser già forniti col componente)
- montaggio delle flange del coperchio che contengono i passanti delle termocoppie, dei tubicini di presa pressione e dei livelli discontinui
- montaggio dei terminale delle termocoppie e stesura dei relativi cavi fino alla flangia di uscita
- montaggio dei tubicini di presa pressione e loro staffaggio alla struttura del volume morto
- montaggio delle due sonde di livello discontinuo

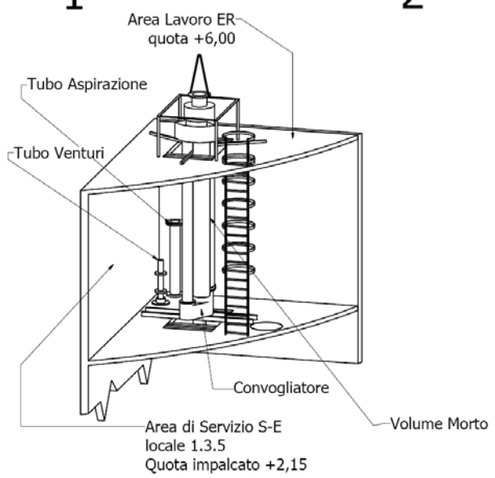
Si evidenzia che termocoppie, livelli, tubicini prese pressione e raccorderia necessaria al montaggio non sono compresi nella fornitura dei componenti.

4. ELENCO ALLEGATI

1. ICE-0019-Sequenza di montaggio ICE (n 3 fogli)
2. ICE-SDP-002 Struttura portante Sezione di Prova ICE
3. ICE-FPS-0500 Fuel pin simulator
4. WDHR-0700 Assieme scambiatore W-DHR
5. ICE-SDP-0100 Coperchio
6. ICE-SDP-0200 Volume morto
7. ICE-SDP-0300 Convogliatore
8. ICE-SDP-0370 Condotto aspirazione
9. ICE-0016 Sezione Sperimentale ICE Montaggio Strumentazione
10. ICE-FPS-0600 Convogliatore Aria Raffreddamento Barrette
11. ICE-FPS-0018 Corpo Prova Tenuta

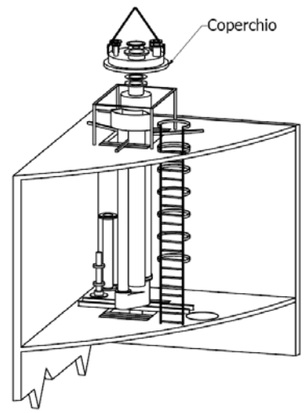
Allegato 1: ICE-0019-Sequenza di montaggio ICE (foglio 1/3)

1



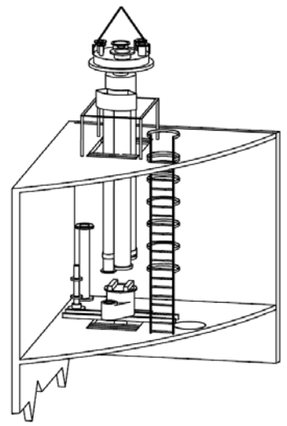
– Predisposizioni di adeguate misure di sicurezza (ringhiere, chiusura botole) nei locali a quota +6,00 e a quota +2,15 dell' Area di Servizio S-E utilizzata per l'assiemaggio della Sezione di Prova ICE
– Posizionamento a quota +2,15 di Tubo Aspirazione e Tubo di Venturi e di altri materiali necessari al montaggio quali bulloneria, guarnizioni, ecc.
– Posizionamento di due travi per l' appoggio della Struttura Portante
– Appoggio sulle travi della Struttura Portante previo ribaltamento da orizzontale a verticale in area di lavoro della struttura fornita assiemata tra Volume morto e Convogliatore
– Bloccaggio in orizzontale con dei traversi al piano +6,00 della struttura portante

2



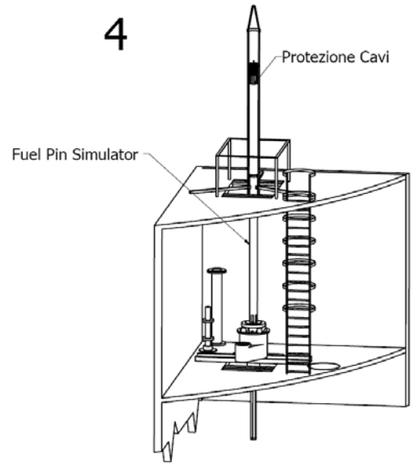
– Montaggio sulla struttura portante del coperchio eseguendo la flangiatura prevista utilizzando guarnizioni e bulloneria in dotazione al componente fornito
– Bloccaggio con adeguata fasciatura del tubo Riser al Volume Morto per impedirne lo spostamento nelle operazioni successive

3



– Distacco del Volume Morto dal Convogliatore e sollevamento dell'insieme Volume Morto-Coperchio e suo posizionamento provvisorio nella rastrelliera dell'area di lavoro per rendere disponibile il carro ponte

4

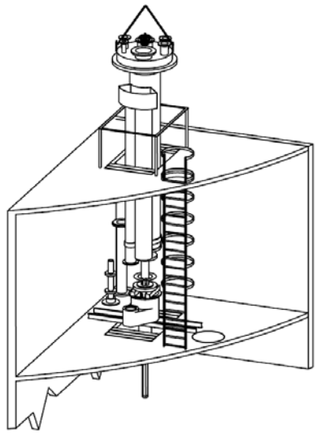


– Ribaltamento della FPS da orizzontale a verticale utilizzando un idoneo tiro di funi che garantisca minima sollecitazione sulla struttura del bandle. I cavi fuoriuscenti dalla FPS vanno preventivamente raccolti e ripiegati entro un tubo di protezione legato alla FPS per consentire le operazioni successive
– Appoggio della FPS al convogliatore utilizzando degli elementi intermedi di protezione e suo bloccaggio in orizzontale, per impedirne il ribaltamento, tramite dei traversi sul piano a quota +6,00

ENEA	PROGETTO	SISTEMA	SOTTOSISTEMA
FPN-FISNUC	TITOLO: SEQUENZA MONTAGGIO ICE		
DISTRIB. R	VISTA	SCALA 1:50	FORMATO A1
SIGLA DOC. ICE-0019	FG/FOGLI 1 /3		

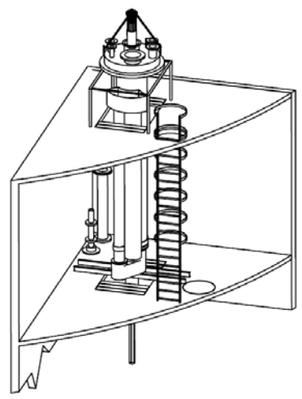
Allegato 1: ICE-0019-Sequenza di montaggio ICE (foglio 2/3)

5



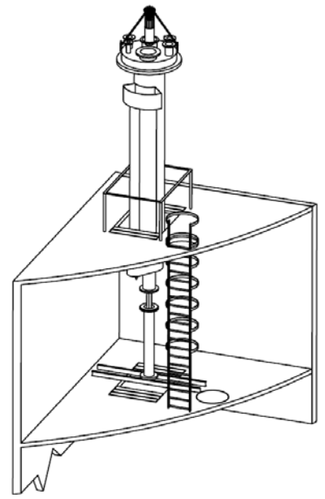
– Esecuzione del collegamento di FPS e Volume Morto tramite la flangiatura della Coupling Flange
– Esecuzione della prova di tenuta della flangiature FPS-Volume Morto e Volume Morto-Coperchio

6



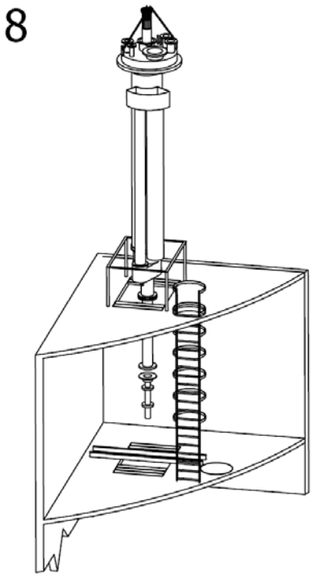
– Esecuzione del collegamento Volume Morto-Convogliatore e Riser-Convogliatore

