MINISTERO
DELLE INFRASTRUTTURE E DELLA MOBILITÀ SOSTENIBILI
STRUTTURA TECNICA DI MISSIONE

Mims

COMUNE DI TORINO

CITTA' DI TORINO

METROPOLITANA AUTOMATICA DI TORINO
LINEA 2 – TRATTA POLITECNICO – REBAUDENGO

PROGETTAZIONE DEFINITIVA
Lotto Costruttivo 1: Rebaudengo - Bologna

PROGETTO DEFINITIVO		
DIRETTORE PROGETTAZIONE Responsabile integrazione discipline specialistiche	IL PROGETTISTA	INFRA.TO infrastrutture per la mobilità INFRATRASPORTI S.r.l.
Ing. R. Crova Ordine degli Ingegneri della Provincia di Torino n. 6038S	Ing. F. Azzarone Ordine degli Ingegneri della Provincia di Torino n. 12287J	**DEPOSITO OFFICINA REBAUDENGO - IMPIANTI NON DI SISTEMA** **IMPIANTO ANTINCENDIO** RELAZIONE DI CALCOLO

BIM MANAGER Geom. L. D'Accardi	ELABORATO									REV. Int.	REV. Est.	SCALA	DATA
	MT	L2	T1	A1	D	IAN	DRB	R	002	0	3	-	17/05/2023

AGGIORNAMENTI

REV.	DESCRIZIONE	DATA	REDATTO	CONTROLLATO	APPROVATO	VISTO
0	EMISSIONE	31/01/22	FAz	FAz	FAz	R. Cr
1	EMISSIONE FINALE A SEGUITO DI VERIFICA PREVENTIVA	28/12/22	FAz	FAz	FAz	R. Cr
2	EMISSIONE FINALE A SEGUITO DI VERIFICA PREVENTIVA	21/02/23	FAz	FAz	FAz	R. Cr
3	EMISSIONE FINALE A SEGUITO DI VERIFICA PREVENTIVA	17/05/23	FAz	FAz	FAz	R. Cr
-	-	-	-	-	-	-

LOTTO 1	CARTELLA	14.5	9	MTL2T1A1D	IANDRBR002

STAZIONE APPALTANTE

DIRETTORE DI DIVISIONE
INFRASTRUTTURE E MOBILITÀ
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RESPONSABILE UNICO DEL PROCEDIMENTO
Ing. A. Strozziero

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1. PREMESSA

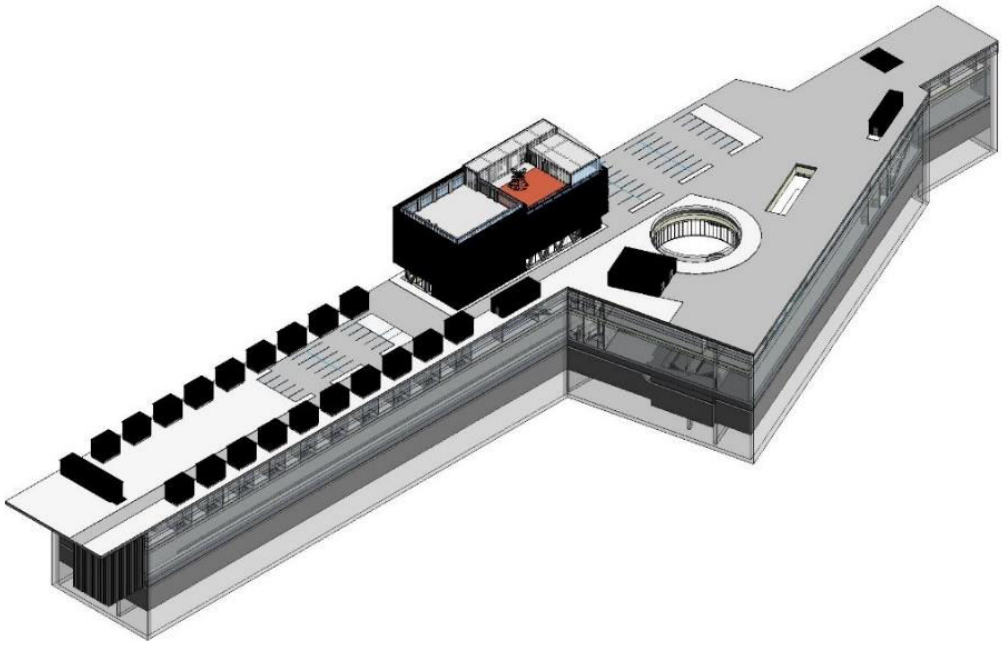
1.1 Scopo e campo di applicazione

Il presente documento ha come oggetto il calcolo idraulico degli Impianti antincendio al servizio del deposito Rebaudengo.

L'obiettivo del sistema antincendio è quello di realizzare i sistemi attivi di contrasto all'incendio in relazione alla tipologia di attività svolte all'interno dei locali e alle prescrizioni contenute all'interno del progetto di prevenzione incendi concordato con il comando dei VVF di Torino.

2. DESCRIZIONE DELL'IMPIANTO

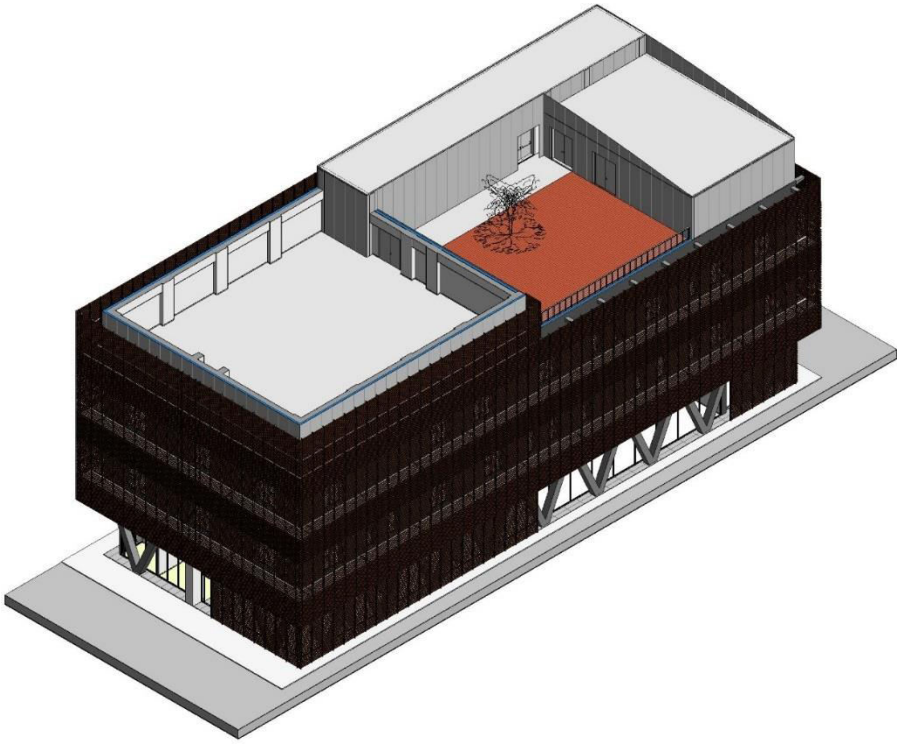
Il deposito Rebaudengo è un organismo edilizio che si sviluppa su due livelli interrati, e tre livelli fuori terra.

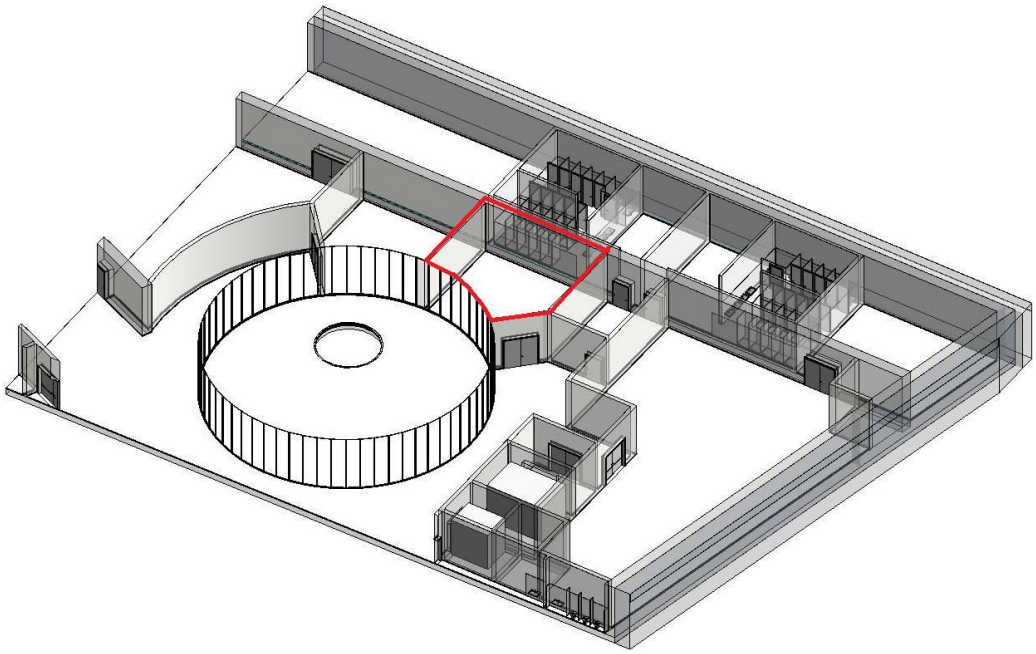


In generale, in relazione alla destinazione d'uso, possono essere individuate le seguenti macro-aree funzionali:

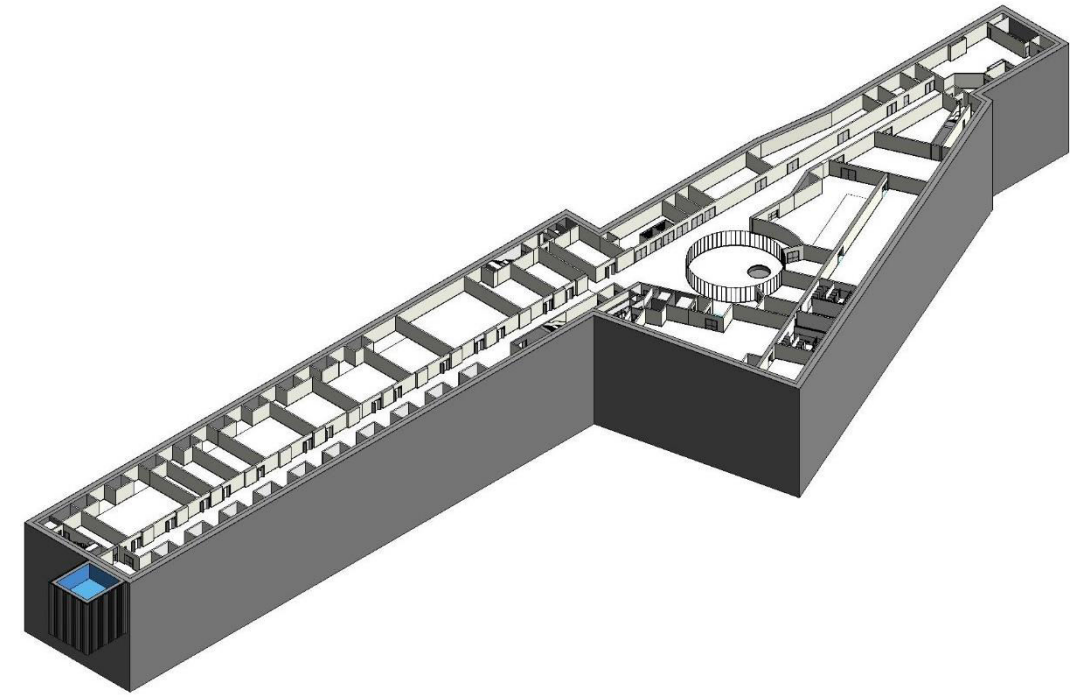
- zona uffici;
- zona officine e deposito;
- zona locali tecnologici.

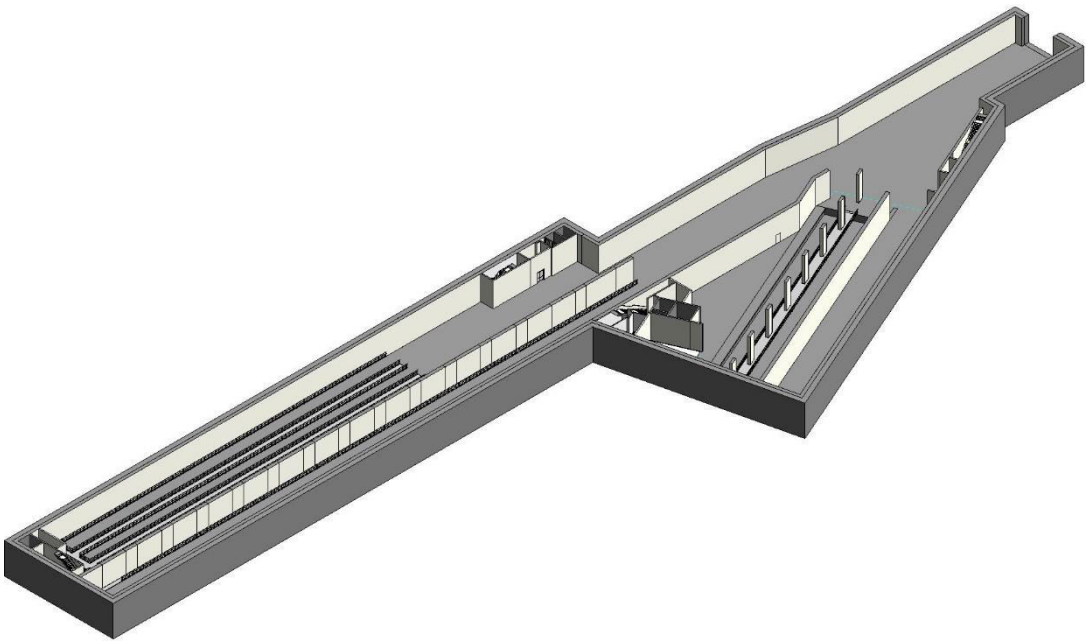
In generale le aree uffici saranno ubicate principalmente all'interno della palazzina fuori terra, e in alcuni locali specifici a livello -1.





Le aree officine e depositi, così come le zone locali tecnologici, sono ubicate principalmente a livello primo e secondo interrato





Verranno realizzati i seguenti di impianti idraulici antincendio:

- impianto idranti;
- impianto sprinkler;
- impianto a lama d'acqua.

2.1 Impianto idranti

A servizio dell'edificio verrà realizzato un impianto idranti costituito da:

- Impianto idranti UNI 70;
- Impianto idranti UNI 45;
- Impianto naspi UNI 25.

Gli impianti indicati deriveranno l'alimentazione idrica da una stazione di pompaggio dedicata, ubicata a piano primo interrato, che provvederà a pressurizzare l'impianto per garantire i corretti valori di portata e pressione alle bocche antincendio servite in base alla contemporaneità di funzionamento e alle caratteristiche idriche (portata e pressione) previste dalla Norma tecnica di riferimento (UNOI 10779).

L'edificio sarà dotato di una vasca di accumulo alimentato dall'acquedotto cittadino (SMAT), in grado di garantire il suo riempimento nei tempi richiesti dalla norma e di assicurare un adeguato rincalzo in modo da consentire il corretto funzionamento di tutti gli impianti antincendio ad acqua presenti nel Deposito con la contemporaneità di funzionamento previsto dalle Norme (UNI 10779 e UNI 12845) e concordato con il comando dei VVF di Torino.

L'impianto idranti è stato dimensionato per poter garantire le seguenti caratteristiche idrauliche minime:

- Numero idranti UNI 70 funzionanti contemporaneamente 4;
- Portata minima all'idrante più sfavorito 300 l/min;
- Pressione minima all'idrante più sfavorito 3 bar;
- Durata minima di funzionamento dell'impianto 90 minuti;
- Portata minima impianto antincendio 1.200 l/min;
- Capacità minima vasca di accumulo antincendio per impianto idranti 108 m^3.

2.1.1 Stazione di pompaggio impianto idranti

La stazione di pompaggio sarà ubicata a livello -1, in un locale dedicato e sarà costituita da un gruppo di surpressione a norma UNI 10779 -UNI 12845 formato da una elettropompa, una motopompa idraulicamente identiche e una pompa jockey per il mantenimento in pressione dell'impianto.

Le pompe provvederanno ad aspirare direttamente dalla vasca antincendio realizzando un sistema sottobattente.

Il gruppo sarà dimensionato per la situazione di esercizio più gravosa rappresentata dal funzionamento dell'impianto idranti UNI 70.