7



– Esecuzione del collegamento del Tubo Aspirazione (già collocato nel locale) col Convogliatore controllando il centraggio superiore della FPS

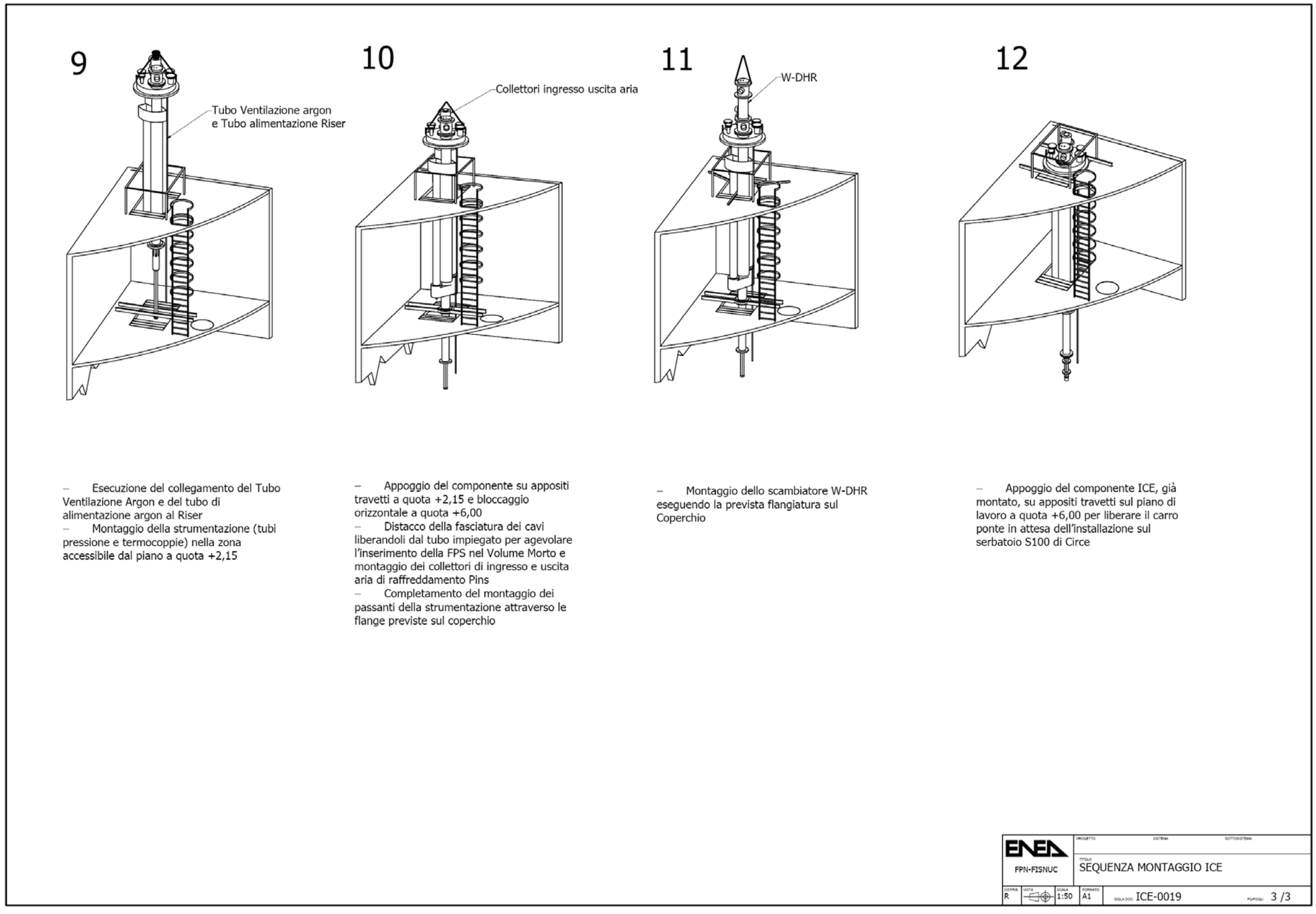
8



– Esecuzione del collegamento del Tubo Aspirazione al Tubo di Venturi controllando il centraggio inferiore della FPS

ENEA FPN-FISNUC	PROGETTO	SISTEMA	SOTTOSISTEMA
	TITOLO: SEQUENZA MONTAGGIO ICE		
DISTRIB. R	VISTA	SCALA 1:50	FORMATO A1
SIGLA DOC: ICE-0019	FOGLIO: 2 /3		

Allegato 1: ICE-0019-Sequenza di montaggio ICE (foglio 3/3)



– Esecuzione del collegamento del Tubo Ventilazione Argon e del tubo di alimentazione argon al Riser
– Montaggio della strumentazione (tubi pressione e termocoppie) nella zona accessibile dal piano a quota +2,15

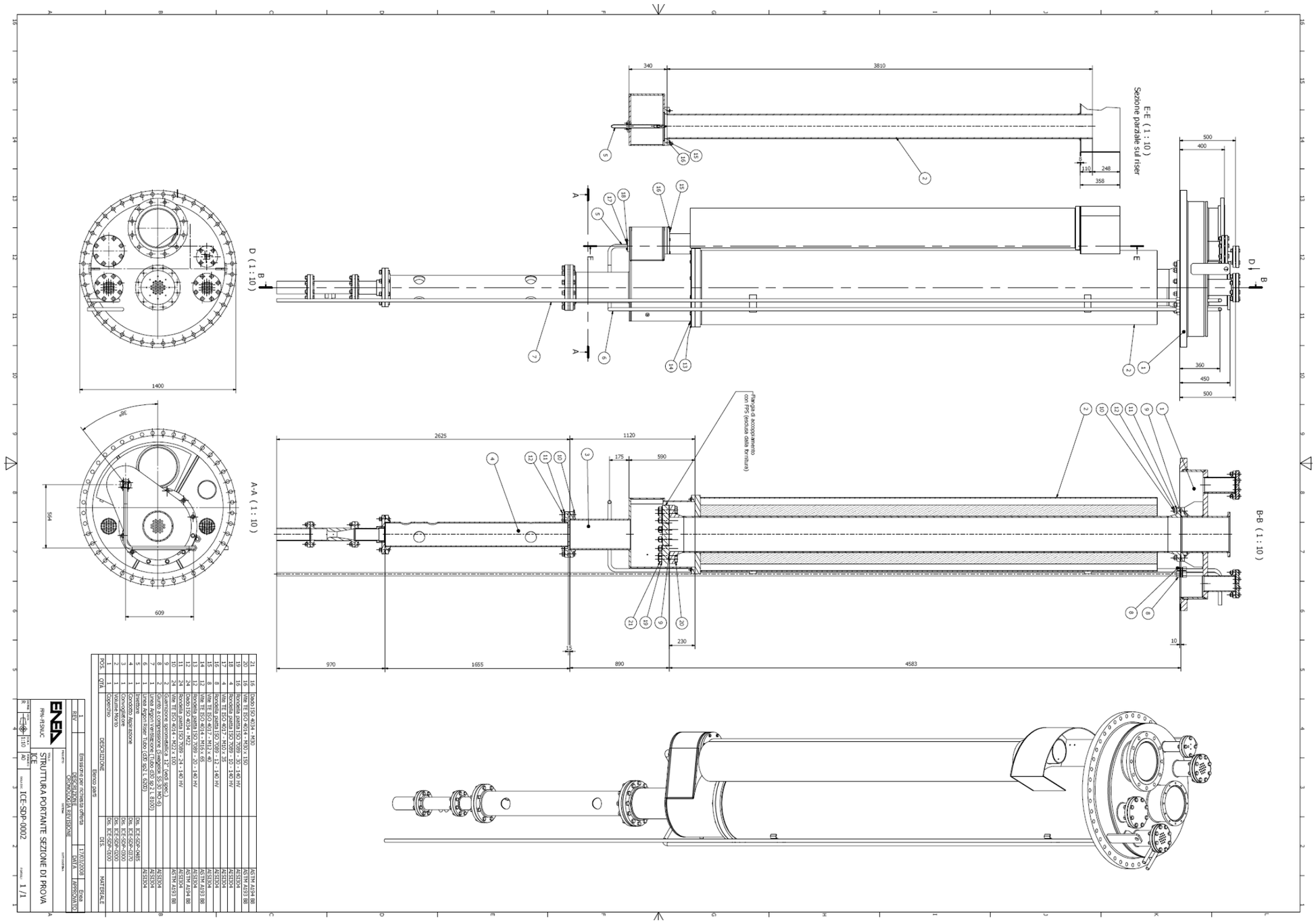
– Appoggio del componente su appositi travetti a quota +2,15 e bloccaggio orizzontale a quota +6,00
– Distacco della fasciatura dei cavi liberandoli dal tubo impiegato per agevolare l'inserimento della FPS nel Volume Morto e montaggio dei collettori di ingresso e uscita aria di raffreddamento Pins
– Completamento del montaggio dei passanti della strumentazione attraverso le flange previste sul coperchio

– Montaggio dello scambiatore W-DHR eseguendo la prevista flangiatura sul Coperchio

– Appoggio del componente ICE, già montato, su appositi travetti sul piano di lavoro a quota +6,00 per liberare il carro ponte in attesa dell'installazione sul serbatoio S100 di Circe

ENEA FPN-FISNUC	PROGETTO	SISTEMA	SOTTOSISTEMA		
	TITOLO: SEQUENZA MONTAGGIO ICE				
DISTRIB. R	VISTA	SCALA 1:50	FORMATO A1	SIGLA DOC. ICE-0019	FG/FOGLI 3 /3

Allegato 2: ICE-SDP-002 Struttura portante Sezione di Prova ICE


A-A (1 : 10)
B-B (1 : 10)
D (1 : 10)
E-E (1 : 10)
Sezione parziale sul riser
Flangia di accoppiamento con FPS (esclusa dalla fornitura)
1400
594
609
2625
1120
175
590
970
1655
890
4583
230
340
3810
500
400
110
248
358
360
450
500
10
15
POS.
QTÀ
DESCRIZIONE
Elenco parti
MATERIALE
DIS.
Dado ISO 4034 - M30
Vite TE ISO 4014 - M30 x 150
Rondella piana ISO 7089 - 30 - 140 HV
Vite TE ISO 4017 - M10 x 35
Rondella piana ISO 7089 - 10 - 140 HV
Vite TE ISO 4017 - M12 x 40
Rondella piana ISO 7089 - 12 - 140 HV
Dado ISO 4034 - M12
Rondella piana ISO 7089 - 20 - 140 HV
Dado ISO 4034 - M22
Rondella piana ISO 7089 - 24 - 140 HV
Vite TE ISO 4014 - M22 x 110
Guarnizione a compressione (Flangiata SS-30 MO-S)
Linea Aspiri Ventilatore (Tubo d30 sp2 L 8100)
Linea Aspiri Riser Tubo (d30 sp2, L 9300)
Coperchio Aspirazione
Convogliatore
Volume Misto
Coperchio
Dis. ICE-SDP-0070
Dis. ICE-SDP-0080
Dis. ICE-SDP-0090
Dis. ICE-SDP-0100
Dis. ICE-SDP-0110
ASTM A194 8B
ASTM A193 B8
AISI304
AISI304
AISI304
AISI304
AISI304
AISI304
ASTM A193 B8
ASTM A194 8B
AISI304
AISI304
AISI304
AISI304
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AISI304
AISI304
ASTM A193 B8
ASTM A194 8B
REV
DESCRIZIONE
ORDINAZIONE REVISIONE
DATA
17/01/2008
Emissione per richiesta offerta
Data
APPROVATO
ENEA
PAN-FISNUC
STRUTTURA PORTANTE SEZIONE DI PROVA ICE
ICE-SDP-0002
1 / 1
Scala 1:10
Scala 1:5
Scala 1:1
Scala 1:2
Scala 1:20
Scala 1:50
Scala 1:100
Scala 1:200
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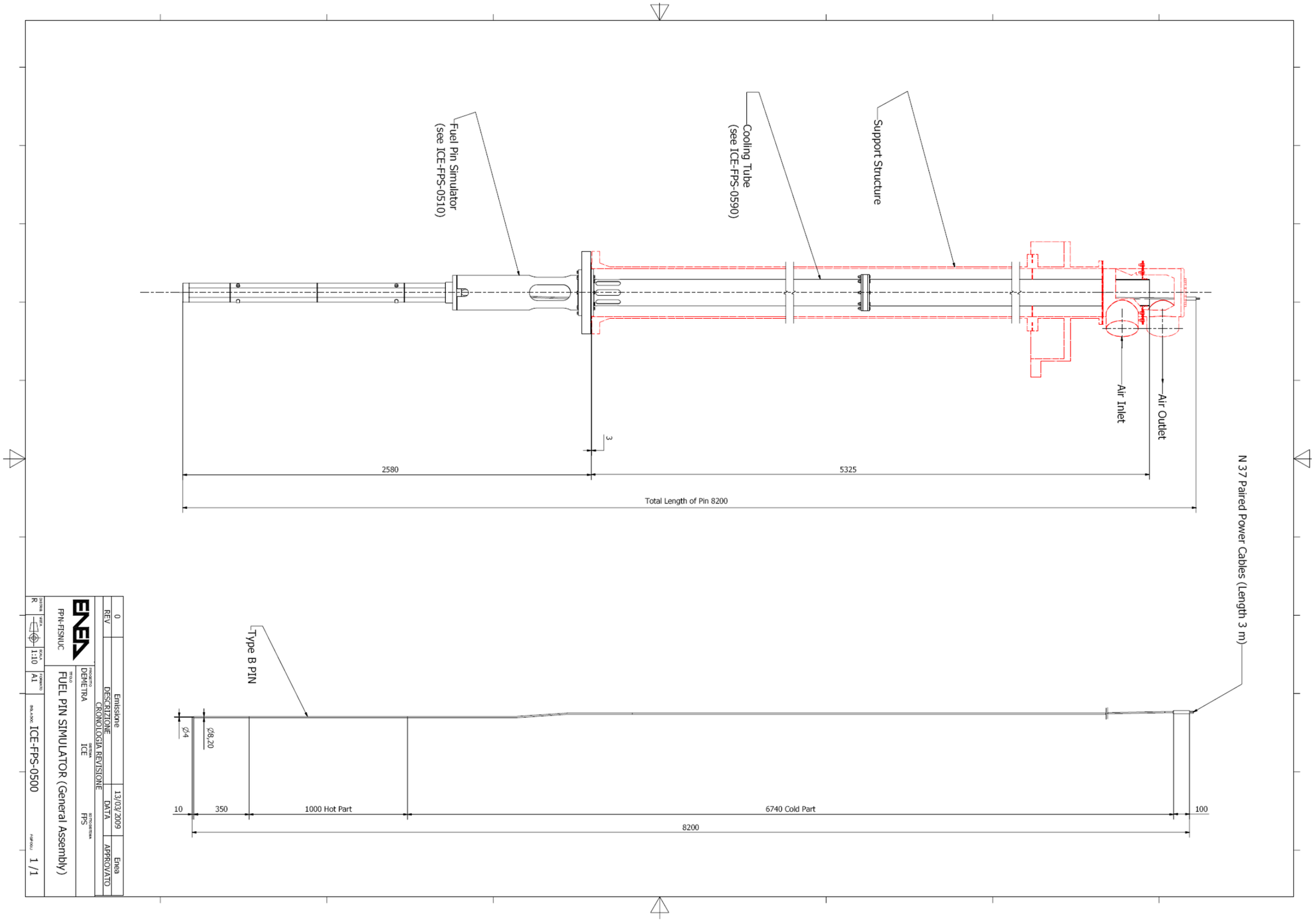
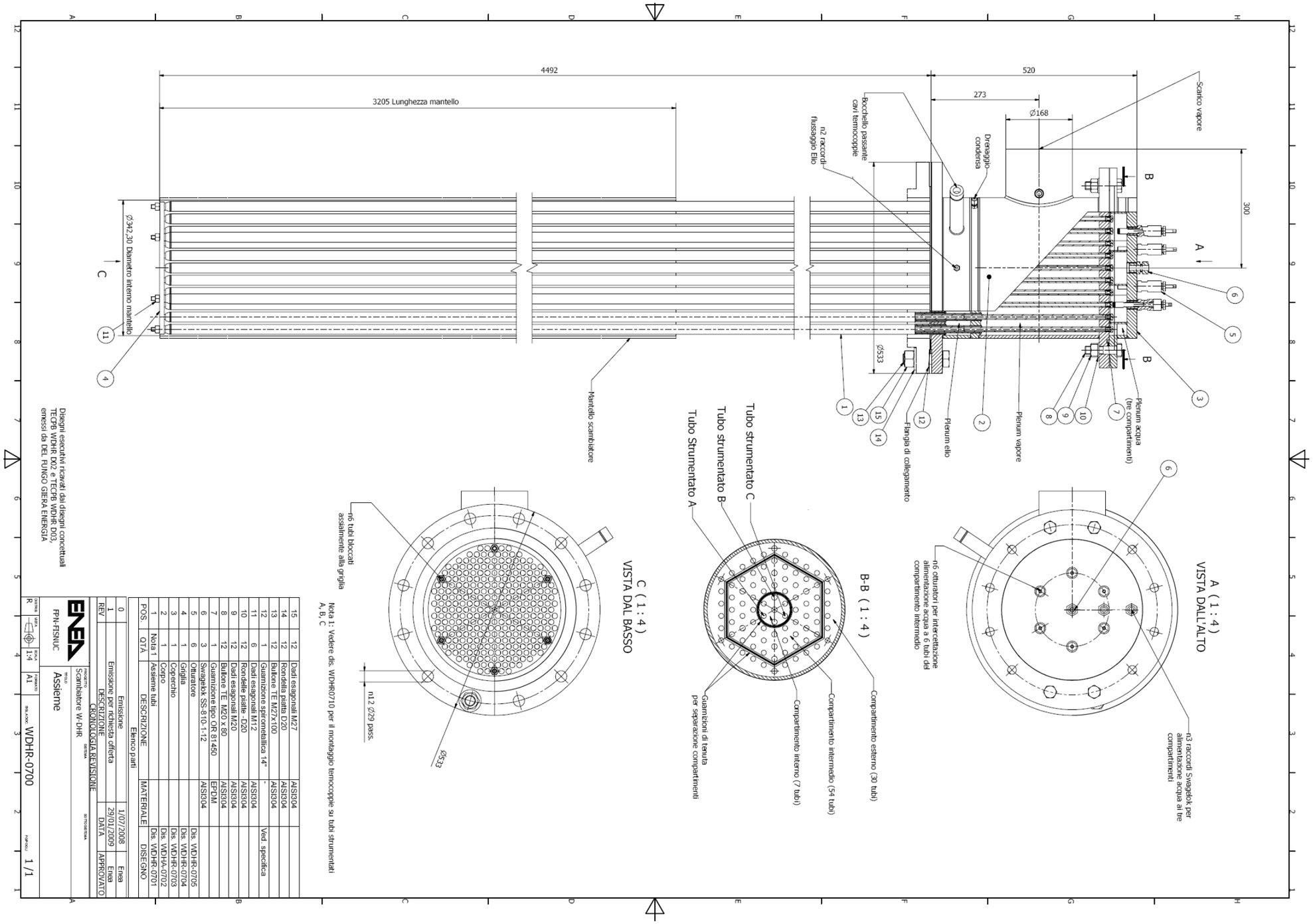
Allegato 3: ICE-FPS-0500 Fuel pin simulator