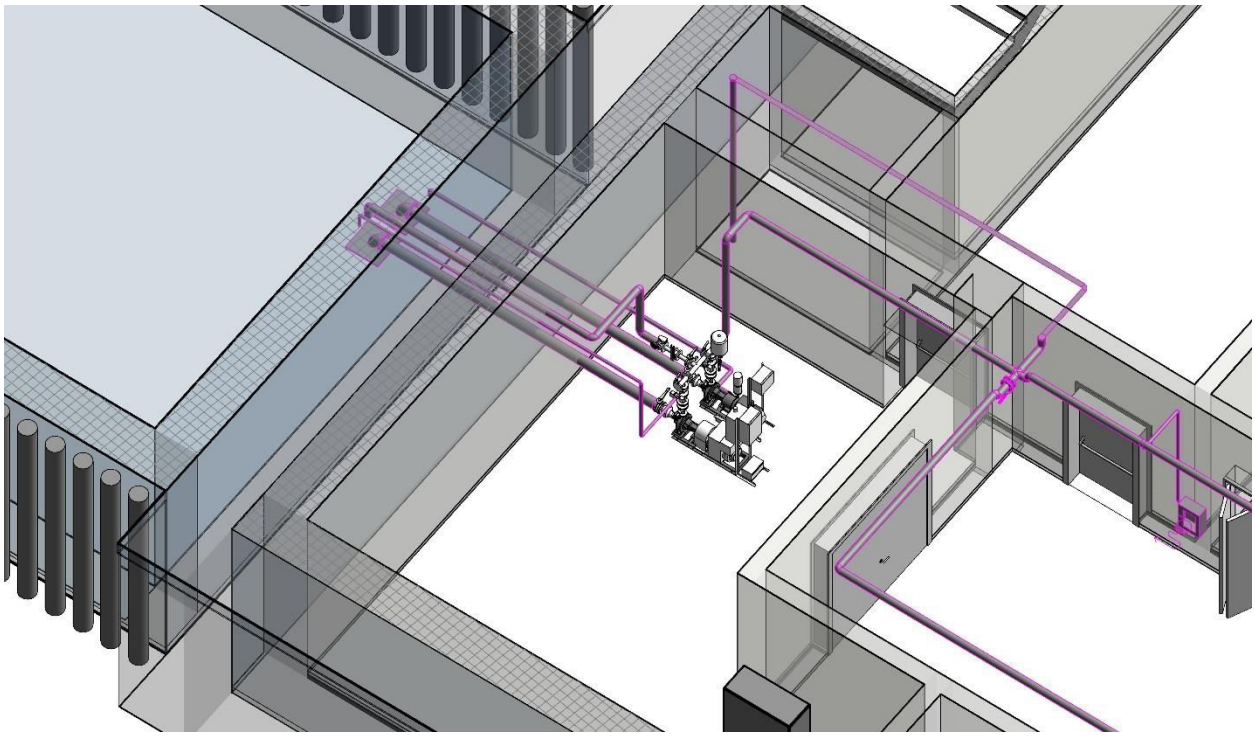
Le caratteristiche del gruppo di pressurizzazione idranti, derivate dal calcolo idraulico della rete (cfr. documento MTL2T1A1DIANDRBR002) saranno le seguenti:

- Portata elettropompa/motopompa di spinta 85 m^3/h;
- Prevalenza elettropompa/motopompa di spinta 60 m c.a.;
- Portata elettropompa di compenso 150 l/min;
- Prevalenza elettropompa di compenso 65 m c.a.

Trattandosi di una centrale di pompaggio ubicata a piano interrato, la centrale sarà dotata di un impianto di aggottamento costituito da due elettropompe sommerse ubicate in pozzetto dalle seguenti caratteristiche:

- Portata 20 m^3/h;
- Prevalenza 8 m c.a.;

L'installazione del gruppo di surpressione idranti è illustrata nella figura seguente.



2.2 Impianto sprinkler

A protezione dei locali ubicati a piano primo interrato sarà realizzato un impianto sprinkler differenziato secondo le caratteristiche e il livello di rischio della zona da servire.

Si prevedono due tipologie di impianto:

- impianto locali primo interrato;
- Impianto locali secondo interrato.

Gli impianti indicati deriveranno l'alimentazione idrica da una stazione di pompaggio dedicata, ubicata a piano primo interrato, che provvederà a pressurizzare l'impianto per garantire i corretti valori di portata e pressione alle testine in base alla densità d scarica e all'area operativa previste dalla Norma tecnica di riferimento (UNI 12845).

L'impianto deriverà l'acqua antincendio dalla medesima vasca illustrata per l'impianto idranti.

2.2.1 Impianto piano primo interrato – OH3

L'impianto è stato dimensionato per poter garantire le seguenti caratteristiche idrauliche minime:

- Livello di rischio OH3;
- Densità di scarica 5 mm/m;
- Area operativa 216 m^2;
- Durata minima di funzionamento dell'impianto 60 minuti;
- Pressione minima alla testina più sfavorita 0,35 bar;
- Area massima per testina 12 m^2;
- Tipo di testina upright;
- Fattore di scarica metrico testina Ke=80 l/min/$bar^{1/2}$
- Portata minima testina 47,3 l/min;
- Temperatura di intervento 93 °C.

Data la configurazione e l'estensione dell'impianto, la superficie da proteggere è stata suddivisa in due zone servite da un gruppo ad umido dedicato.

2.2.2 Impianto piano secondo interrato HPP2

L'impianto è stato dimensionato per poter garantire le seguenti caratteristiche idrauliche minime:

- Livello di rischio HHP2;
- Densità di scarica 10 mm/m;
- Area operativa 260 m^2;
- Durata minima di funzionamento dell'impianto 90 minuti;
- Pressione minima alla testina più sfavorita 0,5 bar;
- Area massima per testina 9 m^2;
- Tipo di testina upright;
- Fattore di scarica metrico testina Ke=115 l/min/$bar^{1/2}$
- Portata minima testina 81,2 l/min;
- Temperatura di intervento 93 °C.

Data la configurazione e l'estensione dell'impianto, la superficie da proteggere è stata suddivisa in due zone servite da un gruppo ad umido dedicato.

Anche a livello secondo interrato, i gruppi ad umido sono stati collocati in una zona filtro, facilmente raggiungibile dall'esterno tramite una scala protetta.

2.2.3 Stazione di pompaggio impianto sprinkler

Il gruppo di surpressione dell'impianto sprinkler sarà ubicato nel medesimo locale che ospita il gruppo dell'impianto idranti. La stazione di pompaggio sarà a norma UNI 12845, formato da una elettropompa, una motopompa idraulicamente identiche e una pompa jockey per il mantenimento in pressione dell'impianto.

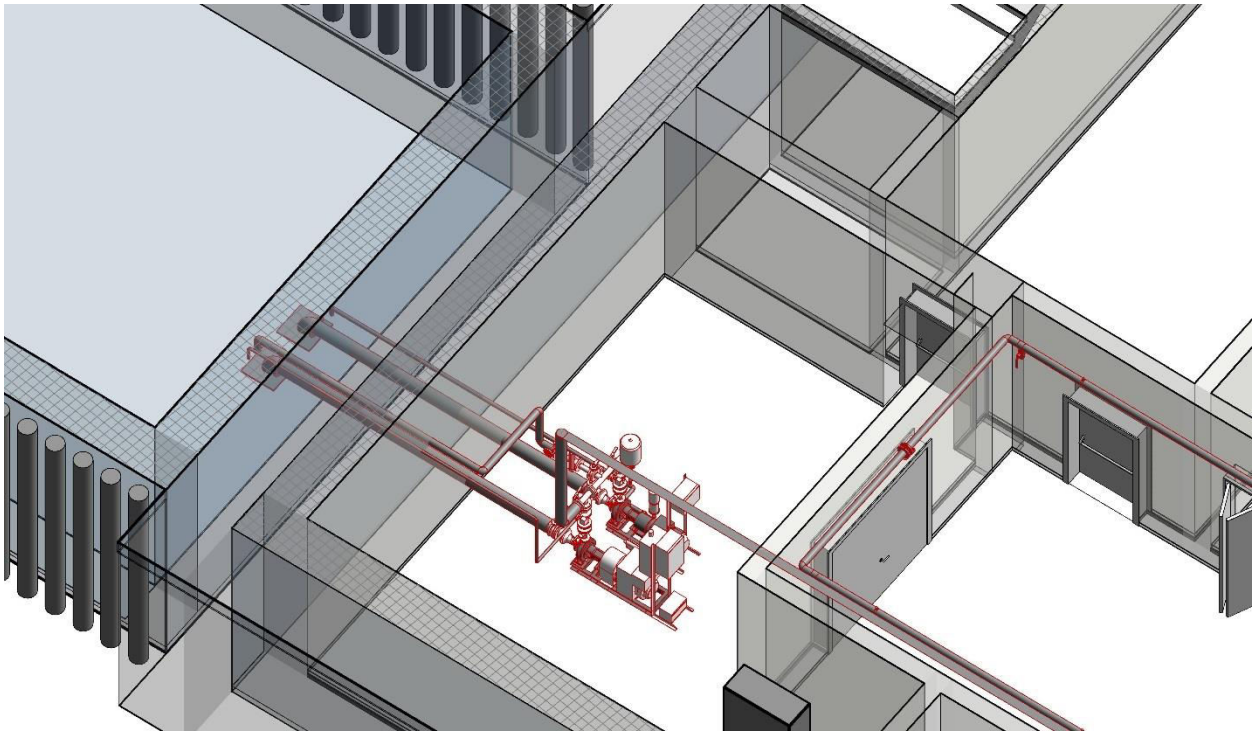
Le pompe provvederanno ad aspirare direttamente dalla vasca antincendio realizzando un sistema sottobattente.

Il gruppo sarà dimensionato per la situazione di esercizio più gravosa rappresentata dal funzionamento dell'impianto sprinkler con classe di pericolo HHP2.

Le caratteristiche del gruppo di pressurizzazione idranti, derivate dal calcolo idraulico della rete (cfr. documento MTL2T1A1DIANDRBR002) saranno le seguenti:

- Portata elettropompa/motopompa di spinta 185 m^3/h;
- Prevalenza elettropompa/motopompa di spinta 74 m c.a.;
- Portata elettropompa di compenso 150 l/min;
- Prevalenza elettropompa di compenso 80 m c.a.
- Prevalenza 8 m c.a.

L'installazione del gruppo di surpressione idranti è illustrata nella figura seguente.



2.3 Impianto a lama d'acqua

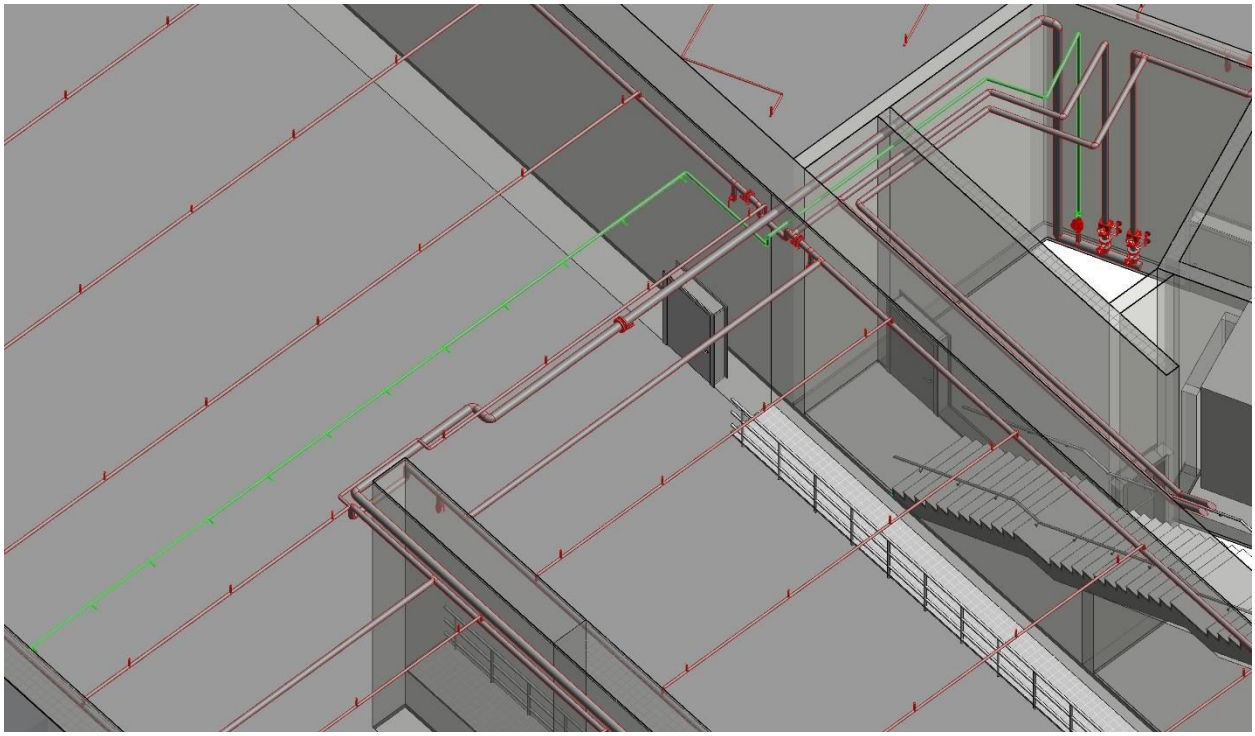
Per sezionare la zona deposito a due e tre binari dalla linea verrà installato, in aggiunta al portone sezionale, un sistema a lama d'acqua, dimensionato secondo norma NFPA13, che deriverà l'alimentazione idraulica dalla medesima linea dello sprinkler.

La lama d'acqua sarà asservita ad una valvola a diluvio azionabile elettricamente.

Le caratteristiche idrauliche dell'impianto saranno le seguenti:

- Livello di rischio HHP2;
- Densità di scarica 37 mm/m;
- Pressione minima alla testina più sfavorita 0,5 bar;
- Tipo di testina window;
- Portata testina 42 l/min;
- Fattore di scarica metrico testina Ke=60 l/min/bar$^{1/2}$

La valvola a diluvio sarà ubicata sul medesimo collettore dei gruppi di controllo dello sprinkler HHP2 a piano secondo interrato (impianto lama d'acqua in verde nell'immagine seguente).



2.4 Capacità della vasca di accumulo

In relazione alla tipologia e alle portate di calcolo degli impianti antincendio che dovranno essere alimentati con l'acqua contenuta dalla vasca antincendio, è possibile risalire alla capacità minima di accumulo.

Impianto	Calcolo teorico			Calcolo aree sfavorite			Calcolo aree favorite		
	Portata	Durata	Consumo	Portata	Durata	Consumo	Portata	Durata	Consumo
	[l/min]	[min]	[m³]	[l/min]	[min]	[m³]	[l/min]	[min]	[m³]
Sprinkler HHP2	2600	90	234,0	2785,6	90	250,7	3410	90	306,9
Idranti	1200	90	108,0	1378	90	124,0	1378	90	124,0
Lama d'acqua	647	90	58,2	736,2	90	66,3	736,2	90	66,3
Totale			**400,2**			**441,0**			**497,2**

La capacità geometrica minima dell'accumulo dovrebbe essere, senza tenere conto dell'integrazione da acquedotto, pari a circa 500 m³. Ipotizzando di riuscire a realizzare una vasca da 400 m³, la portata di integrazione da parte del carico dell'acquedotto dovrebbe essere pari a circa 65 m³/h.

2.5 Impianto di saturazione a gas inerti

All'interno dei locali informatici della palazzina, e nella sala di controllo, verrà installato un impianto a saturazione gas inerte costituito da un bombolaio e una serie di tubazioni ed ugelli in grado di saturare di gas estinguente sia la zona del locale occupata dagli utenti, sia i volumi contenuti nel controsoffitto e nel pavimento galleggiante.

Sarà installato un impianto di protezione del tipo a saturazione di gas inerte (IG 541) che progettato in accordo alle seguenti normative di riferimento:

- UNI EN 15004-1 "Sistemi ad estinguenti gassosi – Parte 1: progettazione, installazione, manutenzione";
- UNI EN 15004-10 "Sistemi ad estinguenti gassosi – Parte 10: proprietà fisiche e progettazione dei sistemi a estinguenti gassosi per l'agente estinguente IG 541", una miscela composta dal 52% di Azoto, dal 40% di Argon e dall'8% di Anidride Carbonica (CO2).

In relazione alla volumetria da proteggere, verrà installato un sistema costituito dai seguenti componenti;

- Grigliato di protezione bombole con porta di accesso;
- 22 bombole pilotate, di capacità 140 l, certificate T-PED - FM, caricata con miscela IG-541 a 300 bar, complete di valvola a flusso rapido con manometro, attuazione pneumatica, fornite di cappellotto di protezione, manichetta flessibile di scarica e valvola di non ritorno;
- 1 bombole pilota di comando di capacità 7 l, certificata T-PED, caricata con azoto a 25 bar, completa di valvola di scarica, solenoide di attivazione e manichetta di collegamento.
- Rastrelliere di fissaggio bombole a posto singolo in acciaio zincato con supporti per collettore;
- Collettore di scarica completo di supporti;
- Orifizi calibrati di riduzione della pressione gas;
- Pressostati di segnalazione "impianto intervenuto";
- Ugelli di scarica di tipo silenziato SILENCER da installare a protezione dell'ambiente, e sottopavimento;
- Rete di tubazioni API 5 L gr. B sch. 40 zincata, completa di raccordi per alte pressioni ANSI 3000 filettati NPT, e relativi staffaggi;
- Serrande di sovrapressione EI 120, superficie e dimensioni da definire in fase esecutiva a seguito del risultato combinato del Door Fan Test e Calcolo idraulico.
- Sistema di attivazione spegnimento costituito da:
  - Unità di spegnimento conformi a UNI EN 1294;
  - Batterie 12 V - 7Ah;
  - Pulsanti scarica (colore giallo) connesso ciascuno ad una unità di spegnimento;
  - Pulsanti inibizione scarica (colore blu) connesso ciascuno ad una unità di spegnimento;
  - Pannelli ottico acustici a norma EN 54-3 EN 54-23 VE EL connessi a coppie ad una unità di spegnimento;
  - Moduli analogici a 1 out per comando O/A;
  - Micro su porte interne ed esterne locali complete di modulo di comando;
  - Moduli I/O comando ventilazione e tagliafumo;
  - Rete cavi CEI 20-22 EN 50200 PH 30 twistato e schermato per loop e alimentazione 24 Vcc;

- Sistema di vie cavi in PVC per posa impianto complete di raccordi e staffaggi.

Logica di funzionamento

L'impianto di spegnimento sarà comandato dalla centrale di rivelazione incendi secondo due differenti logiche di attuazione:

Intervento automatico

1. Segnale di presenza di fumo/calore da parte di uno dei due rivelatori presente in ambiente – preallarme;
2. Conferma di presenza di fumo/calore da parte anche del secondo rivelatore presente in ambiente – allarme;
3. Segnalazione mediante pannelli ottico acustici dell'imminenza della scarica e invito a lasciare il locale;
4. Blocco degli impianti di condizionamento e ventilazione di pertinenza del locale;
5. Inizio del periodo di ritardo programmato tra conferma dell'incendio da parte del secondo sensore e partenza scarica;
6. Verifica della posizione in chiusura delle porte di accesso al locale grazie ai contatti di fine corsa connessi alla centrale antincendio (in caso di mancata chiusura segnalazione con apposito allarme ottico acustico);
7. Allo scadere del periodo di ritardo programmato ha inizio la scarica.

Intervento manuale

1. Attivazione manuale del pulsante di scarica da parte di operatore che ha rilevato il pericolo di incendio;
2. Segnalazione mediante pannelli ottico acustici dell'imminenza della scarica e invito a lasciare il locale;
3. Blocco degli impianti di condizionamento e ventilazione di pertinenza del locale;
4. Inizio del periodo di ritardo programmato tra conferma dell'incendio da parte del secondo sensore e partenza scarica;
5. Verifica della posizione in chiusura delle porte di accesso al locale grazie ai contatti di fine corsa connessi alla centrale antincendio (in caso di mancata chiusura segnalazione con apposito allarme ottico acustico);
6. Allo scadere del periodo di ritardo programmato ha inizio la scarica.

Impianto di lavaggio dopo scarica

Per consentire il lavaggio dopo la scarica dei locali equipaggiati con l'impianto di spegnimento, sarà installato, in ogni locale, un sistema costituito da un ventilatore di estrazione dei fumi.

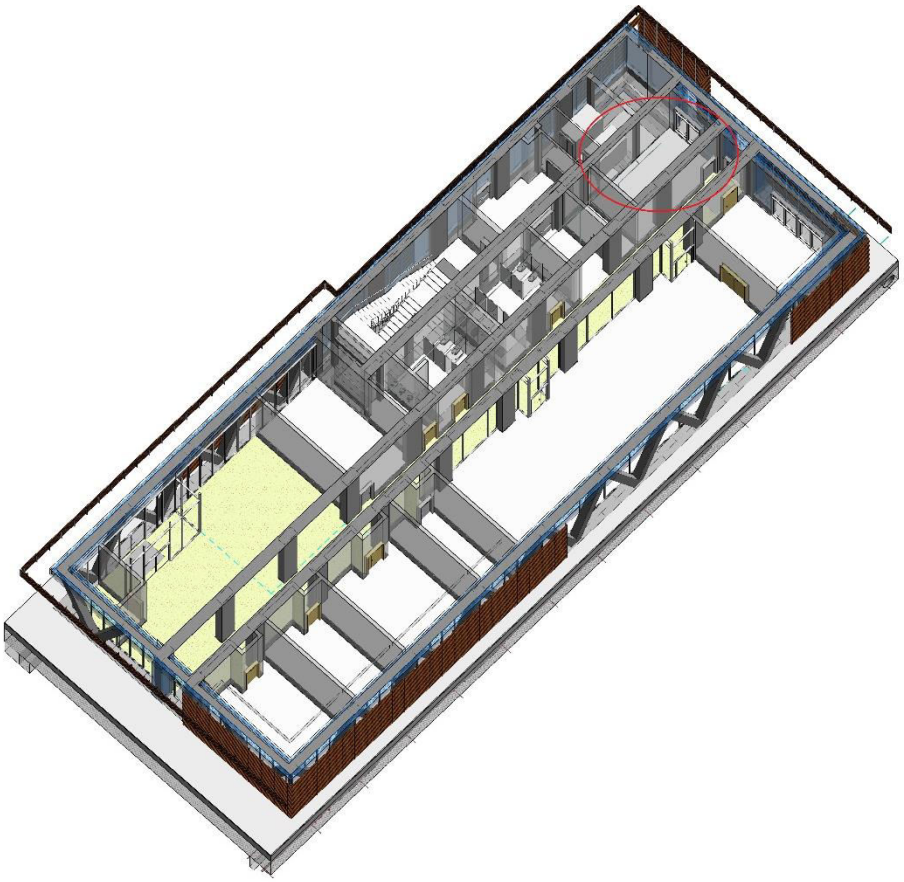
L'apparecchiatura è dimensionata per consentire il ricambio completo dell'aria in un tempo massimo di dieci minuti.

Il ventilatore sarà collegato ad una rete di canalizzazioni in lamiera zincata, dotata di bocchette di estrazione che aspireranno direttamente dall'ambiente. Le linee dei canali saranno, inoltre, dotate di una serranda di intercettazione EI 120 motorizzata, comandata direttamente dal sistema di azionamento dello spegnimento, che verrà chiusa in concomitanza della scarica allo scopo di garantire la perfetta tenuta durante la saturazione dei locali. All'interno del locale servito, anche le diramazioni dell'impianto aria primaria (mandata e estrazione) saranno dotate di serrande EI 120 motorizzate per l'intercettazione delle linee.

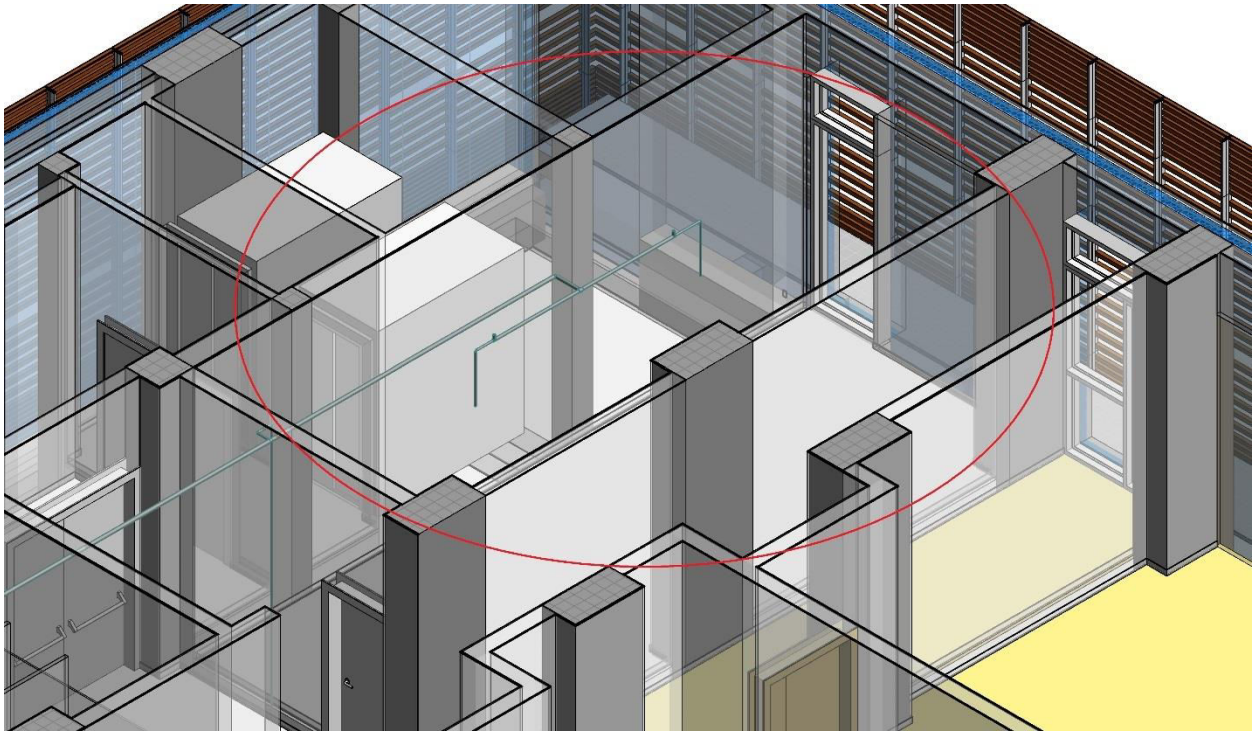
Logica di funzionamento

I ventilatori che assicurano la funzione di lavaggio dopo scarica saranno azionati unicamente attraverso comando manuale da parte di personale opportunamente formato.

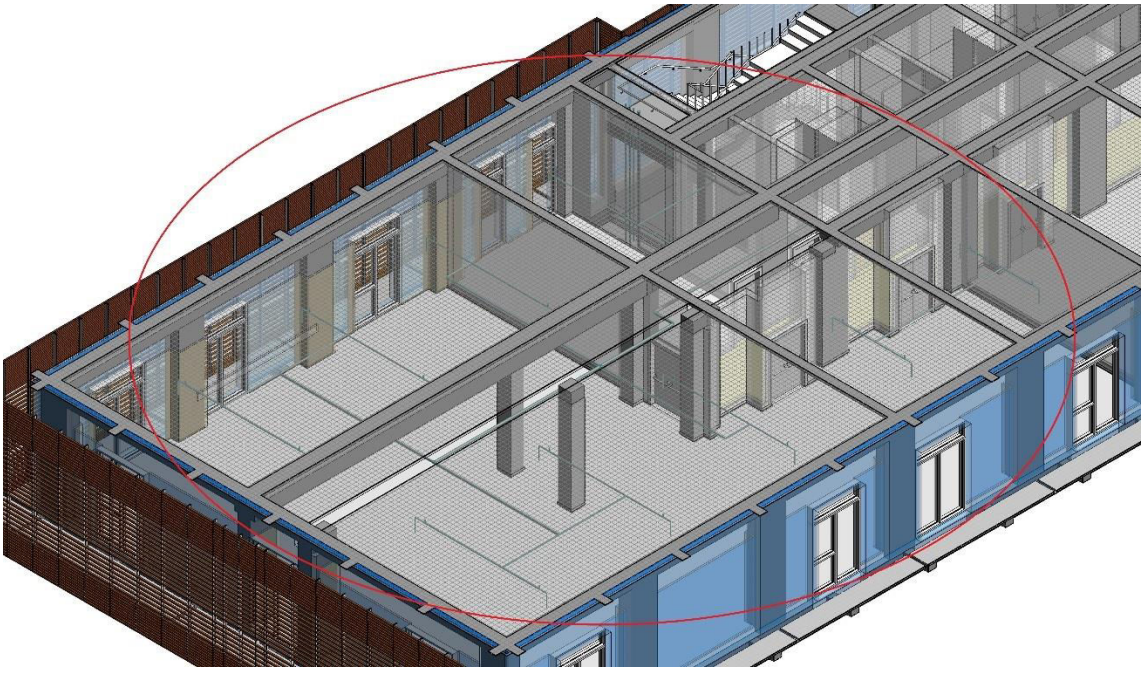
I locali serviti saranno ubicati a piano terreno della palazzina.



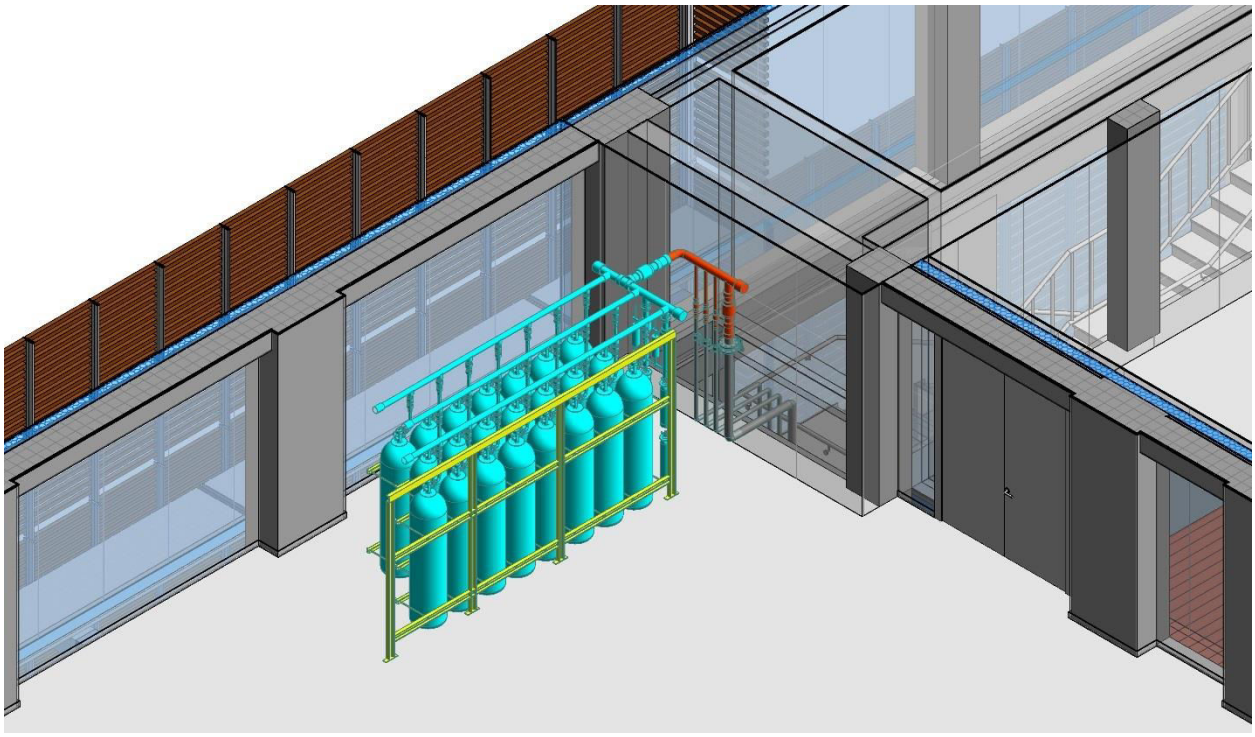
Analogo locale sarà protetto a piano primo



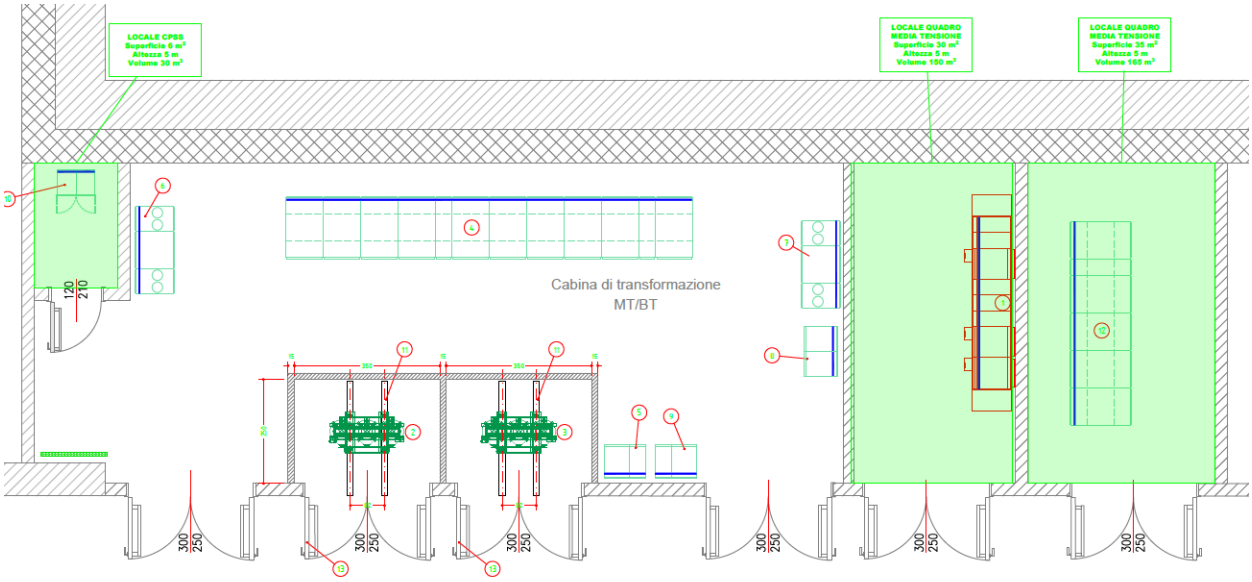
A piano secondo della palazzina sarà protetta tutta la zona sala di controllo e il relativo locale informatico



Il bombolaio, dimensionato per garantire la saturazione del maggior volume servito, sarà ubicato a piano terzo.



Analogo impianto sarà installato per la protezione dei locali elettrici ubicati a piano primo interrato



2.5.1 Piani terreno, primo e secondo

Gli impianti di spegnimento previsti sono stati dimensionati come segue.

Item	Piano	Locale Protetto	Sup. m2	Alt. m	Volume m3	Rischio classe	Design Concent. %	Bombole IG-01 @ 300 bar Nr.	Bombole IG-01 @ 300 bar Cap. l	Valvole direzionali n°. x d.	N°. ugelli SILENCE n°. x d.
SISTEMA CENTRALIZZATO IG-01 LOCALI TECNICI M2											
1	P.T.	UPS - Controsoffitto	37	1,63	238,7	HHA	49,2	22	140	1 x 1"1/4	2 x 1"
		UPS - Ambiente	37	4,00							2 x 1"
		UPS - Sottopavimento	37	0,8							2 x 1"
2	1°P.	Server - Controsoffitto	37	1,20	173,9	HHA	49,2			1 x 1"1/4	2 x 1"
		Server - Ambiente	37	3,00							2 x 1"
		Server - Sottopavimento	37	0,5							2 x 1"
3	2°P.	Server - Controsoffitto	38	1,20	177,2	HHA	49,2			1 x 1"1/4	2 x 1"
		Server - Ambiente	38	3,00							2 x 1"
		Server - Sottopavimento	38	0,5							2 x 1"
4	2°P.	Centro Controllo - Controsoffitto	355	1,10	1633,0	HHA	49,2			1 x 3"	16 x 1"
		Centro Controllo - Ambiente	355	3,00							16 x 1"
		Centro Controllo - Sottopav.	355	0,5							16 x 1"
							Tot.	22		4	66
Tempo di scarica: 120 sec											

2.5.2 Piano primo interrato

Gli impianti di spegnimento previsti sono stati dimensionati come segue.