Allegato 4 WDHR-0700 Assieme scambiatore W-DHR



POS.	QTA	DESCRIZIONE	MATERIALE
15	12	Dadi esagonali M27	AISI304
14	12	Rondella piatta D20	AISI304
13	12	Bullone TE M27x100	AISI304
12	1	Guarnizione spirometallica 14"	Ved. specifica
11	6	Dadi esagonali M12	AISI304
10	12	Rondelle piatte D20	AISI304
9	12	Dadi esagonali M20	AISI304
8	12	Bullone TE M20 x 80	AISI304
7	1	Guarnizione tipo OR 81450	EPDM
6	3	Swagelok SS-810-1-12	AISI304
5	6	Otturatore	Dis. WDHR-0705
4	1	Griglia	Dis. WDHR-0704
3	1	Coperchio	Dis. WDHR-0703
2	1	Corpo	Dis. WDHA-0702
1	Nota 1	Assieme tubi	Dis. WDHR-0701

Elenco parti

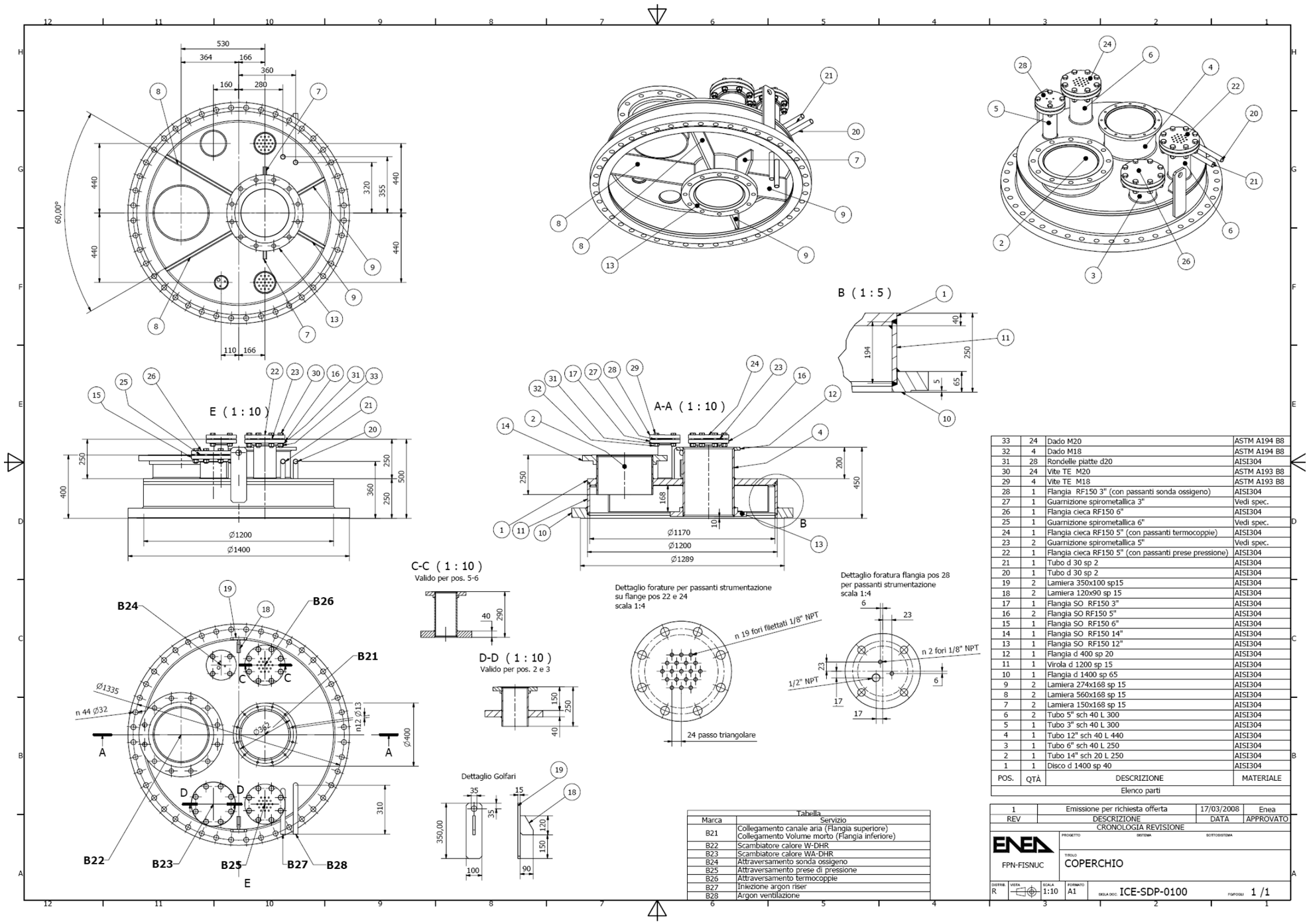
REV	DESCRIZIONE	DATA	APPROVATO
0	Emissione	1/07/2008	Enea
1	Emissione per richiesta offerta	29/01/2009	Enea

CRONOLOGIA REVISIONE

Disegni esecutivi ricavati dai disegni concettuali TECPB WDHR D02 e TECPB WDHR D03, emessi da DEL FUNGO GIERA ENERGIA

PROGETTO	Scambiatore W-DHR
SISTEMA	
SOTTOSISTEMA	
ENEA	
FFN-FISNUC	
TITOLO	Assieme
SCALA	1:4
FORMATO	A1
DIS. NUM.	WDHR-0700
FOGLIO	1 /1

Allegato 5: ICE-SDP-0100 Coperchio



33	24	Dado M20	ASTM A194 B8
32	4	Dado M18	ASTM A194 B8
31	28	Rondelle piatte d20	AISI304
30	24	Vite TE M20	ASTM A193 B8
29	4	Vite TE M18	ASTM A193 B8
28	1	Flangia RF150 3" (con passanti sonda ossigeno)	AISI304
27	1	Guarnizione spirometallica 3"	Vedi spec.
26	1	Flangia cieca RF150 6"	AISI304
25	1	Guarnizione spirometallica 6"	Vedi spec.
24	1	Flangia cieca RF150 5" (con passanti termocoppie)	AISI304
23	2	Guarnizione spirometallica 5"	Vedi spec.
22	1	Flangia cieca RF150 5" (con passanti prese pressione)	AISI304
21	1	Tubo d 30 sp 2	AISI304
20	1	Tubo d 30 sp 2	AISI304
19	2	Lamiera 350x100 sp15	AISI304
18	2	Lamiera 120x90 sp 15	AISI304
17	1	Flangia SO RF150 3"	AISI304
16	2	Flangia SO RF150 5"	AISI304
15	1	Flangia SO RF150 6"	AISI304
14	1	Flangia SO RF150 14"	AISI304
13	1	Flangia SO RF150 12"	AISI304
12	1	Flangia d 400 sp 20	AISI304
11	1	Virola d 1200 sp 15	AISI304
10	1	Flangia d 1400 sp 65	AISI304
9	2	Lamiera 274x168 sp 15	AISI304
8	2	Lamiera 560x168 sp 15	AISI304
7	2	Lamiera 150x168 sp 15	AISI304
6	2	Tubo 5" sch 40 L 300	AISI304
5	1	Tubo 3" sch 40 L 300	AISI304
4	1	Tubo 12" sch 40 L 440	AISI304
3	1	Tubo 6" sch 40 L 250	AISI304
2	1	Tubo 14" sch 20 L 250	AISI304
1	1	Disco d 1400 sp 40	AISI304
POS.	QTÀ	DESCRIZIONE	MATERIALE

Elenco parti

Marca	Servizio
B21	Collegamento canale aria (Flangia superiore) Collegamento Volume morto (Flangia inferiore)
B22	Scambiatore calore W-DHR
B23	Scambiatore calore WA-DHR
B24	Attraversamento sonda ossigeno
B25	Attraversamento prese di pressione
B26	Attraversamento termocoppie
B27	Iniezione argon riser
B28	Argon ventilazione