Item	Piano	Locale Protetto	Sup. m2	Alt. m	Volume m3	Rischio classe	Design Concent. %	Bombole IG-01 @ 300 bar Nr.	Bombole IG-01 @ 300 bar Cap. l	Valvole direzionali n°. x d.	N°. ugelli SILENCE n°. x d.
SISTEMA CENTRALIZZATO IG-01 LOCALI TECNICI M2											
1	P.T.	UPS - Controsoffitto	37	1,63	238,7	HHA	49,2			1 x 1"1/4	2 x 1"
		UPS - Ambiente	37	4,00							2 x 1"
		UPS - Sottopavimento	37	0,8							2 x 1"
2	1°P.	Server - Controsoffitto	37	1,20	173,9	HHA	49,2			1 x 1"1/4	2 x 1"
		Server - Ambiente	37	3,00							2 x 1"

		Server - Sottopavimento	**37**	**0,5**				**22**	**140**		2 x 1"
3	**2°P.**	**Server - Controsoffitto**	**38**	**1,20**	**177,2**	**HHA**	**49,2**			**1 x 1"1/4**	2 x 1"
		Server - Ambiente	**38**	**3,00**							2 x 1"
		Server - Sottopavimento	**38**	**0,5**							2 x 1"
4	**2°P.**	**Centro Controllo - Controsoffitto**	**355**	**1,10**	**1633,0**	**HHA**	**49,2**			**1 x 3"**	16 x 1"
		Centro Controllo - Ambiente	**355**	**3,00**							16 x 1"
		Centro Controllo - Sottopav.	**355**	**0,5**							16 x 1"
							Tot.	**22**		**4**	**66**
Tempo di scarica: 120 sec											

2.6 Impianto water mist

A protezione dei locali dell'officina batterie, della cabina di trasformazione e dei locali quadri e SSE ubicati a piano primo interrato, verrà installato un sistema Water Mist ad alta pressione idoneo per la protezione di locali tecnici con presenza di apparecchiature elettriche, progettato in base agli standard UNI EN 14972-1 e NFPA 750 ed ai risultati dei fire test specifici per il tipo di rischio di incendio da proteggere, in particolare

- officina batterie: protocollo di prova standard VdS "Test Assembly and Requirements – OH3 (ST1 and ST5/6)";
- locali elettrici, classificati OH1 (rif. UNI EN 12845), protocollo di prova standard CEN prEN 14972 "Fixed firefighting systems – Water mist systems – Part 3: Test protocol for office, school classrooms and hotel for automatic nozzle systems"

L'impianto sarà composto principalmente da un'unità di pressurizzazione di tipo elettrico, alimentata direttamente da pubblico acquedotto, con una portata di 557,21 l/min. L'unità di pressurizzazione, mediante pompe volumetriche, provvederà ad iniettare l'acqua ad alta pressione nelle tubazioni di erogazione.

Il sistema, operando con lo stesso concetto di impianto a sprinkler a preazione (testine erogatrici chiuse da un bulbo termosensibile e azionamento dal sistema di rivelazione incendi), non richiede la compartimentazione e/o tenuta dell'ambiente.

Le tubazioni del sistema, di diametro variabile da 12 a 38 mm, saranno tutte realizzate in acciaio inossidabile AISI 316L per alte pressioni e non esposte a processi di corrosione

L'impianto sarà costituito dai seguenti componenti principali:

- Unità di pompaggio elettrica;
- Testine per la scarica dell'acqua di tipo water mist;
- Rete di distribuzione in acciaio inox;

- Valvole di sezionamento a preazione;

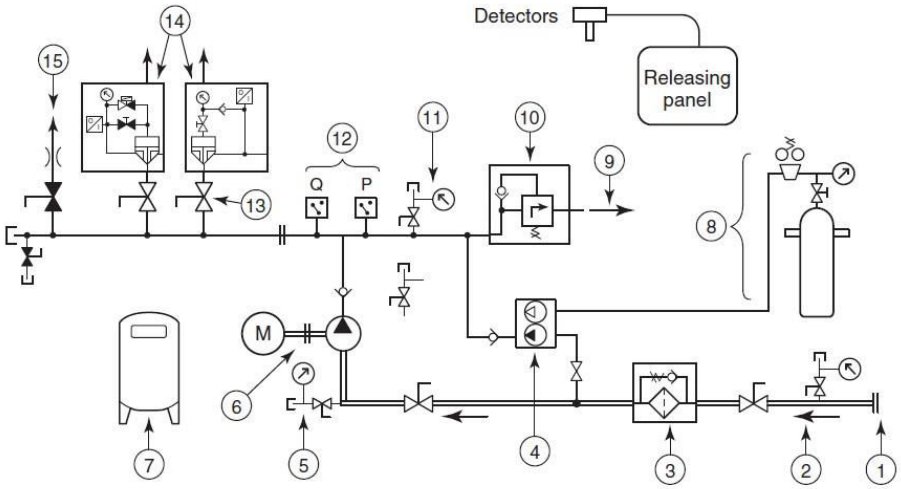
Al fine di garantire l'intervento di un numero massimo di sprinklers all'interno dell'area operativa (144 m^2), il sistema richiederà una riserva idrica di acqua potabile avente una capacità di 33.500 litri. Tale capacità non dovrà essere conteggiata come contemporanea alla capacità derivante dal funzionamento dell'impianto idranti e spinkler.

L'unità di pompaggio dovrà pertanto essere connessa a una fonte di alimentazione elettrica sicura Il sistema è del tipo sprinkler a preazione, ovvero le tubazioni, in condizioni di stand-by, sono piene d'acqua fino alle valvole di sezionamento a preazione (in quantità pari al numero dei locali), mentre a valle di queste e fino agli sprinklers sono piene di aria compressa (compressore ad alta pressione).

La pressione statica mantenuta nel sistema è di circa 25 Bar; essa viene assicurata da un'elettropompa jockey dedicata.

2.6.1 Schema funzionale

Il sistema è in accordo allo schema NFPA 750, qui di seguito illustrato.



Legend

1. Connection to water supply
2. Low pressure gauge
3. Filters or screens with bypass
4. Standby pressure maintenance pump (pneumatic or electric)
5. NPSH gauge (+/–)
6. Pump and driver (electric or diesel)
7. Pump controller
8. Air supply and regulator for pneumatic pressure maintenance pump (4), includes plant air and compressors
9. Unloader valve discharge line to drain or break tank
10. Unloader valve rated for 100% of pump flow capacity
11. Pressure gauge
12. Pressure (P) and flow (Q) switches/transmitters connected to pump assembly
13. Manual isolation valve
14. Sectional control valves to mist systems (solenoid release)
15. Test connection with flow meter

FIGURE A.13.1.6(e) Schematic Diagram of a Pump-Driven Water Mist System. [Typical]

2.6.2 Logica di funzionamento

La rottura del bulbo di una delle testine installate nei locali consente all'acqua di uscire solo dalla testina effettivamente intervenuta.

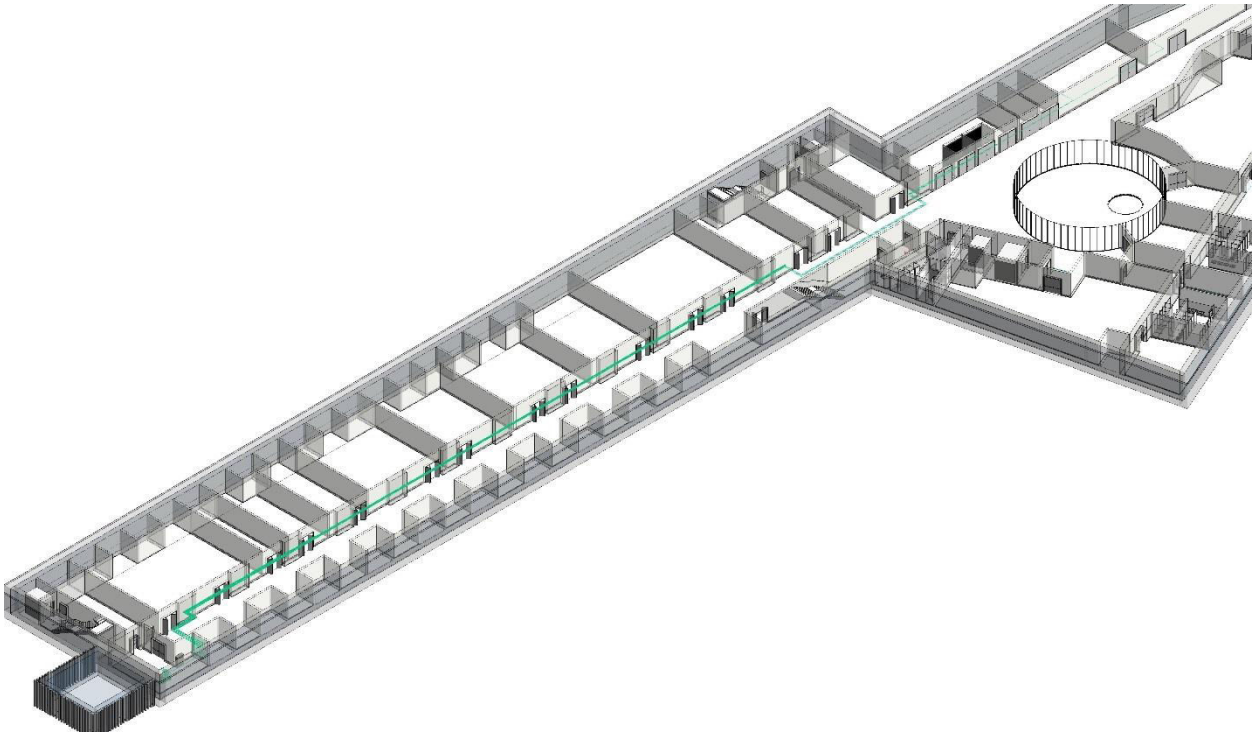
La pressione nominale alle testine sprinkler a protezione dell'officina batterie agli ioni di litio è 80 Bar, mentre quella alle testine sprinkler a protezione degli altri locali tecnici è 50 Bar.

La scarica può essere interrotta in qualsiasi momento chiudendo la valvola di controllo della sezione d'impianto interessata. Tale operazione deve essere effettuata da persona specificamente formata e preposta a tale attività.

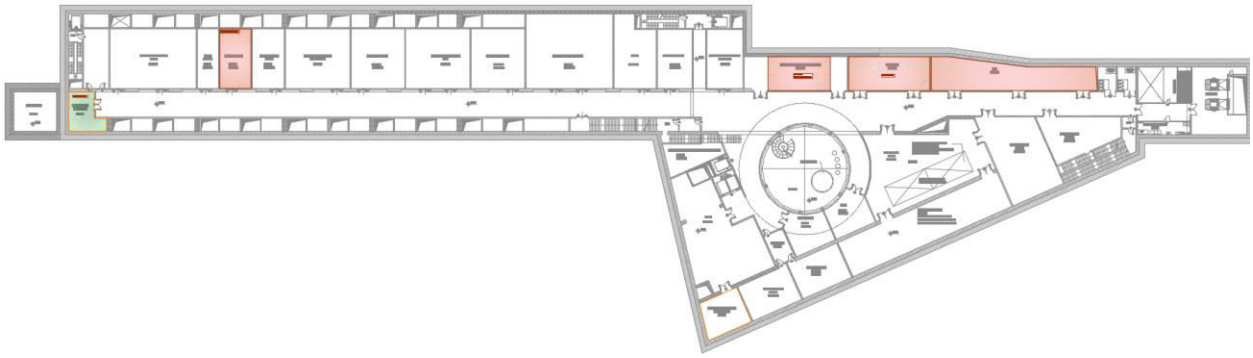
L'unità di pressurizzazione sarà composta da sei motori elettrici. Ogni motore sarà connesso ad una pompa volumetrica per alta pressione, certificata per usi antincendio.

2.6.3 Layout impianto

L'impianto realizzato è illustrato nell'immagine seguente.



I locali serviti saranno i seguenti:

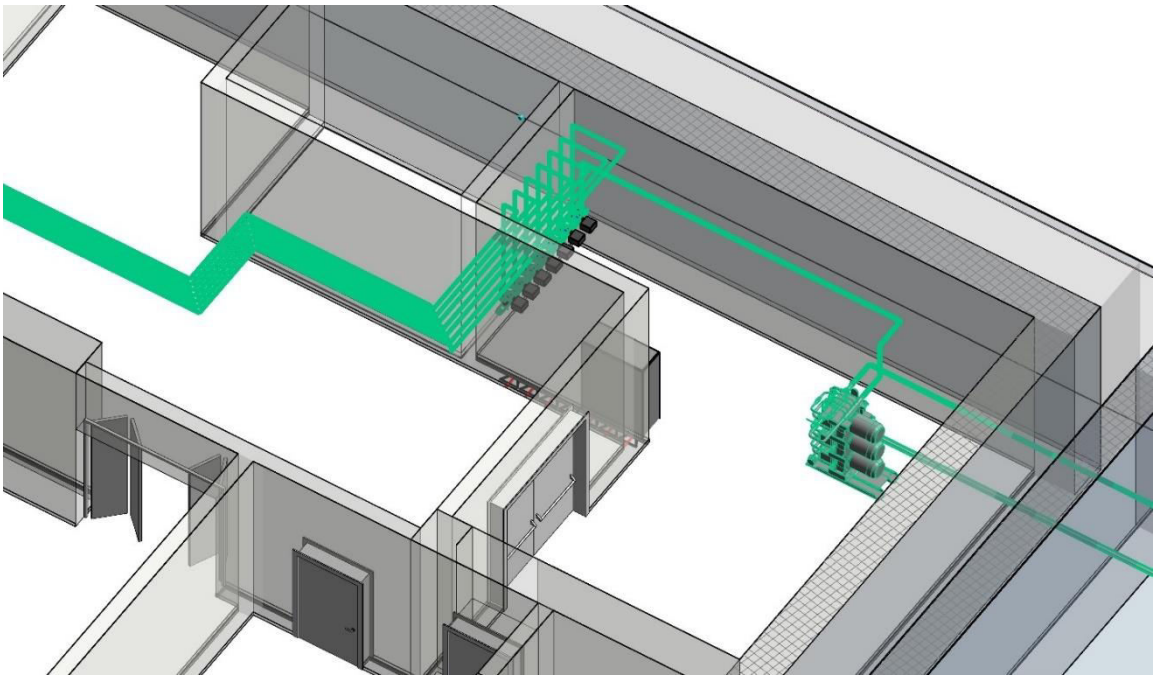


2.6.4 Unità di pompaggio

Dati caratteristici:

- Portata idrica: 606 l/min;
- Prevalenza: 130 bar;
- Assorbimento elettrico: 172 kW.

L'unità di pressurizzazione sarà ospitata all'interno della centrale di pompaggio dove sono collocate le pompe dell'impianto sprinkler e dell'impianto idranti.



2.7 Specifiche di progetto e certificazioni

Sulla base della normativa vigente il dimensionamento dell'impianto viene eseguito esclusivamente sulla base dei parametri di funzionamento che sono stati determinati tramite prove d'incendio in scala reale eseguite presso laboratori internazionali accreditati ISO 17025 e in accordo a **protocolli di prova standard**, che hanno condotto all'ottenimento delle certificazioni VdS del sistema HI-FOG®:

1. per l'officina batterie agli ioni di litio, esiste il protocollo di prova standard VdS "Test Assembly and Requirements – OH3 (ST1 and ST5/6)";
2. per gli altri locali tecnici, classificati OH1 (rif. UNI EN 12845), esiste il protocollo di prova standard CEN prEN 14972 "Fixed firefighting systems – Water mist systems – Part 3: Test protocol for office, school classrooms and hotel for automatic nozzle systems"; che sono stati seguiti dal sistema HI-FOG® per valutarne e certificarne l'efficacia nella soppressione delle rispettive tipologie di incendio. Pertanto, il sistema HI-FOG® in progetto risulta essere certificato VdS.

2.7.1 Specifiche di erogazione

Sulla base delle suddette prove d'incendio in scala reale e delle relative certificazioni VdS è stata determinata la specifica di spaziatura delle testine, il tipo di testine (pendent) e la portata d'acqua da erogare.

Il sistema è stato dimensionato per assicurare un intervento su un'area operativa di **144 m^2**, in conformità allo standard VdS 3188.

2.7.2 Capacità e durata dell'alimentazione idrica

La durata minima prevista dallo standard americano NFPA 750 per questo tipo di impianti è di 30 minuti, lasciando al progettista l'eventuale definizione di una durata maggiore. Nel caso specifico, si prevede una durata maggiore e in accordo agli standard VdS 3188, CEA 4001, EN 12845 e UNI EN 14972-1, ovvero **60 minuti**.

Si noti che la portata richiesta per questo sistema è dell'ordine dei 557,21 lpm, inclusa anche **un'extra portata del 10%**, in accordo agli standard NFPA 750 e UNI EN 14972-1; tale portata totale richiesta

per questo sistema può essere fornita al sistema attraverso il colle- gamento alla rete acquedotto presente nel sito di Torino.

In alternativa, o in aggiunta per maggior sicurezza, si può considerare di installare un ser- batoio di capacità idrica di almeno 33.400 litri.

2.7.3 Rete distribuzione - materiali

La rete di distribuzione è composta da tubazioni in acciaio inox AISI 316 L (conformi alle DIN17457) che assicurano una durata pressoché illimitata del sistema garantendo anche la pulizia dell'acqua. La dimensione delle tubazioni varia da diametro 38 mm, per i tubi principali, a diametro 12 mm, per le diramazioni agli ugelli erogatori.

Le connessioni sono in ferro dolce tipe DIN 2353 e gli accoppiamenti in acciaio inox AISI 316, oppure in ottone Ms.362, costruiti con un fattore di sicurezza 4.

I sostegni delle tubazioni sono in acciaio; la distanza fra i supporti è quella normalmente utilizzata per le tubazioni secondo la normativa NFPA, con una media di un supporto ogni 1,2÷2,5 metri a seconda del diametro della tubazione stessa.

Le perdite di carico nelle tubazioni saranno calcolate utilizzando l'espressione di Darcy- Weisbach per i sistemi ad alta pressione come richiesto dallo standard NFPA 750.

2.8 Classificazione del livello di pericolo

La classificazione del livello di pericolo è il primo step nella definizione di un sistema di protezione: essa è svolta dal soggetto responsabile per l'analisi del rischio che, in un'attività non regolata da specifiche regole tecniche di prevenzione incendi, è costituito dal titolare dell'attività, secondo il DM 10.3.98 tuttora vigente, che se ne fa carico in genere affidandosi a professionisti esperti della materia.

Nel caso in esame, la definizione del livello di pericolo è responsabilità del Titolare che, a tale scopo, si avvale del Responsabile di Servizio Prevenzione e Protezione e/o di profes- sionisti del Settore. Il livello di pericolo definito per le aree in esame è il livello di pericolo classificato, secondo gli standard europei sprinkler (*CEA 4001 ed EN 12845*) e water mist (*UNI EN 14972-1 e VdS 3188*), come ***Ordinary Hazard group 1 (OH1) e Ordinary Hazard group 3 (OH3)***.

2.9 Definizione dei parametri di progetto

Per l'officina batterie agli ioni di litio oggetto di protezione:

Ugelli erogatori a bulbo:	HI-FOG® tipo pendent
Densità di portata minima:	3,41 lpm/m^2
Spaziatura massima:	8,1225 m^2
Altezza massima:	4 m

Per gli altri locali tecnici oggetto di protezione:

Ugelli erogatori a bulbo:	HI-FOG® tipo pendent
Densità di portata minima:	1,2 lpm/m^2
Spaziatura massima:	12,25 m^2
Altezza massima:	4,5 m

4. ALLEGATI

CODICE	*ARGOMENTO*
RTB01	Rete sprinkler sfavoriti livello -2
AC-A01	Allegato grafico rete sprinkler sfavoriti livello -2
RTB02	Rete sprinkler favoriti livello -2
AC-A01	Allegato grafico rete sprinkler favoriti livello -2
RTB03	Rete sprinkler sfavoriti livello -1 – Zona 1
AC-A03	Allegato grafico rete sprinkler sfavoriti livello -1 – Zona 1
RTB04	Rete sprinkler sfavoriti livello -1 – Zona 2
AC-A04	Allegato grafico rete sprinkler sfavoriti livello -1 – Zona 2
RTB05	Rete idranti favoriti/sfavoriti
AC-A05	Allegato grafico rete idranti favoriti/sfavoriti

RTB01 - Sprinkler -2 - sfavoriti							
N° Tratto	**N1** **N2**	**Portata [l/min]** **Velocità [m/s]**	**K_e** **Tipo Pz** **DN** **Diam int. [m]**	**L [m]** **L.Eq. [m]** **L.Tot [m]**	**C** **DPM [mm H20/m]**	**Pressioni [kPa]**	
1	0 1	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.09 LE=0 LT=4.09	C=120 DP=276.6	Pt_{N1}=730 Pz=0 Pf=11.08 Pt_{N2}=718.92	Pt_{N1}=730 Pv=13.67 Pn=716.33
2	1 2	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.6 LE=3 LT=5.6	C=120 DP=-187.58	Pt_{N1}=718.92 Pz=-25.48 Pf=-10.3 Pt_{N2}=729.22	Pt_{N1}=718.92 Pv=13.67 Pn=705.24
3	2 3	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=155.73 LE=3 LT=158.73	C=120 DP=276.6	Pt_{N1}=729.22 Pz=0 Pf=430.55 Pt_{N2}=298.67	Pt_{N1}=729.22 Pv=13.67 Pn=715.55
4	3 4	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=15.72 LE=3 LT=18.72	C=120 DP=276.6	Pt_{N1}=298.67 Pz=0 Pf=50.78 Pt_{N2}=247.89	Pt_{N1}=298.67 Pv=13.67 Pn=285
5	4 5	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.5 LE=3 LT=9.5	C=120 DP=-407.45	Pt_{N1}=247.89 Pz=-63.7 Pf=-37.96 Pt_{N2}=285.85	Pt_{N1}=247.89 Pv=13.67 Pn=234.22
6	5 6	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.88 LE=3 LT=3.88	C=120 DP=276.6	Pt_{N1}=285.85 Pz=0 Pf=10.52 Pt_{N2}=275.33	Pt_{N1}=285.85 Pv=13.67 Pn=272.18
7	6 7	Q=2785.6 V=5.2	K_e=8433.3 F=V DN=DN 100 Dint=0.11	L=0.29 LE=3 LT=3.29	C=120 DP=364.48	Pt_{N1}=275.33 Pz=2.83 Pf=11.76 Pt_{N2}=252.66	Pt_{N1}=275.33 Pv=13.67 Pn=261.65
8	7 8	Q=-2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.1 LE=0 LT=6.1	C=120 DP=1294.4	Pt_{N1}=252.66 Pz=60.86 Pf=77.44 Pt_{N2}=175.22	Pt_{N1}=252.66 Pv=13.67 Pn=238.99
9	8 9	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100	L=4.25 LE=3 LT=7.25	C=120 DP=276.6	Pt_{N1}=175.22 Pz=0 Pf=19.66	Pt_{N1}=175.22 Pv=13.67 Pn=161.54

			Dint=0.11			Pt_{N2}=155.56	
10	9 10	Q=2785.6 V=5.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.5 LE=3 LT=3.5	C=120 DP=276.6	Pt_{N1}=155.56 Pz=0 Pf=9.49 Pt_{N2}=146.06	Pt_{N1}=155.56 Pv=13.67 Pn=141.88
11	10 11	Q=-1273.6 V=2.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=19.78 LE=6.1 LT=25.88	C=120 DP=64.81	Pt_{N1}=146.06 Pz=0 Pf=16.45 Pt_{N2}=129.62	Pt_{N1}=146.06 Pv=2.86 Pn=143.21
12	11 12	Q=-1273.6 V=2.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=33.38 LE=0.87 LT=34.25	C=120 DP=64.81	Pt_{N1}=129.62 Pz=0 Pf=21.76 Pt_{N2}=107.85	Pt_{N1}=129.62 Pv=2.86 Pn=126.76
13	12 13	Q=-1273.6 V=2.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=10.13 LE=2.28 LT=12.42	C=120 DP=64.81	Pt_{N1}=107.85 Pz=0 Pf=7.89 Pt_{N2}=99.96	Pt_{N1}=107.85 Pv=2.86 Pn=104.99
14	13 14	Q=-1273.6 V=2.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.59 LE=3 LT=5.59	C=120 DP=64.81	Pt_{N1}=99.96 Pz=0 Pf=3.55 Pt_{N2}=96.41	Pt_{N1}=99.96 Pv=2.86 Pn=97.1
15	14 15	Q=-1273.6 V=2.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=1 LE=3 LT=4	C=120 DP=64.81	Pt_{N1}=96.41 Pz=0 Pf=2.54 Pt_{N2}=93.87	Pt_{N1}=96.41 Pv=2.86 Pn=93.55
16	15 16	Q=-574 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=8.16 LE=0 LT=8.16	C=120 DP=14.8	Pt_{N1}=93.87 Pz=0 Pf=1.18 Pt_{N2}=92.68	Pt_{N1}=93.87 Pv=0.58 Pn=93.29
17	16 17	Q=-574 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.75 LE=3 LT=3.75	C=120 DP=14.8	Pt_{N1}=92.68 Pz=0 Pf=0.54 Pt_{N2}=92.07	Pt_{N1}=92.68 Pv=0.58 Pn=92.1
18	17 128	Q=-13.1 V=0.2	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=2.45	Pt_{N1}=92.07 Pz=0 Pf=0.07 Pt_{N2}=92.2	Pt_{N1}=92.07 Pv=0.02 Pn=92.05
	128 127	Q=-13.1 V=0.2	K_e=0 F=A	L=2.2 LE=0	C=120 DP=2.45	Pt_{N1}=92.2 Pz=0	Pt_{N1}=92.2 Pv=0.02

19			DN=DN 32 Dint=0.04	LT=2.2		Pf=0.05 Pt_{N2}=92.26	Pn=92.18
20	127 126	Q=-13.1 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=2.45	Pt_{N1}=92.26 Pz=0 Pf=0.05 Pt_{N2}=92.31	Pt_{N1}=92.26 Pv=0.02 Pn=92.24
21	126 125	Q=-13.1 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=2.45	Pt_{N1}=92.31 Pz=0 Pf=0.05 Pt_{N2}=92.36	Pt_{N1}=92.31 Pv=0.02 Pn=92.29
22	125 124	Q=-13.1 V=0.2	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=2.45	Pt_{N1}=92.36 Pz=0 Pf=0.07 Pt_{N2}=92.43	Pt_{N1}=92.36 Pv=0.02 Pn=92.34
23	124 129	Q=686.6 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=2.5 LE=0 LT=2.5	C=120 DP=20.58	Pt_{N1}=92.43 Pz=0 Pf=0.5 Pt_{N2}=91.93	Pt_{N1}=92.43 Pv=0.83 Pn=91.6
24	129 130	Q=-9.7 V=0.2	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=1.4	Pt_{N1}=91.93 Pz=0 Pf=0.04 Pt_{N2}=91.89	Pt_{N1}=91.93 Pv=0.01 Pn=91.92
25	130 131	Q=-9.7 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=1.4	Pt_{N1}=91.89 Pz=0 Pf=0.03 Pt_{N2}=91.86	Pt_{N1}=91.89 Pv=0.01 Pn=91.88
26	131 132	Q=-9.7 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=1.4	Pt_{N1}=91.86 Pz=0 Pf=0.03 Pt_{N2}=91.83	Pt_{N1}=91.86 Pv=0.01 Pn=91.85
27	132 133	Q=-9.7 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=1.4	Pt_{N1}=91.83 Pz=0 Pf=0.03 Pt_{N2}=91.8	Pt_{N1}=91.83 Pv=0.01 Pn=91.82
28	133 18	Q=-9.7 V=0.2	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=1.4	Pt_{N1}=91.8 Pz=0 Pf=0.04 Pt_{N2}=91.72	Pt_{N1}=91.8 Pv=0.01 Pn=91.79
	18	Q=-596.8	K_e=0	L=3.45	C=120	Pt_{N1}=91.72	Pt_{N1}=91.72

29	19	V=1.1	F=E DN=DN 100 Dint=0.11	LE=0 LT=3.45	DP=15.89	Pz=0 Pf=0.54 Pt_{N2}=91.22	Pv=0.63 Pn=91.09
30	19 20	Q=-600.6 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=16.08	Pt_{N1}=91.22 Pz=0 Pf=0.54 Pt_{N2}=90.68	Pt_{N1}=91.22 Pv=0.64 Pn=90.58
31	20 21	Q=-593.4 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=15.73	Pt_{N1}=90.68 Pz=0 Pf=0.53 Pt_{N2}=90.15	Pt_{N1}=90.68 Pv=0.62 Pn=90.06
32	21 22	Q=-578.4 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=15.01	Pt_{N1}=90.15 Pz=0 Pf=0.51 Pt_{N2}=89.64	Pt_{N1}=90.15 Pv=0.59 Pn=89.56
33	22 23	Q=-557.8 V=1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=14.04	Pt_{N1}=89.64 Pz=0 Pf=0.48 Pt_{N2}=89.16	Pt_{N1}=89.64 Pv=0.55 Pn=89.09
34	23 24	Q=-536.5 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=13.08	Pt_{N1}=89.16 Pz=0 Pf=0.44 Pt_{N2}=88.72	Pt_{N1}=89.16 Pv=0.51 Pn=88.66
35	24 25	Q=-510.1 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=11.92	Pt_{N1}=88.72 Pz=0 Pf=0.4 Pt_{N2}=88.32	Pt_{N1}=88.72 Pv=0.46 Pn=88.26
36	25 26	Q=-478.2 V=0.9	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=10.59	Pt_{N1}=88.32 Pz=0 Pf=0.36 Pt_{N2}=87.96	Pt_{N1}=88.32 Pv=0.4 Pn=87.91
37	26 27	Q=-440.5 V=0.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=9.09	Pt_{N1}=87.96 Pz=0 Pf=0.31 Pt_{N2}=87.65	Pt_{N1}=87.96 Pv=0.34 Pn=87.62
38	27 28	Q=-396.7 V=0.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=7.47	Pt_{N1}=87.65 Pz=0 Pf=0.25 Pt_{N2}=87.4	Pt_{N1}=87.65 Pv=0.28 Pn=87.37

39	28 29	Q=-346.3 V=0.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=5.79	Pt_{N1}=87.4 Pz=0 Pf=0.2 Pt_{N2}=87.2	Pt_{N1}=87.4 Pv=0.21 Pn=87.19
40	29 30	Q=-169 V=0.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=1.53	Pt_{N1}=87.2 Pz=0 Pf=0.05 Pt_{N2}=87.15	Pt_{N1}=87.2 Pv=0.05 Pn=87.15
41	30 157	Q=11.1 V=0	K_e=0 F=D DN=DN 100 Dint=0.11	L=3.45 LE=2.1 LT=5.55	C=120 DP=0.01	Pt_{N1}=87.15 Pz=0 Pf=0 Pt_{N2}=87.15	Pt_{N1}=87.15 Pv=0 Pn=87.15
42	157 156	Q=231.7 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=2.1 LT=5.55	C=120 DP=2.78	Pt_{N1}=87.15 Pz=0 Pf=0.15 Pt_{N2}=87.31	Pt_{N1}=87.15 Pv=0.09 Pn=87.06
43	156 155	Q=416.5 V=0.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=8.19	Pt_{N1}=87.31 Pz=0 Pf=0.28 Pt_{N2}=87.58	Pt_{N1}=87.31 Pv=0.31 Pn=87
44	155 154	Q=603.6 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=16.23	Pt_{N1}=87.58 Pz=0 Pf=0.55 Pt_{N2}=88.13	Pt_{N1}=87.58 Pv=0.64 Pn=86.94
45	154 153	Q=793.6 V=1.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=26.93	Pt_{N1}=88.13 Pz=0 Pf=0.91 Pt_{N2}=89.04	Pt_{N1}=88.13 Pv=1.11 Pn=87.02
46	153 152	Q=987.7 V=1.9	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=40.23	Pt_{N1}=89.04 Pz=0 Pf=1.36 Pt_{N2}=90.4	Pt_{N1}=89.04 Pv=1.72 Pn=87.32
47	152 151	Q=1182.8 V=2.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=56.47	Pt_{N1}=90.4 Pz=0 Pf=1.91 Pt_{N2}=92.31	Pt_{N1}=90.4 Pv=2.47 Pn=87.94
48	151 150	Q=1307.2 V=2.5	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.81 LE=3 LT=3.81	C=120 DP=68.01	Pt_{N1}=92.31 Pz=0 Pf=2.54 Pt_{N2}=94.85	Pt_{N1}=92.31 Pv=3.01 Pn=89.3

49	150 149	Q=1307.2 V=2.5	K_e=0 F=A DN=DN 100 Dint=0.11	L=8.17 LE=3 LT=11.17	C=120 DP=68.01	Pt_{N1}=94.85 Pz=0 Pf=7.45 Pt_{N2}=102.3	Pt_{N1}=94.85 Pv=3.01 Pn=91.84
50	149 142	Q=1307.2 V=2.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=0.81 LE=0 LT=0.81	C=120 DP=68.01	Pt_{N1}=102.3 Pz=0 Pf=0.54 Pt_{N2}=102.84	Pt_{N1}=102.3 Pv=3.01 Pn=99.29
51	142 143	Q=-204.8 V=3.2	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=398.11	Pt_{N1}=102.84 Pz=0 Pf=11.64 Pt_{N2}=91.2	Pt_{N1}=102.84 Pv=5.26 Pn=97.58
Tratto tubazione + terminale							
52	143 144	Q=83 V=2.3	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=379.92	Pt_{N1}=91.2 Pz=1.67 Pf=6.22 Pt_{N2}=84.98	Pt_{N1}=91.2 Pv=2.56 Pn=88.64
53	143 145	Q=-121.7 V=1.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=151.17	Pt_{N1}=91.2 Pz=0 Pf=3.26 Pt_{N2}=87.93	Pt_{N1}=91.2 Pv=1.86 Pn=89.34
Tratto tubazione + terminale							
54	145 146	Q=81.5 V=2.2	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=370.22	Pt_{N1}=87.93 Pz=1.67 Pf=6.06 Pt_{N2}=81.87	Pt_{N1}=87.93 Pv=2.47 Pn=85.47
55	145 147	Q=-40.2 V=0.6	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=19.48	Pt_{N1}=87.93 Pz=0 Pf=0.71 Pt_{N2}=86.43	Pt_{N1}=87.93 Pv=0.2 Pn=87.73
Tratto tubazione + terminale							
56	147 148	Q=83.1 V=2.3	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1278.3	Pt_{N1}=86.43 Pz=1.67 Pf=2.13 Pt_{N2}=84.3	Pt_{N1}=86.43 Pv=2.56 Pn=83.86
57	147 182	Q=42.9 V=0.7	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=22.02	Pt_{N1}=86.43 Pz=0 Pf=0.8 Pt_{N2}=88.03	Pt_{N1}=86.43 Pv=0.23 Pn=86.2

Tratto tubazione + terminale							
58	182 183	Q=81.6 V=2.2	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=370.49	Pt_{N1}=88.03 Pz=1.67 Pf=6.07 Pt_{N2}=81.96	Pt_{N1}=88.03 Pv=2.47 Pn=85.56
59	142 141	Q=1512 V=2.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.71 LE=3 LT=4.71	C=120 DP=89	Pt_{N1}=102.84 Pz=0 Pf=4.11 Pt_{N2}=106.95	Pt_{N1}=102.84 Pv=4.03 Pn=98.81
60	141 140	Q=1512 V=2.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=18 LE=3 LT=21	C=120 DP=89	Pt_{N1}=106.95 Pz=0 Pf=18.33 Pt_{N2}=125.28	Pt_{N1}=106.95 Pv=4.03 Pn=102.92
61	140 139	Q=1512 V=2.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=14.18 LE=3 LT=17.18	C=120 DP=89	Pt_{N1}=125.28 Pz=0 Pf=14.99 Pt_{N2}=140.27	Pt_{N1}=125.28 Pv=4.03 Pn=121.25
62	151 182	Q=124.4 V=2	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=157.12	Pt_{N1}=92.31 Pz=0 Pf=4.29 Pt_{N2}=88.03	Pt_{N1}=92.31 Pv=1.94 Pn=90.37
63	152 178	Q=195.1 V=3.1	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=362.56	Pt_{N1}=90.4 Pz=0 Pf=9.89 Pt_{N2}=80.51	Pt_{N1}=90.4 Pv=4.77 Pn=85.63
Tratto tubazione + terminale							
64	178 179	Q=77.9 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=348.21	Pt_{N1}=80.51 Pz=1.67 Pf=5.7 Pt_{N2}=74.81	Pt_{N1}=80.51 Pv=2.25 Pn=78.26
65	178 180	Q=117.2 V=1.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=141.3	Pt_{N1}=80.51 Pz=0 Pf=3.05 Pt_{N2}=77.46	Pt_{N1}=80.51 Pv=1.72 Pn=78.79
Tratto tubazione + terminale							
66	180 181	Q=76.4 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=339.2	Pt_{N1}=77.46 Pz=1.67 Pf=5.55 Pt_{N2}=71.91	Pt_{N1}=77.46 Pv=2.17 Pn=75.29
	180	Q=40.8	K_e=0	L=2.2	C=120	Pt_{N1}=77.46	Pt_{N1}=77.46