Tabella

REV	DESCRIZIONE	DATA	APPROVATO
1	Emissione per richiesta offerta	17/03/2008	Enea

CRONOLOGIA REVISIONE

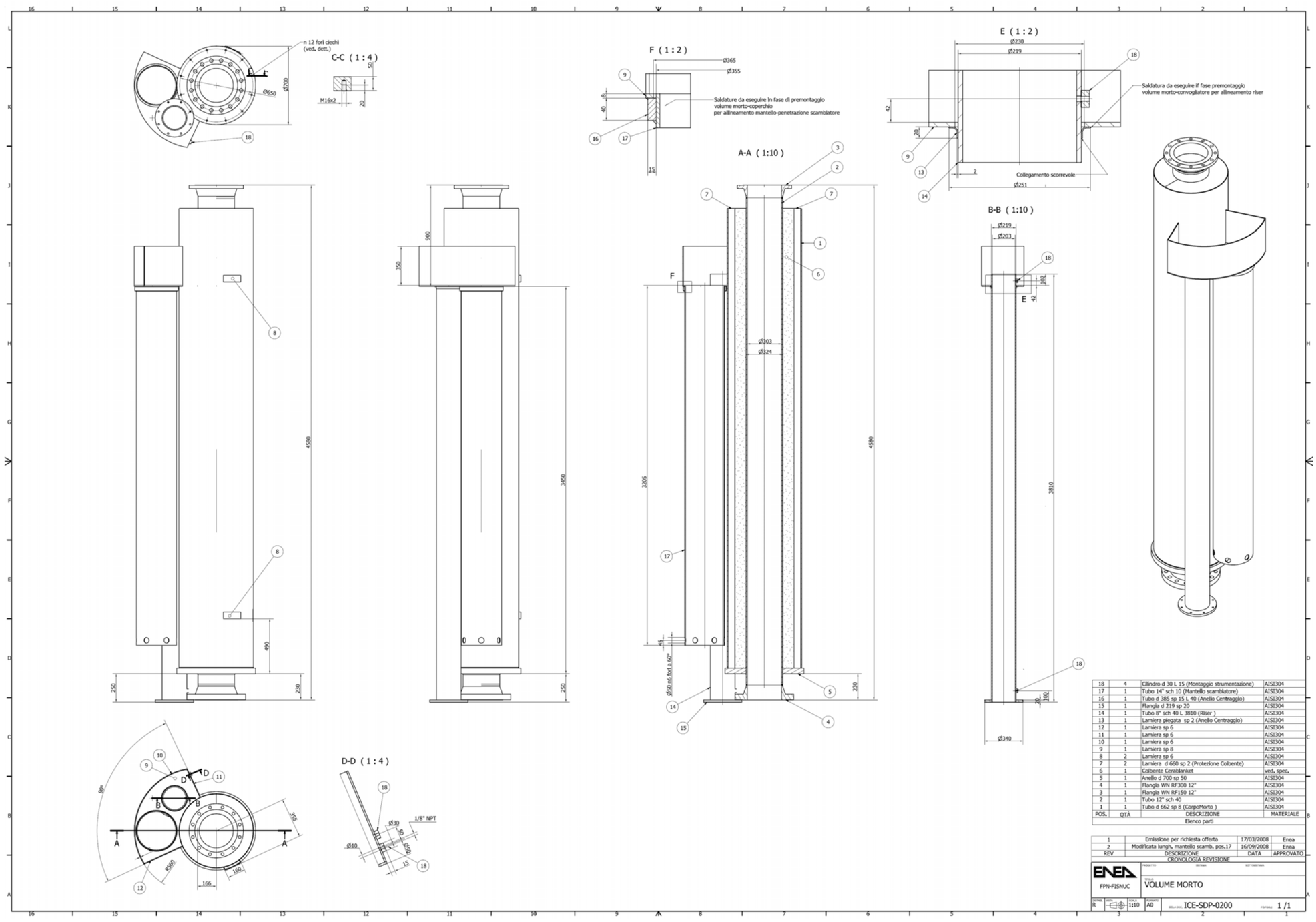
ENEA — FPN-FISNUC

PROGETTO — SISTEMA — SOTTOSISTEMA

TITOLO: COPERCHIO

DISTRIB. R — VISTA — SCALA 1:10 — FORMATO A1 — SIGLA DOC: ICE-SDP-0100 — FOGLIO 1 /1

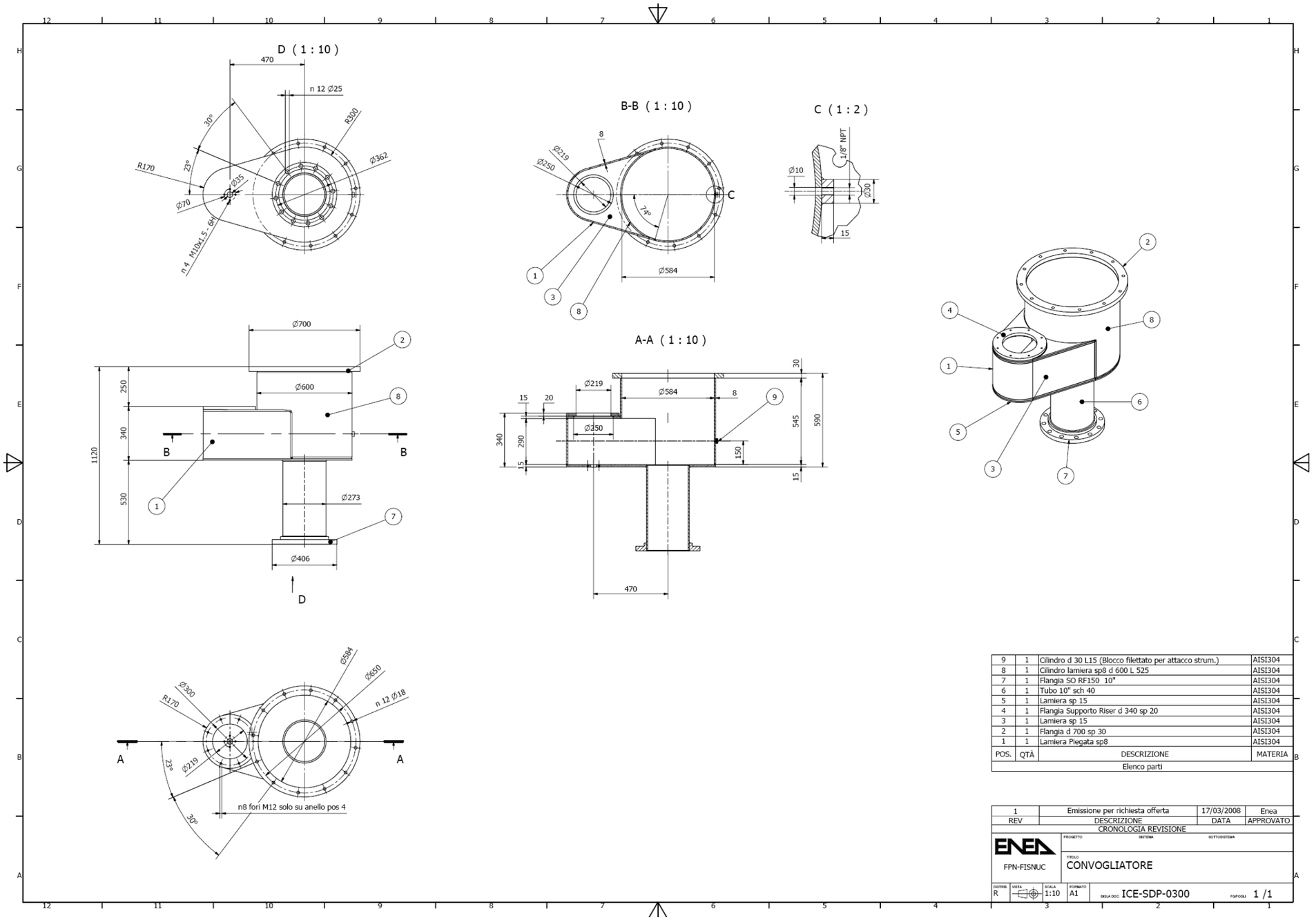
Allegato 6: ICE-SDP-0200 Volume morto



POS.	QTÀ	DESCRIZIONE	MATERIALE
		Elenco parti	
18	4	Cilindro d 30 L 15 (Montaggio strumentazione)	AISI304
17	1	Tubo 14" sch 10 (Mantello scamblatore)	AISI304
16	1	Tubo d 385 sp 15 L 40 (Anello Centraggio)	AISI304
15	1	Flangia d 219 sp 20	AISI304
14	1	Tubo 8" sch 40 L 3810 (Riser)	AISI304
13	1	Lamiera piegata sp 2 (Anello Centraggio)	AISI304
12	1	Lamiera sp 6	AISI304
11	1	Lamiera sp 6	AISI304
10	1	Lamiera sp 6	AISI304
9	1	Lamiera sp 8	AISI304
8	2	Lamiera sp 6	AISI304
7	2	Lamiera d 660 sp 2 (Protezione Colbente)	AISI304
6	1	Colbente Cerablanket	ved. spec.
5	1	Anello d 700 sp 50	AISI304
4	1	Flangia WN RF300 12"	AISI304
3	1	Flangia WN RF150 12"	AISI304
2	1	Tubo 12" sch 40	AISI304
1	1	Tubo d 662 sp 8 (CorpoMorto)	AISI304

REV	DESCRIZIONE	DATA	APPROVATO
	CRONOLOGIA REVISIONE		
1	Emissione per richiesta offerta	17/03/2008	Enea
2	Modificata lungh. mantello scamb. pos.17	16/09/2008	Enea

Allegato 7 ICE-SDP-0300 Convogliatore



POS.	QTÀ	DESCRIZIONE	MATERIA
9	1	Cilindro d 30 L15 (Blocco filettato per attacco strum.)	AISI304
8	1	Cilindro lamiera sp8 d 600 L 525	AISI304
7	1	Flangia SO RF150 10"	AISI304
6	1	Tubo 10" sch 40	AISI304
5	1	Lamiera sp 15	AISI304
4	1	Flangia Supporto Riser d 340 sp 20	AISI304
3	1	Lamiera sp 15	AISI304
2	1	Flangia d 700 sp 30	AISI304
1	1	Lamiera Piegata sp8	AISI304
		Elenco parti	