67	82	V=0.6	F=B DN=DN 32 Dint=0.04	LE=0 LT=2.2	DP=20	Pz=0 Pf=0.43 Pt_{N2}=76.6	Pv=0.21 Pn=77.25
Tratto tubazione + terminale							
68	82 83	Q=77 V=2.1	K_e=90 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=422.06	Pt_{N1}=76.6 Pz=1.67 Pf=3.89 Pt_{N2}=72.71	Pt_{N1}=76.6 Pv=2.2 Pn=74.39
69	82 80	Q=-36.3 V=0.6	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=15.96	Pt_{N1}=76.6 Pz=0 Pf=0.34 Pt_{N2}=77.37	Pt_{N1}=76.6 Pv=0.16 Pn=76.43
70	80 79	Q=-113.5 V=1.8	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.88 LE=1 LT=1.88	C=120 DP=133.58	Pt_{N1}=77.37 Pz=0 Pf=2.47 Pt_{N2}=79.84	Pt_{N1}=77.37 Pv=1.62 Pn=75.76
71	79 74	Q=113.5 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=0.74	Pt_{N1}=79.84 Pz=0 Pf=0.03 Pt_{N2}=79.86	Pt_{N1}=79.84 Pv=0.02 Pn=79.81
72	74 75	Q=-111.9 V=1.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=130.18	Pt_{N1}=79.86 Pz=0 Pf=3.81 Pt_{N2}=76.06	Pt_{N1}=79.86 Pv=1.57 Pn=78.29
Tratto tubazione + terminale							
73	75 76	Q=75.7 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=335.06	Pt_{N1}=76.06 Pz=1.67 Pf=5.49 Pt_{N2}=70.57	Pt_{N1}=76.06 Pv=2.13 Pn=73.93
74	75 77	Q=-36.2 V=0.6	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=15.88	Pt_{N1}=76.06 Pz=0 Pf=0.58 Pt_{N2}=74.75	Pt_{N1}=76.06 Pv=0.16 Pn=75.89
Tratto tubazione + terminale							
75	77 78	Q=77.2 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1241.87	Pt_{N1}=74.75 Pz=1.67 Pf=2.07 Pt_{N2}=72.68	Pt_{N1}=74.75 Pv=2.21 Pn=72.53
	77 176	Q=41 V=0.6	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=20.23	Pt_{N1}=74.75 Pz=0	Pt_{N1}=74.75 Pv=0.21

76			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.73 Pt_{N2}=76.22	Pn=74.54
Tratto tubazione + terminale							
77	176 177	Q=75.8 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=335.53	Pt_{N1}=76.22 Pz=1.67 Pf=5.49 Pt_{N2}=70.73	Pt_{N1}=76.22 Pv=2.13 Pn=74.08
78	176 174	Q=116.8 V=1.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=140.48	Pt_{N1}=76.22 Pz=0 Pf=3.03 Pt_{N2}=79.25	Pt_{N1}=76.22 Pv=1.71 Pn=74.51
Tratto tubazione + terminale							
79	174 175	Q=77.3 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=344.48	Pt_{N1}=79.25 Pz=1.67 Pf=5.64 Pt_{N2}=73.61	Pt_{N1}=79.25 Pv=2.22 Pn=77.03
80	74 69	Q=225.4 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=2.65	Pt_{N1}=79.86 Pz=0 Pf=0.09 Pt_{N2}=79.95	Pt_{N1}=79.86 Pv=0.09 Pn=79.77
81	69 70	Q=-115.3 V=1.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=137.36	Pt_{N1}=79.95 Pz=0 Pf=4.01 Pt_{N2}=75.94	Pt_{N1}=79.95 Pv=1.67 Pn=78.29
Tratto tubazione + terminale							
82	70 71	Q=75.6 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=334.71	Pt_{N1}=75.94 Pz=1.67 Pf=5.48 Pt_{N2}=70.46	Pt_{N1}=75.94 Pv=2.12 Pn=73.81
83	70 72	Q=-39.7 V=0.6	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=18.96	Pt_{N1}=75.94 Pz=0 Pf=0.69 Pt_{N2}=74.64	Pt_{N1}=75.94 Pv=0.2 Pn=75.74
Tratto tubazione + terminale							
84	72 73	Q=77.1 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1241.16	Pt_{N1}=74.64 Pz=1.67 Pf=2.07 Pt_{N2}=72.57	Pt_{N1}=74.64 Pv=2.21 Pn=72.43
	72 172	Q=37.4 V=0.6	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=16.92	Pt_{N1}=74.64 Pz=0	Pt_{N1}=74.64 Pv=0.18

85			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.61 Pt_{N2}=75.87	Pn=74.46
Tratto tubazione + terminale							
86	172 173	Q=75.6 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=334.49	Pt_{N1}=75.87 Pz=1.67 Pf=5.48 Pt_{N2}=70.39	Pt_{N1}=75.87 Pv=2.12 Pn=73.74
87	172 170	Q=113 V=1.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=132.52	Pt_{N1}=75.87 Pz=0 Pf=2.86 Pt_{N2}=78.72	Pt_{N1}=75.87 Pv=1.6 Pn=74.26
Tratto tubazione + terminale							
88	170 171	Q=77 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=342.93	Pt_{N1}=78.72 Pz=1.67 Pf=5.62 Pt_{N2}=73.1	Pt_{N1}=78.72 Pv=2.2 Pn=76.52
89	69 64	Q=340.7 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=5.61	Pt_{N1}=79.95 Pz=0 Pf=0.19 Pt_{N2}=80.14	Pt_{N1}=79.95 Pv=0.2 Pn=79.75
90	64 65	Q=-118 V=1.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=143.04	Pt_{N1}=80.14 Pz=0 Pf=4.18 Pt_{N2}=75.96	Pt_{N1}=80.14 Pv=1.75 Pn=78.4
Tratto tubazione + terminale							
91	65 66	Q=75.6 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=334.79	Pt_{N1}=75.96 Pz=1.67 Pf=5.48 Pt_{N2}=70.48	Pt_{N1}=75.96 Pv=2.12 Pn=73.84
92	65 67	Q=-42.4 V=0.7	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=21.52	Pt_{N1}=75.96 Pz=0 Pf=0.78 Pt_{N2}=74.65	Pt_{N1}=75.96 Pv=0.22 Pn=75.74
Tratto tubazione + terminale							
93	67 68	Q=77 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1240.95	Pt_{N1}=74.65 Pz=1.67 Pf=2.07 Pt_{N2}=72.58	Pt_{N1}=74.65 Pv=2.2 Pn=72.45
	67 168	Q=34.7 V=0.5	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=14.68	Pt_{N1}=74.65 Pz=0	Pt_{N1}=74.65 Pv=0.15

94			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.53 Pt_{N2}=75.72	Pn=74.5
Tratto tubazione + terminale							
95	168 169	Q=75.5 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=334.05	Pt_{N1}=75.72 Pz=1.67 Pf=5.47 Pt_{N2}=70.25	Pt_{N1}=75.72 Pv=2.12 Pn=73.6
96	168 166	Q=110.2 V=1.7	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=126.72	Pt_{N1}=75.72 Pz=0 Pf=2.73 Pt_{N2}=78.45	Pt_{N1}=75.72 Pv=1.52 Pn=74.19
Tratto tubazione + terminale							
97	166 167	Q=76.9 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=342.12	Pt_{N1}=78.45 Pz=1.67 Pf=5.6 Pt_{N2}=72.85	Pt_{N1}=78.45 Pv=2.2 Pn=76.25
98	64 59	Q=458.7 V=0.9	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=9.8	Pt_{N1}=80.14 Pz=0 Pf=0.33 Pt_{N2}=80.47	Pt_{N1}=80.14 Pv=0.37 Pn=79.77
99	59 60	Q=-120.4 V=1.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=148.25	Pt_{N1}=80.47 Pz=0 Pf=4.33 Pt_{N2}=76.14	Pt_{N1}=80.47 Pv=1.82 Pn=78.66
Tratto tubazione + terminale							
100	60 61	Q=75.7 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=335.32	Pt_{N1}=76.14 Pz=1.67 Pf=5.49 Pt_{N2}=70.65	Pt_{N1}=76.14 Pv=2.13 Pn=74.01
101	60 62	Q=-44.7 V=0.7	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=23.82	Pt_{N1}=76.14 Pz=0 Pf=0.86 Pt_{N2}=74.81	Pt_{N1}=76.14 Pv=0.25 Pn=75.89
Tratto tubazione + terminale							
102	62 63	Q=77.1 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1241.25	Pt_{N1}=74.81 Pz=1.67 Pf=2.07 Pt_{N2}=72.74	Pt_{N1}=74.81 Pv=2.21 Pn=72.6
	62 164	Q=32.4 V=0.5	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=12.95	Pt_{N1}=74.81 Pz=0	Pt_{N1}=74.81 Pv=0.13

103			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.47 Pt_{N2}=75.75	Pn=74.68
Tratto tubazione + terminale							
104	164 165	Q=75.5 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=334.16	Pt_{N1}=75.75 Pz=1.67 Pf=5.47 Pt_{N2}=70.28	Pt_{N1}=75.75 Pv=2.12 Pn=73.63
105	164 162	Q=107.9 V=1.7	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=122.09	Pt_{N1}=75.75 Pz=0 Pf=2.63 Pt_{N2}=78.39	Pt_{N1}=75.75 Pv=1.46 Pn=74.29
Tratto tubazione + terminale							
106	162 163	Q=76.9 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=341.93	Pt_{N1}=78.39 Pz=1.67 Pf=5.6 Pt_{N2}=72.79	Pt_{N1}=78.39 Pv=2.19 Pn=76.19
107	59 54	Q=579.1 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=15.04	Pt_{N1}=80.47 Pz=0 Pf=0.51 Pt_{N2}=80.98	Pt_{N1}=80.47 Pv=0.59 Pn=79.88
108	54 55	Q=-92.1 V=1.5	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=90.7	Pt_{N1}=80.98 Pz=0 Pf=2.65 Pt_{N2}=78.33	Pt_{N1}=80.98 Pv=1.06 Pn=79.92
Tratto tubazione + terminale							
109	55 56	Q=76.8 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=341.78	Pt_{N1}=78.33 Pz=1.67 Pf=5.6 Pt_{N2}=72.73	Pt_{N1}=78.33 Pv=2.19 Pn=76.14
110	55 57	Q=-15.3 V=0.2	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=3.23	Pt_{N1}=78.33 Pz=0 Pf=0.12 Pt_{N2}=76.59	Pt_{N1}=78.33 Pv=0.03 Pn=78.3
Tratto tubazione + terminale							
111	57 58	Q=78.6 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1250.33	Pt_{N1}=76.59 Pz=1.67 Pf=2.08 Pt_{N2}=74.51	Pt_{N1}=76.59 Pv=2.29 Pn=74.3
	57 160	Q=63.3 V=1	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=44.83	Pt_{N1}=76.59 Pz=0	Pt_{N1}=76.59 Pv=0.5

112			DN=DN 32 Dint=0.04	LT=3.7		Pf=1.63 Pt_{N2}=79.84	Pn=76.09
Tratto tubazione + terminale							
	160 161	Q=77.6 V=2.1	K_e=90 F=B	L=0.17 LE=1.5	C=120 DP=346.24	Pt_{N1}=79.84 Pz=1.67	Pt_{N1}=79.84 Pv=2.24
113			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.67 Pt_{N2}=74.17	Pn=77.61
	160 158	Q=140.9 V=2.2	K_e=0 F=B	L=2.2 LE=0	C=120 DP=196.69	Pt_{N1}=79.84 Pz=0	Pt_{N1}=79.84 Pv=2.49
114			DN=DN 32 Dint=0.04	LT=2.2		Pf=4.24 Pt_{N2}=84.09	Pn=77.35
Tratto tubazione + terminale							
	158 159	Q=79.7 V=2.2	K_e=90 F=B	L=0.17 LE=1.5	C=120 DP=358.81	Pt_{N1}=84.09 Pz=1.67	Pt_{N1}=84.09 Pv=2.36
115			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.88 Pt_{N2}=78.21	Pn=81.73
	54 51	Q=671.2 V=1.3	K_e=0 F=B	L=3.45 LE=0	C=120 DP=19.73	Pt_{N1}=80.98 Pz=0	Pt_{N1}=80.98 Pv=0.79
116			DN=DN 100 Dint=0.11	LT=3.45		Pf=0.67 Pt_{N2}=81.65	Pn=80.19
	51 52	Q=-126.1 V=2	K_e=0 F=B	L=0.88 LE=2.1	C=120 DP=161.04	Pt_{N1}=81.65 Pz=0	Pt_{N1}=81.65 Pv=2
117			DN=DN 32 Dint=0.04	LT=2.98		Pf=4.7 Pt_{N2}=76.95	Pn=79.65
Tratto tubazione + terminale							
	52 53	Q=76.1 V=2.1	K_e=90 F=B	L=0.17 LE=1.5	C=120 DP=337.69	Pt_{N1}=76.95 Pz=1.67	Pt_{N1}=76.95 Pv=2.15
118			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.53 Pt_{N2}=71.42	Pn=74.79
	52 35	Q=-50 V=0.8	K_e=0 F=D	L=2.2 LE=1.5	C=120 DP=29.38	Pt_{N1}=76.95 Pz=0	Pt_{N1}=76.95 Pv=0.31
119			DN=DN 32 Dint=0.04	LT=3.7		Pf=1.07 Pt_{N2}=74.82	Pn=76.63
Tratto tubazione + terminale							
	35 36	Q=77.4 V=2.1	K_e=90 F=D	L=0.17 LE=0	C=120 DP=1243.11	Pt_{N1}=74.82 Pz=1.67	Pt_{N1}=74.82 Pv=2.22
120			DN=DN 25 Dint=0.03	LT=0.17		Pf=2.07 Pt_{N2}=72.75	Pn=72.59
	35 33	Q=27.4 V=0.4	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=9.58	Pt_{N1}=74.82 Pz=0	Pt_{N1}=74.82 Pv=0.09

121			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.35 Pt_{N2}=76.23	Pn=74.72
Tratto tubazione + terminale							
122	33 34	Q=75.8 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=335.57	Pt_{N1}=76.23 Pz=1.67 Pf=5.5 Pt_{N2}=70.73	Pt_{N1}=76.23 Pv=2.13 Pn=74.1
123	33 31	Q=103.2 V=1.6	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=112.39	Pt_{N1}=76.23 Pz=0 Pf=2.42 Pt_{N2}=78.65	Pt_{N1}=76.23 Pv=1.33 Pn=74.89
Tratto tubazione + terminale							
124	31 32	Q=77 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=342.73	Pt_{N1}=78.65 Pz=1.67 Pf=5.61 Pt_{N2}=73.04	Pt_{N1}=78.65 Pv=2.2 Pn=76.45
125	51 48	Q=797.3 V=1.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=27.16	Pt_{N1}=81.65 Pz=0 Pf=0.92 Pt_{N2}=82.57	Pt_{N1}=81.65 Pv=1.12 Pn=80.53
126	48 49	Q=-130 V=2.1	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=170.02	Pt_{N1}=82.57 Pz=0 Pf=4.97 Pt_{N2}=77.6	Pt_{N1}=82.57 Pv=2.12 Pn=80.45
Tratto tubazione + terminale							
127	49 50	Q=76.5 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=339.63	Pt_{N1}=77.6 Pz=1.67 Pf=5.56 Pt_{N2}=72.04	Pt_{N1}=77.6 Pv=2.17 Pn=75.43
128	49 41	Q=-53.6 V=0.8	K_e=0 F=D DN=DN 32 Dint=0.04	L=2.2 LE=1.5 LT=3.7	C=120 DP=33.28	Pt_{N1}=77.6 Pz=0 Pf=1.21 Pt_{N2}=75.19	Pt_{N1}=77.6 Pv=0.36 Pn=77.24
Tratto tubazione + terminale							
129	41 42	Q=77.7 V=2.1	K_e=90 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1244.7	Pt_{N1}=75.19 Pz=1.67 Pf=2.08 Pt_{N2}=73.11	Pt_{N1}=75.19 Pv=2.24 Pn=72.95
	41 39	Q=24.1 V=0.4	K_e=0 F=B	L=2.2 LE=1.5	C=120 DP=7.6	Pt_{N1}=75.19 Pz=0	Pt_{N1}=75.19 Pv=0.07