REV	DESCRIZIONE	DATA	APPROVATO
1	Emissione per richiesta offerta	17/03/2008	Enea

CRONOLOGIA REVISIONE

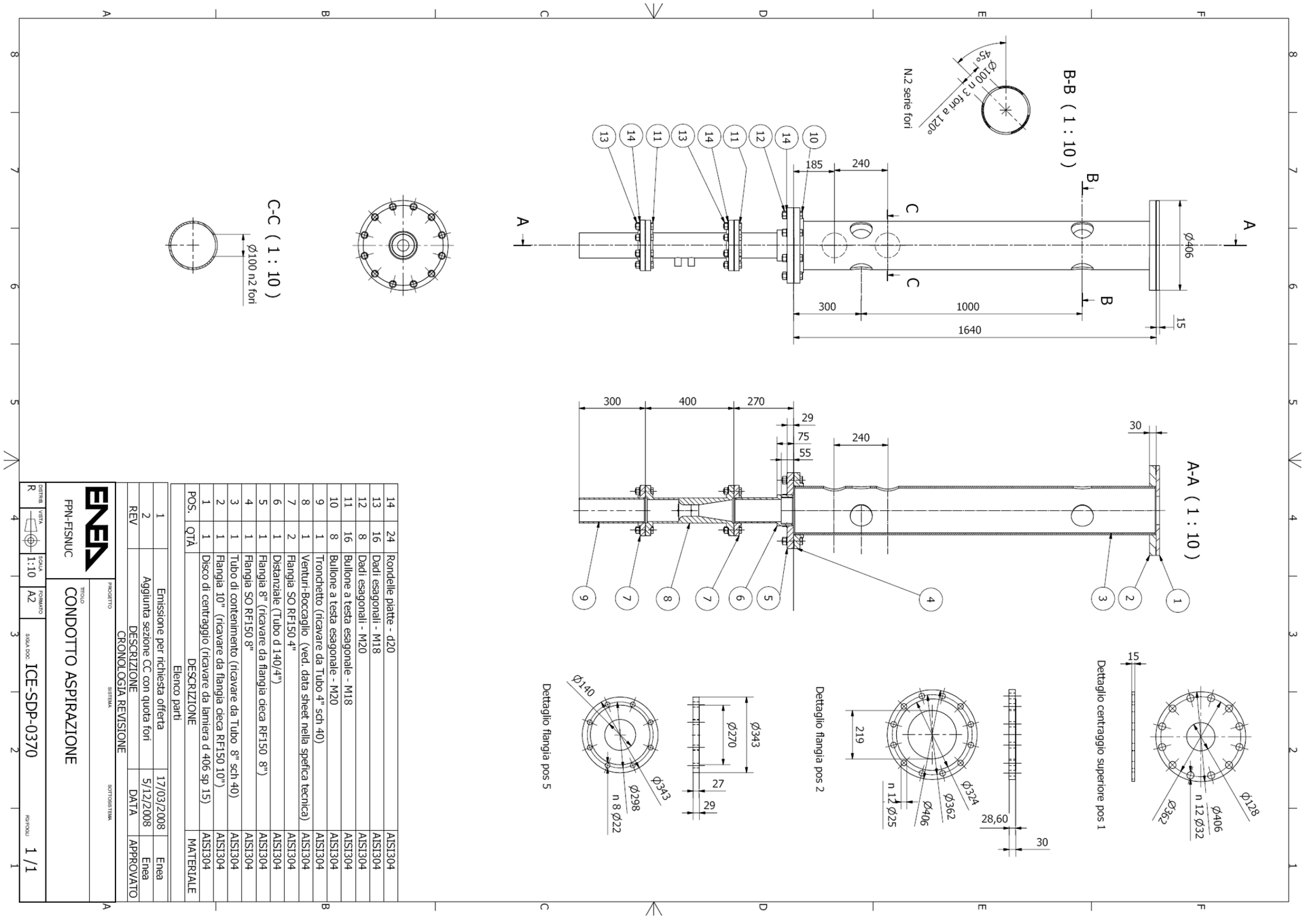
ENEA — FPN-FISNUC

PROGETTO — SISTEMA — SOTTOSISTEMA

TITOLO: CONVOGLIATORE

DISEGN.	VISTA	SCALA	FORMATO	SIGLA DOC.	FOGLIO
R		1:10	A1	ICE-SDP-0300	1 /1

Allegato 8: ICE-SDP-0370 Condotto aspirazione



POS.	QTÀ	DESCRIZIONE	MATERIALE
		Elenco parti	
1	1	Emissione per richiesta offerta	AISI304
2	1	Disco di centraggio (ricavare da lamiera d 406 sp 15)	AISI304
1	1	Flangia 10" (ricavare da flangia cieca RF150 10")	AISI304
2	1	Tubo di contenimento (ricavare da Tubo 8" sch 40)	AISI304
3	1	Flangia SO RF150 8"	AISI304
4	1	Flangia 8" (ricavare da flangia cieca RF150 8")	AISI304
5	1	Distanziale (Tubo d 140/4")	AISI304
6	1	Flangia SO RF150 4"	AISI304
7	2	Venturi-Boccaglio (ved. data sheet nella spefica tecnica)	AISI304
8	1	Tronchetto (ricavare da Tubo 4" sch 40)	AISI304
9	1	Bullone a testa esagonale - M20	AISI304
10	8	Bullone a testa esagonale - M18	AISI304
11	16	Dadi esagonali - M20	AISI304
12	8	Dadi esagonali - M18	AISI304
13	16	Rondelle piatte - d20	AISI304
14	24		

REV	DESCRIZIONE	DATA	APPROVATO
1	Aggiunta sezione CC con quota fori	5/12/2008	Enea
2	Emissione per richiesta offerta	17/03/2008	Enea

CRONOLOGIA REVISIONE

ENEA

PROGETTO: FPN-FISNUC

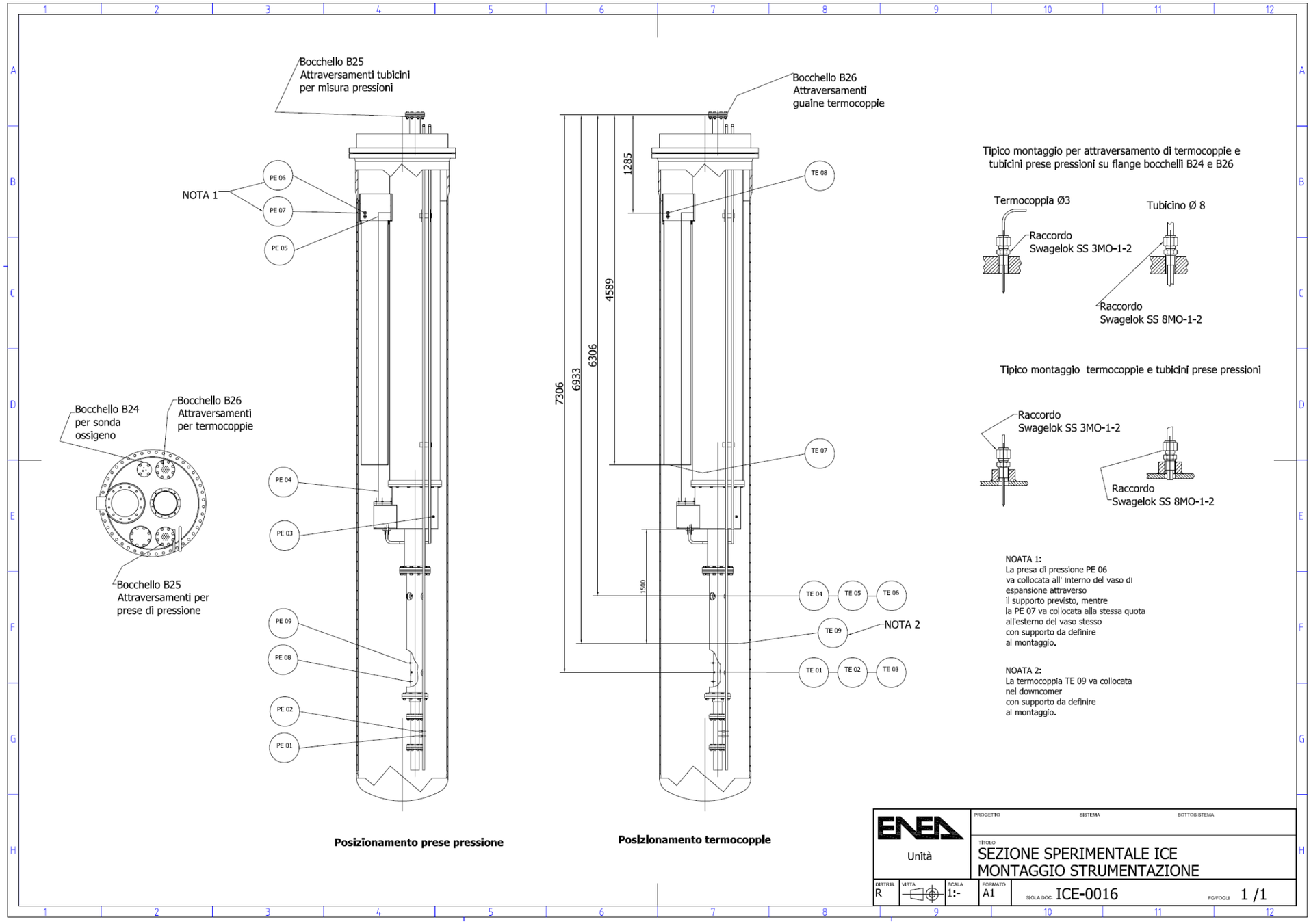
SISTEMA:

SOTTOSISTEMA:

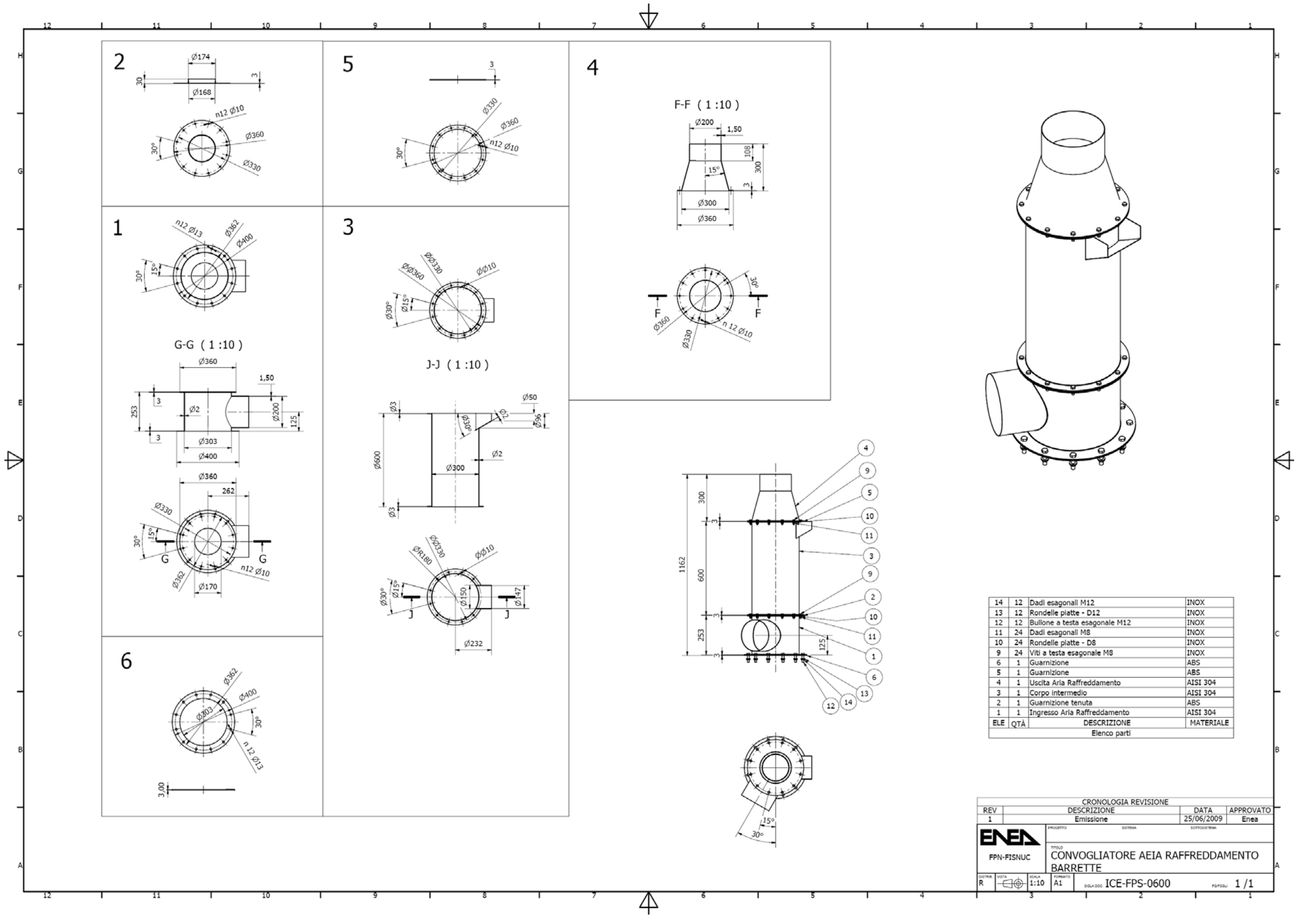
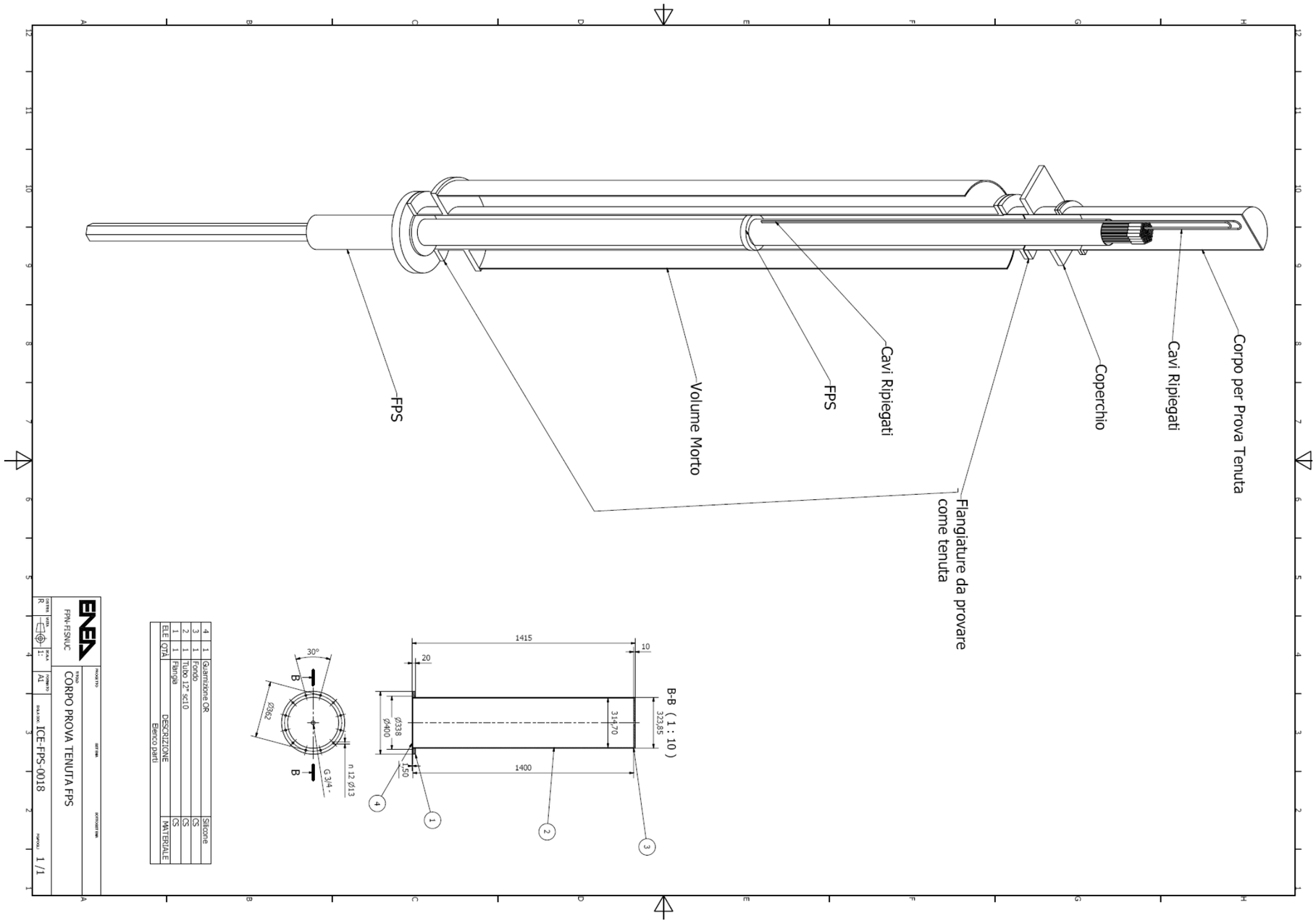
TITOLO: CONDOTTO ASPIRAZIONE

DISTRIB.	VISTA	SCALA	FORMATO	SIGLA DOC	FOGLIO
R		1:10	A2	ICE-SDP-0370	1 /1

Allegato 9: ICE-0016 Sezione Sperimentale ICE Montaggio Strumentazione



Allegato 10: ICE-FPS-0600 Convogliatore Aria Raffreddamento Barrette



Allegato 11: ICE-FPS-0018 Corpo Prova Tenuta