130			DN=DN 32 Dint=0.04	LT=3.7		Pf=0.28 Pt_{N2}=76.67	Pn=75.12
Tratto tubazione + terminale							
131	39 40	Q=76 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=336.88	Pt_{N1}=76.67 Pz=1.67 Pf=5.52 Pt_{N2}=71.15	Pt_{N1}=76.67 Pv=2.14 Pn=74.53
132	39 37	Q=100.1 V=1.6	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=106.28	Pt_{N1}=76.67 Pz=0 Pf=2.29 Pt_{N2}=78.96	Pt_{N1}=76.67 Pv=1.26 Pn=75.41
Tratto tubazione + terminale							
133	37 38	Q=77.2 V=2.1	K_e=90 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=343.65	Pt_{N1}=78.96 Pz=1.67 Pf=5.63 Pt_{N2}=73.33	Pt_{N1}=78.96 Pv=2.21 Pn=76.75
134	48 47	Q=927.3 V=1.7	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=35.85	Pt_{N1}=82.57 Pz=0 Pf=1.21 Pt_{N2}=82.69	Pt_{N1}=82.57 Pv=1.52 Pn=81.05
135	47 46	Q=50.4 V=0.8	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=29.84	Pt_{N1}=82.69 Pz=0 Pf=0.87 Pt_{N2}=84.65	Pt_{N1}=82.69 Pv=0.32 Pn=82.37
136	46 45	Q=50.4 V=0.8	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=29.84	Pt_{N1}=84.65 Pz=0 Pf=0.64 Pt_{N2}=85.3	Pt_{N1}=84.65 Pv=0.32 Pn=84.33
137	45 44	Q=50.4 V=0.8	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=29.84	Pt_{N1}=85.3 Pz=0 Pf=0.64 Pt_{N2}=85.94	Pt_{N1}=85.3 Pv=0.32 Pn=84.98
138	44 43	Q=50.4 V=0.8	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=29.84	Pt_{N1}=85.94 Pz=0 Pf=0.64 Pt_{N2}=86.58	Pt_{N1}=85.94 Pv=0.32 Pn=85.62
139	47 88	Q=876.9 V=1.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=32.38	Pt_{N1}=82.69 Pz=0 Pf=1.1 Pt_{N2}=83.88	Pt_{N1}=82.69 Pv=1.35 Pn=81.33

140	88 87	Q=43.7 V=0.7	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=22.89	Pt_{N1}=83.88 Pz=0 Pf=0.67 Pt_{N2}=85.55	Pt_{N1}=83.88 Pv=0.24 Pn=83.64
141	87 86	Q=43.7 V=0.7	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=22.89	Pt_{N1}=85.55 Pz=0 Pf=0.49 Pt_{N2}=86.04	Pt_{N1}=85.55 Pv=0.24 Pn=85.31
142	86 85	Q=43.7 V=0.7	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=22.89	Pt_{N1}=86.04 Pz=0 Pf=0.49 Pt_{N2}=86.53	Pt_{N1}=86.04 Pv=0.24 Pn=85.8
143	85 84	Q=43.7 V=0.7	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=22.89	Pt_{N1}=86.53 Pz=0 Pf=0.49 Pt_{N2}=87.03	Pt_{N1}=86.53 Pv=0.24 Pn=86.29
144	88 93	Q=833.2 V=1.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=29.47	Pt_{N1}=83.88 Pz=0 Pf=1 Pt_{N2}=84.96	Pt_{N1}=83.88 Pv=1.22 Pn=82.66
145	93 92	Q=37.7 V=0.6	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=17.2	Pt_{N1}=84.96 Pz=0 Pf=0.5 Pt_{N2}=86.38	Pt_{N1}=84.96 Pv=0.18 Pn=84.78
146	92 91	Q=37.7 V=0.6	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=17.2	Pt_{N1}=86.38 Pz=0 Pf=0.37 Pt_{N2}=86.75	Pt_{N1}=86.38 Pv=0.18 Pn=86.2
147	91 90	Q=37.7 V=0.6	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=17.2	Pt_{N1}=86.75 Pz=0 Pf=0.37 Pt_{N2}=87.12	Pt_{N1}=86.75 Pv=0.18 Pn=86.57
148	90 89	Q=37.7 V=0.6	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=17.2	Pt_{N1}=87.12 Pz=0 Pf=0.37 Pt_{N2}=87.49	Pt_{N1}=87.12 Pv=0.18 Pn=86.94
149	93 98	Q=795.4 V=1.5	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=27.04	Pt_{N1}=84.96 Pz=0 Pf=0.91 Pt_{N2}=85.94	Pt_{N1}=84.96 Pv=1.11 Pn=83.84

150	98 97	Q=31.9 V=0.5	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=12.61	Pt_{N1}=85.94 Pz=0 Pf=0.37 Pt_{N2}=87.16	Pt_{N1}=85.94 Pv=0.13 Pn=85.81
151	97 96	Q=31.9 V=0.5	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=12.61	Pt_{N1}=87.16 Pz=0 Pf=0.27 Pt_{N2}=87.43	Pt_{N1}=87.16 Pv=0.13 Pn=87.03
152	96 95	Q=31.9 V=0.5	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=12.61	Pt_{N1}=87.43 Pz=0 Pf=0.27 Pt_{N2}=87.7	Pt_{N1}=87.43 Pv=0.13 Pn=87.3
153	95 94	Q=31.9 V=0.5	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=12.61	Pt_{N1}=87.7 Pz=0 Pf=0.27 Pt_{N2}=87.97	Pt_{N1}=87.7 Pv=0.13 Pn=87.57
154	98 103	Q=763.5 V=1.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=25.06	Pt_{N1}=85.94 Pz=0 Pf=0.85 Pt_{N2}=86.84	Pt_{N1}=85.94 Pv=1.03 Pn=84.91
155	103 102	Q=26.4 V=0.4	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=8.94	Pt_{N1}=86.84 Pz=0 Pf=0.26 Pt_{N2}=87.9	Pt_{N1}=86.84 Pv=0.09 Pn=86.76
156	102 101	Q=26.4 V=0.4	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=8.94	Pt_{N1}=87.9 Pz=0 Pf=0.19 Pt_{N2}=88.09	Pt_{N1}=87.9 Pv=0.09 Pn=87.81
157	101 100	Q=26.4 V=0.4	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=8.94	Pt_{N1}=88.09 Pz=0 Pf=0.19 Pt_{N2}=88.28	Pt_{N1}=88.09 Pv=0.09 Pn=88
158	100 99	Q=26.4 V=0.4	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=8.94	Pt_{N1}=88.28 Pz=0 Pf=0.19 Pt_{N2}=88.48	Pt_{N1}=88.28 Pv=0.09 Pn=88.2
159	103 108	Q=737.1 V=1.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=23.48	Pt_{N1}=86.84 Pz=0 Pf=0.79 Pt_{N2}=87.68	Pt_{N1}=86.84 Pv=0.96 Pn=85.89

160	108 107	Q=21.3 V=0.3	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=6.04	Pt_{N1}=87.68 Pz=0 Pf=0.18 Pt_{N2}=88.61	Pt_{N1}=87.68 Pv=0.06 Pn=87.62
161	107 106	Q=21.3 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=6.04	Pt_{N1}=88.61 Pz=0 Pf=0.13 Pt_{N2}=88.74	Pt_{N1}=88.61 Pv=0.06 Pn=88.55
162	106 105	Q=21.3 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=6.04	Pt_{N1}=88.74 Pz=0 Pf=0.13 Pt_{N2}=88.87	Pt_{N1}=88.74 Pv=0.06 Pn=88.68
163	105 104	Q=21.3 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=6.04	Pt_{N1}=88.87 Pz=0 Pf=0.13 Pt_{N2}=89	Pt_{N1}=88.87 Pv=0.06 Pn=88.81
164	108 113	Q=715.8 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=22.24	Pt_{N1}=87.68 Pz=0 Pf=0.75 Pt_{N2}=88.47	Pt_{N1}=87.68 Pv=0.9 Pn=86.78
165	113 112	Q=20.6 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=5.68	Pt_{N1}=88.47 Pz=0 Pf=0.05 Pt_{N2}=89.23	Pt_{N1}=88.47 Pv=0.05 Pn=88.42
166	112 111	Q=20.6 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=5.68	Pt_{N1}=89.23 Pz=0 Pf=0.12 Pt_{N2}=89.36	Pt_{N1}=89.23 Pv=0.05 Pn=89.18
167	111 110	Q=20.6 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=5.68	Pt_{N1}=89.36 Pz=0 Pf=0.12 Pt_{N2}=89.48	Pt_{N1}=89.36 Pv=0.05 Pn=89.3
168	110 109	Q=20.6 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=5.68	Pt_{N1}=89.48 Pz=0 Pf=0.12 Pt_{N2}=89.6	Pt_{N1}=89.48 Pv=0.05 Pn=89.42
169	113 118	Q=695.2 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=21.06	Pt_{N1}=88.47 Pz=0 Pf=0.71 Pt_{N2}=89.21	Pt_{N1}=88.47 Pv=0.85 Pn=87.62

170	118 117	Q=15 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=3.12	Pt_{N1}=89.21 Pz=0 Pf=0.03 Pt_{N2}=89.92	Pt_{N1}=89.21 Pv=0.03 Pn=89.18
171	117 116	Q=15 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=3.12	Pt_{N1}=89.92 Pz=0 Pf=0.07 Pt_{N2}=89.99	Pt_{N1}=89.92 Pv=0.03 Pn=89.9
172	116 115	Q=15 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=3.12	Pt_{N1}=89.99 Pz=0 Pf=0.07 Pt_{N2}=90.06	Pt_{N1}=89.99 Pv=0.03 Pn=89.96
173	115 114	Q=15 V=0.2	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=3.12	Pt_{N1}=90.06 Pz=0 Pf=0.07 Pt_{N2}=90.13	Pt_{N1}=90.06 Pv=0.03 Pn=90.03
174	118 123	Q=680.3 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=20.23	Pt_{N1}=89.21 Pz=0 Pf=0.68 Pt_{N2}=89.91	Pt_{N1}=89.21 Pv=0.82 Pn=88.4
175	123 122	Q=7.2 V=0.1	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=0.8	Pt_{N1}=89.91 Pz=0 Pf=0.02 Pt_{N2}=90.6	Pt_{N1}=89.91 Pv=0.01 Pn=89.9
176	122 121	Q=7.2 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.8	Pt_{N1}=90.6 Pz=0 Pf=0.02 Pt_{N2}=90.62	Pt_{N1}=90.6 Pv=0.01 Pn=90.6
177	121 120	Q=7.2 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.8	Pt_{N1}=90.62 Pz=0 Pf=0.02 Pt_{N2}=90.64	Pt_{N1}=90.62 Pv=0.01 Pn=90.62
178	120 119	Q=7.2 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.8	Pt_{N1}=90.64 Pz=0 Pf=0.02 Pt_{N2}=90.66	Pt_{N1}=90.64 Pv=0.01 Pn=90.63
179	123 134	Q=673.1 V=1.3	K_e=0 F=B DN=DN 100	L=3.45 LE=0 LT=3.45	C=120 DP=19.84	Pt_{N1}=89.91 Pz=0 Pf=0.67	Pt_{N1}=89.91 Pv=0.8 Pn=89.11

			Dint=0.11			Pt_{N2}=91.25	
180	134 135	Q=-3.8 V=0.1	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.88 LE=2.1 LT=2.98	C=120 DP=0.25	Pt_{N1}=91.25 Pz=0 Pf=0.01 Pt_{N2}=91.24	Pt_{N1}=91.25 Pv=0 Pn=91.25
181	135 136	Q=-3.8 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.25	Pt_{N1}=91.24 Pz=0 Pf=0.01 Pt_{N2}=91.24	Pt_{N1}=91.24 Pv=0 Pn=91.24
182	136 137	Q=-3.8 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.25	Pt_{N1}=91.24 Pz=0 Pf=0.01 Pt_{N2}=91.23	Pt_{N1}=91.24 Pv=0 Pn=91.24
183	137 138	Q=-3.8 V=0.1	K_e=0 F=A DN=DN 32 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.25	Pt_{N1}=91.23 Pz=0 Pf=0.01 Pt_{N2}=91.23	Pt_{N1}=91.23 Pv=0 Pn=91.23
Tratto tubazione + terminale							
184	80 81	Q=77.2 V=2.1	K_e=90 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=423.1	Pt_{N1}=77.37 Pz=1.67 Pf=3.9 Pt_{N2}=73.47	Pt_{N1}=77.37 Pv=2.21 Pn=75.16
185	153 174	Q=194.1 V=3.1	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=358.95	Pt_{N1}=89.04 Pz=0 Pf=9.8 Pt_{N2}=79.25	Pt_{N1}=89.04 Pv=4.72 Pn=84.32
186	154 170	Q=190 V=3	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=344.72	Pt_{N1}=88.13 Pz=0 Pf=9.41 Pt_{N2}=78.72	Pt_{N1}=88.13 Pv=4.53 Pn=83.6
187	155 166	Q=187.1 V=3	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=334.63	Pt_{N1}=87.58 Pz=0 Pf=9.13 Pt_{N2}=78.45	Pt_{N1}=87.58 Pv=4.39 Pn=83.19
188	156 162	Q=184.8 V=2.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=326.87	Pt_{N1}=87.31 Pz=0 Pf=8.92 Pt_{N2}=78.39	Pt_{N1}=87.31 Pv=4.28 Pn=83.02
	157	Q=220.6	K_e=0	L=0.68	C=120	Pt_{N1}=87.15	Pt_{N1}=87.15

189	158	V=3.5	F=D DN=DN 32 Dint=0.04	LE=0 LT=0.68	DP=457.85	Pz=0 Pf=3.07 Pt_{N2}=84.09	Pv=6.1 Pn=81.05
190	30 31	Q=180.2 V=2.9	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=311.41	Pt_{N1}=87.15 Pz=0 Pf=8.5 Pt_{N2}=78.65	Pt_{N1}=87.15 Pv=4.07 Pn=83.08
191	29 37	Q=177.3 V=2.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=301.91	Pt_{N1}=87.2 Pz=0 Pf=8.24 Pt_{N2}=78.96	Pt_{N1}=87.2 Pv=3.94 Pn=83.26
192	28 43	Q=50.4 V=0.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=29.84	Pt_{N1}=87.4 Pz=0 Pf=0.81 Pt_{N2}=86.58	Pt_{N1}=87.4 Pv=0.32 Pn=87.08
193	27 84	Q=43.7 V=0.7	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=22.89	Pt_{N1}=87.65 Pz=0 Pf=0.62 Pt_{N2}=87.03	Pt_{N1}=87.65 Pv=0.24 Pn=87.41
194	26 89	Q=37.7 V=0.6	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=17.2	Pt_{N1}=87.96 Pz=0 Pf=0.47 Pt_{N2}=87.49	Pt_{N1}=87.96 Pv=0.18 Pn=87.78
195	25 94	Q=31.9 V=0.5	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=12.61	Pt_{N1}=88.32 Pz=0 Pf=0.34 Pt_{N2}=87.97	Pt_{N1}=88.32 Pv=0.13 Pn=88.19
196	24 99	Q=26.4 V=0.4	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=8.94	Pt_{N1}=88.72 Pz=0 Pf=0.24 Pt_{N2}=88.48	Pt_{N1}=88.72 Pv=0.09 Pn=88.63
197	23 104	Q=21.3 V=0.3	K_e=0 F=B DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=6.04	Pt_{N1}=89.16 Pz=0 Pf=0.16 Pt_{N2}=89	Pt_{N1}=89.16 Pv=0.06 Pn=89.11
198	22 109	Q=20.6 V=0.3	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.68 LE=0 LT=0.68	C=120 DP=5.68	Pt_{N1}=89.64 Pz=0 Pf=0.04 Pt_{N2}=89.6	Pt_{N1}=89.64 Pv=0.05 Pn=89.58
	21	Q=15	K_e=0	L=0.68	C=120	Pt_{N1}=90.15	Pt_{N1}=90.15

199	114	V=0.2	F=A DN=DN 32 Dint=0.04	LE=0 LT=0.68	DP=3.12	Pz=0 Pf=0.02 Pt_{N2}=90.13	Pv=0.03 Pn=90.12
200	20 119	Q=7.2 V=0.1	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=0.8	Pt_{N1}=90.68 Pz=0 Pf=0.02 Pt_{N2}=90.66	Pt_{N1}=90.68 Pv=0.01 Pn=90.67
201	19 138	Q=-3.8 V=0.1	K_e=0 F=E DN=DN 32 Dint=0.04	L=0.68 LE=2.1 LT=2.78	C=120 DP=0.25	Pt_{N1}=91.22 Pz=0 Pf=0.01 Pt_{N2}=91.23	Pt_{N1}=91.22 Pv=0 Pn=91.21
202	129 134	Q=676.9 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=20.04	Pt_{N1}=91.93 Pz=0 Pf=0.68 Pt_{N2}=91.25	Pt_{N1}=91.93 Pv=0.81 Pn=91.12
203	17 18	Q=-587.1 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=2.5 LE=0 LT=2.5	C=120 DP=15.42	Pt_{N1}=92.07 Pz=0 Pf=0.38 Pt_{N2}=91.72	Pt_{N1}=92.07 Pv=0.61 Pn=91.46
204	15 124	Q=699.7 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=0.75 LE=6.1 LT=6.85	C=120 DP=21.31	Pt_{N1}=93.87 Pz=0 Pf=1.43 Pt_{N2}=92.43	Pt_{N1}=93.87 Pv=0.86 Pn=93
205	10 139	Q=1512 V=2.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=6.64 LE=0 LT=6.64	C=120 DP=89	Pt_{N1}=146.06 Pz=0 Pf=5.8 Pt_{N2}=140.27	Pt_{N1}=146.06 Pv=4.03 Pn=142.04

LEGENDA	
N1	Nodo iniziale
N2	Nodo finale
C	Coefficiente di Hazen-Williams per le tubazioni
Pt_{N1}	Pressione totale nel Nodo 1
Pt_{N2}	Pressione totale nel Nodo 2
Pz	Pressione piezometrica
Pf	Perdita di pressione totale lungo il tronco
Pv	Pressione dinamica
Pn	Pressione nominale del tronco
A	Curva
B	T divergente asimmetrica
C	T divergente simmetrica
D	T convergente simmetrica
E	T convergente asimmetrica

F	Croce mista
G	Croce divergente
H	Croce convergente
V	Valvola

RTB02 - Sprinkler -2 - favoriti							
N° Tratto	**N1** **N2**	**Portata [l/min]** **Velocità [m/s]**	**K_e** **Tipo Pz** **DN** **Diam int. [m]**	**L [m]** **L.Eq. [m]** **L.Tot [m]**	**C** **DPM [mm H20/m]**	**Pressioni [kPa]**	
1	0 1	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.09 LE=0 LT=4.09	C=120 DP=283.68	Pt_{N1}=730 Pz=0 Pf=11.37 Pt_{N2}=718.63	Pt_{N1}=730 Pv=14.05 Pn=715.95
2	1 2	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.5 LE=3 LT=5.5	C=120 DP=-170.76	Pt_{N1}=718.63 Pz=-24.5 Pf=-9.21 Pt_{N2}=727.84	Pt_{N1}=718.63 Pv=14.05 Pn=704.59
3	2 3	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=155.73 LE=3 LT=158.73	C=120 DP=283.68	Pt_{N1}=727.84 Pz=0 Pf=441.57 Pt_{N2}=286.28	Pt_{N1}=727.84 Pv=14.05 Pn=713.8
4	3 4	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=15.72 LE=3 LT=18.72	C=120 DP=283.68	Pt_{N1}=286.28 Pz=0 Pf=52.08 Pt_{N2}=234.2	Pt_{N1}=286.28 Pv=14.05 Pn=272.23
5	4 5	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.6 LE=3 LT=9.6	C=120 DP=-403.66	Pt_{N1}=234.2 Pz=-64.68 Pf=-38 Pt_{N2}=272.2	Pt_{N1}=234.2 Pv=14.05 Pn=220.15
6	5 6	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.44 LE=3 LT=3.44	C=120 DP=283.68	Pt_{N1}=272.2 Pz=0 Pf=9.57 Pt_{N2}=262.63	Pt_{N1}=272.2 Pv=14.05 Pn=258.15
7	6 7	Q=2823.6 V=5.3	K_e=8433.3 F=V DN=DN 100 Dint=0.11	L=0.29 LE=3 LT=3.29	C=120 DP=371.56	Pt_{N1}=262.63 Pz=2.83 Pf=11.98 Pt_{N2}=239.43	Pt_{N1}=262.63 Pv=14.05 Pn=248.58
8	7 8	Q=-2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.1 LE=0 LT=6.1	C=120 DP=1301.47	Pt_{N1}=239.43 Pz=60.86 Pf=77.86 Pt_{N2}=161.57	Pt_{N1}=239.43 Pv=14.05 Pn=225.39
	8 9	Q=2823.6 V=5.3	K_e=0 F=A	L=0.4 LE=3	C=120 DP=283.68	Pt_{N1}=161.57 Pz=0	Pt_{N1}=161.57 Pv=14.05

9			DN=DN 100 Dint=0.11	LT=3.4		Pf=9.46 Pt_{N2}=152.11	Pn=147.52
10	9 10	Q=2823.6 V=5.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.36 LE=3 LT=9.36	C=120 DP=283.68	Pt_{N1}=152.11 Pz=0 Pf=26.03 Pt_{N2}=126.08	Pt_{N1}=152.11 Pv=14.05 Pn=138.06
11	10 11	Q=1856.5 V=3.5	K_e=0 F=C DN=DN 100 Dint=0.11	L=0.55 LE=6.1 LT=6.65	C=120 DP=129.3	Pt_{N1}=126.08 Pz=0 Pf=8.43 Pt_{N2}=117.65	Pt_{N1}=126.08 Pv=6.07 Pn=120.01
12	11 12	Q=1510.2 V=2.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=88.8	Pt_{N1}=117.65 Pz=0 Pf=3 Pt_{N2}=114.65	Pt_{N1}=117.65 Pv=4.02 Pn=113.64
13	12 13	Q=-323.8 V=2.4	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=139.44	Pt_{N1}=114.65 Pz=0 Pf=5.2 Pt_{N2}=109.45	Pt_{N1}=114.65 Pv=2.79 Pn=111.85
14	13 14	Q=-242.4 V=1.8	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=82.34	Pt_{N1}=109.45 Pz=0 Pf=2.02 Pt_{N2}=107.43	Pt_{N1}=109.45 Pv=1.57 Pn=107.89
15	14 15	Q=-161.7 V=1.2	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=38.54	Pt_{N1}=107.43 Pz=0 Pf=0.94 Pt_{N2}=106.49	Pt_{N1}=107.43 Pv=0.7 Pn=106.74
16	15 16	Q=-81.4 V=0.6	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=10.85	Pt_{N1}=106.49 Pz=0 Pf=0.27 Pt_{N2}=106.22	Pt_{N1}=106.49 Pv=0.18 Pn=106.31
17	16 17	Q=-1.3 V=0	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=0	Pt_{N1}=106.22 Pz=0 Pf=0 Pt_{N2}=105.81	Pt_{N1}=106.22 Pv=0 Pn=106.22
18	17 83	Q=80.4 V=0.6	K_e=0 F=D DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=10.6	Pt_{N1}=105.81 Pz=0 Pf=0.42 Pt_{N2}=106.64	Pt_{N1}=105.81 Pv=0.17 Pn=105.64
	83	Q=160.8	K_e=0	L=2.5	C=120	Pt_{N1}=106.64	Pt_{N1}=106.64

19	82	V=1.2	F=B DN=DN 50 Dint=0.05	LE=0 LT=2.5	DP=38.12	Pz=0 Pf=0.93 Pt_{N2}=107.57	Pv=0.69 Pn=105.95
20	82 81	Q=241.5 V=1.8	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=81.8	Pt_{N1}=107.57 Pz=0 Pf=3.05 Pt_{N2}=110.62	Pt_{N1}=107.57 Pv=1.55 Pn=106.02
21	81 80	Q=743.7 V=1.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=23.87	Pt_{N1}=110.62 Pz=0 Pf=0.81 Pt_{N2}=111.43	Pt_{N1}=110.62 Pv=0.97 Pn=109.65
22	80 79	Q=967.1 V=1.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.13 LE=3 LT=5.13	C=120 DP=38.7	Pt_{N1}=111.43 Pz=0 Pf=1.94 Pt_{N2}=113.37	Pt_{N1}=111.43 Pv=1.65 Pn=109.78
23	79 78	Q=967.1 V=1.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.8 LE=3 LT=9.8	C=120 DP=38.7	Pt_{N1}=113.37 Pz=0 Pf=3.72 Pt_{N2}=117.09	Pt_{N1}=113.37 Pv=1.65 Pn=111.73
24	78 77	Q=967.1 V=1.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.6 LE=3 LT=3.6	C=120 DP=38.7	Pt_{N1}=117.09 Pz=0 Pf=1.37 Pt_{N2}=118.46	Pt_{N1}=117.09 Pv=1.65 Pn=115.44
25	77 76	Q=967.1 V=1.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=10 LE=3 LT=13	C=120 DP=38.7	Pt_{N1}=118.46 Pz=0 Pf=4.94 Pt_{N2}=123.39	Pt_{N1}=118.46 Pv=1.65 Pn=116.81
26	80 93	Q=223.5 V=1.6	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=71.17	Pt_{N1}=111.43 Pz=0 Pf=2.65 Pt_{N2}=108.78	Pt_{N1}=111.43 Pv=1.33 Pn=110.1
27	93 94	Q=142.3 V=1	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=30.4	Pt_{N1}=108.78 Pz=0 Pf=0.75 Pt_{N2}=108.03	Pt_{N1}=108.78 Pv=0.54 Pn=108.24
28	94 70	Q=61.4 V=0.4	K_e=0 F=D DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=6.44	Pt_{N1}=108.03 Pz=0 Pf=0.25 Pt_{N2}=107.53	Pt_{N1}=108.03 Pv=0.1 Pn=107.93

Tratto tubazione + terminale							
29	70 71	Q=82.3 V=2.2	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1273.22	Pt_{N1}=107.53 Pz=1.67 Pf=2.12 Pt_{N2}=105.41	Pt_{N1}=107.53 Pv=2.52 Pn=105.01
30	70 69	Q=-20.9 V=0.2	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=0.88	Pt_{N1}=107.53 Pz=0 Pf=0.03 Pt_{N2}=107.81	Pt_{N1}=107.53 Pv=0.01 Pn=107.52
31	69 68	Q=-101.7 V=0.7	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=16.61	Pt_{N1}=107.81 Pz=0 Pf=0.41 Pt_{N2}=108.22	Pt_{N1}=107.81 Pv=0.28 Pn=107.54
32	68 67	Q=-182.6 V=1.3	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=48.51	Pt_{N1}=108.22 Pz=0 Pf=1.19 Pt_{N2}=109.41	Pt_{N1}=108.22 Pv=0.89 Pn=107.33
33	67 66	Q=-264 V=1.9	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=96.02	Pt_{N1}=109.41 Pz=0 Pf=2.35 Pt_{N2}=111.76	Pt_{N1}=109.41 Pv=1.86 Pn=107.55
Tratto tubazione + terminale							
34	66 75	Q=82.3 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=375.13	Pt_{N1}=111.76 Pz=1.67 Pf=6.14 Pt_{N2}=105.62	Pt_{N1}=111.76 Pv=2.51 Pn=109.25
Tratto tubazione + terminale							
35	67 74	Q=81.4 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=369.55	Pt_{N1}=109.41 Pz=1.67 Pf=6.05 Pt_{N2}=103.36	Pt_{N1}=109.41 Pv=2.46 Pn=106.95
Tratto tubazione + terminale							
36	68 73	Q=81 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=366.73	Pt_{N1}=108.22 Pz=1.67 Pf=6.01 Pt_{N2}=102.21	Pt_{N1}=108.22 Pv=2.43 Pn=105.79
Tratto tubazione + terminale							
37	69 72	Q=80.8 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=365.76	Pt_{N1}=107.81 Pz=1.67 Pf=5.99 Pt_{N2}=101.82	Pt_{N1}=107.81 Pv=2.42 Pn=105.39

Tratto tubazione + terminale							
38	94 95	Q=80.9 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=366.28	Pt_{N1}=108.03 Pz=1.67 Pf=6 Pt_{N2}=102.03	Pt_{N1}=108.03 Pv=2.43 Pn=105.6
Tratto tubazione + terminale							
39	93 96	Q=81.2 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=368.05	Pt_{N1}=108.78 Pz=1.67 Pf=6.03 Pt_{N2}=102.75	Pt_{N1}=108.78 Pv=2.45 Pn=106.33
40	81 86	Q=502.2 V=0.9	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=11.58	Pt_{N1}=110.62 Pz=0 Pf=0.39 Pt_{N2}=110.23	Pt_{N1}=110.62 Pv=0.44 Pn=110.18
41	86 87	Q=256.7 V=1.9	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=91.24	Pt_{N1}=110.23 Pz=0 Pf=3.4 Pt_{N2}=106.83	Pt_{N1}=110.23 Pv=1.76 Pn=108.47
42	87 88	Q=176.2 V=1.3	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=45.33	Pt_{N1}=106.83 Pz=0 Pf=1.11 Pt_{N2}=105.72	Pt_{N1}=106.83 Pv=0.83 Pn=106
43	88 89	Q=96.2 V=0.7	K_e=0 F=A DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=14.98	Pt_{N1}=105.72 Pz=0 Pf=0.37 Pt_{N2}=105.35	Pt_{N1}=105.72 Pv=0.25 Pn=105.47
Tratto tubazione + terminale							
44	89 90	Q=80.6 V=2.2	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=443.42	Pt_{N1}=105.35 Pz=1.67 Pf=4.09 Pt_{N2}=101.26	Pt_{N1}=105.35 Pv=2.41 Pn=102.94
45	89 27	Q=15.7 V=0.1	K_e=0 F=A DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=0.51	Pt_{N1}=105.35 Pz=0 Pf=0.01 Pt_{N2}=105.33	Pt_{N1}=105.35 Pv=0.01 Pn=105.35
46	27 26	Q=-64.9 V=0.5	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=7.11	Pt_{N1}=105.33 Pz=0 Pf=0.17 Pt_{N2}=105.51	Pt_{N1}=105.33 Pv=0.11 Pn=105.21

47	26 25	Q=-144.8 V=1.1	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=31.39	Pt_{N1}=105.51 Pz=0 Pf=0.77 Pt_{N2}=106.28	Pt_{N1}=105.51 Pv=0.56 Pn=104.95
48	25 24	Q=-225 V=1.6	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=72.08	Pt_{N1}=106.28 Pz=0 Pf=1.77 Pt_{N2}=108.05	Pt_{N1}=106.28 Pv=1.35 Pn=104.93
Tratto tubazione + terminale							
49	24 31	Q=80.9 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=366.32	Pt_{N1}=108.05 Pz=1.67 Pf=6 Pt_{N2}=102.05	Pt_{N1}=108.05 Pv=2.43 Pn=105.62
50	24 23	Q=-305.9 V=2.2	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=125.55	Pt_{N1}=108.05 Pz=0 Pf=4.68 Pt_{N2}=112.73	Pt_{N1}=108.05 Pv=2.49 Pn=105.56
51	23 32	Q=880.4 V=1.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.45 LE=0 LT=3.45	C=120 DP=32.62	Pt_{N1}=112.73 Pz=0 Pf=1.1 Pt_{N2}=111.62	Pt_{N1}=112.73 Pv=1.37 Pn=111.36
52	32 33	Q=-265.1 V=1.9	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=96.72	Pt_{N1}=111.62 Pz=0 Pf=3.6 Pt_{N2}=108.02	Pt_{N1}=111.62 Pv=1.87 Pn=109.75
53	33 34	Q=-184.2 V=1.3	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=49.32	Pt_{N1}=108.02 Pz=0 Pf=1.21 Pt_{N2}=106.81	Pt_{N1}=108.02 Pv=0.9 Pn=107.12
54	34 35	Q=-103.8 V=0.8	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=17.26	Pt_{N1}=106.81 Pz=0 Pf=0.42 Pt_{N2}=106.39	Pt_{N1}=106.81 Pv=0.29 Pn=106.52
55	35 36	Q=-23.6 V=0.2	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=1.1	Pt_{N1}=106.39 Pz=0 Pf=0.04 Pt_{N2}=106.12	Pt_{N1}=106.39 Pv=0.01 Pn=106.37
56	36 62	Q=58.2 V=0.4	K_e=0 F=D DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=5.86	Pt_{N1}=106.12 Pz=0 Pf=0.23 Pt_{N2}=106.57	Pt_{N1}=106.12 Pv=0.09 Pn=106.02

57	62 61	Q=138.5 V=1	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=28.94	Pt_{N1}=106.57 Pz=0 Pf=0.71 Pt_{N2}=107.28	Pt_{N1}=106.57 Pv=0.51 Pn=106.06
58	61 60	Q=219.1 V=1.6	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=68.65	Pt_{N1}=107.28 Pz=0 Pf=1.68 Pt_{N2}=108.97	Pt_{N1}=107.28 Pv=1.28 Pn=106
59	60 59	Q=300.3 V=2.2	K_e=0 F=D DN=DN 50 Dint=0.05	L=0.9 LE=0 LT=0.9	C=120 DP=121.37	Pt_{N1}=108.97 Pz=0 Pf=1.07 Pt_{N2}=109.85	Pt_{N1}=108.97 Pv=2.4 Pn=106.56
60	59 52	Q=-54.8 V=0.1	K_e=0 F=D DN=DN 100 Dint=0.11	L=2.45 LE=2.9 LT=5.35	C=120 DP=0.19	Pt_{N1}=109.85 Pz=0 Pf=0.01 Pt_{N2}=110.05	Pt_{N1}=109.85 Pv=0.01 Pn=109.84
61	52 53	Q=269.1 V=2	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=99.39	Pt_{N1}=110.05 Pz=0 Pf=3.7 Pt_{N2}=106.34	Pt_{N1}=110.05 Pv=1.93 Pn=108.12
62	53 54	Q=188.9 V=1.4	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=51.74	Pt_{N1}=106.34 Pz=0 Pf=1.27 Pt_{N2}=105.08	Pt_{N1}=106.34 Pv=0.95 Pn=105.39
63	54 55	Q=109.1 V=0.8	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=18.91	Pt_{N1}=105.08 Pz=0 Pf=0.46 Pt_{N2}=104.61	Pt_{N1}=105.08 Pv=0.32 Pn=104.76
Tratto tubazione + terminale							
64	55 56	Q=79.6 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=358.18	Pt_{N1}=104.61 Pz=1.67 Pf=5.87 Pt_{N2}=98.74	Pt_{N1}=104.61 Pv=2.35 Pn=102.26
65	55 45	Q=29.6 V=0.2	K_e=0 F=D DN=DN 50 Dint=0.05	L=2.5 LE=1.5 LT=4	C=120 DP=1.67	Pt_{N1}=104.61 Pz=0 Pf=0.07 Pt_{N2}=104.48	Pt_{N1}=104.61 Pv=0.02 Pn=104.59
	45 44	Q=-51.5 V=0.4	K_e=0 F=B	L=2.5 LE=1.5	C=120 DP=4.7	Pt_{N1}=104.48 Pz=0	Pt_{N1}=104.48 Pv=0.07

66			DN=DN 50 Dint=0.05	LT=4		Pf=0.18 Pt_{N2}=104.73	Pn=104.41
67	44 43	Q=-131.1 V=1	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=26.19	Pt_{N1}=104.73 Pz=0 Pf=0.64 Pt_{N2}=105.37	Pt_{N1}=104.73 Pv=0.46 Pn=104.27
68	43 42	Q=-210.9 V=1.5	K_e=0 F=B DN=DN 50 Dint=0.05	L=2.5 LE=0 LT=2.5	C=120 DP=63.95	Pt_{N1}=105.37 Pz=0 Pf=1.57 Pt_{N2}=106.94	Pt_{N1}=105.37 Pv=1.19 Pn=104.19
Tratto tubazione + terminale							
69	42 49	Q=80.5 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=363.69	Pt_{N1}=106.94 Pz=1.67 Pf=5.96 Pt_{N2}=100.98	Pt_{N1}=106.94 Pv=2.4 Pn=104.54
70	42 41	Q=-291.4 V=2.1	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=114.84	Pt_{N1}=106.94 Pz=0 Pf=4.28 Pt_{N2}=111.22	Pt_{N1}=106.94 Pv=2.26 Pn=104.68
71	41 50	Q=323.9 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=0.3 LE=0 LT=0.3	C=120 DP=5.11	Pt_{N1}=111.22 Pz=0 Pf=0.02 Pt_{N2}=111.21	Pt_{N1}=111.22 Pv=0.18 Pn=111.04
72	50 51	Q=-323.9 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=16.8 LE=3 LT=19.8	C=120 DP=5.11	Pt_{N1}=111.21 Pz=0 Pf=0.99 Pt_{N2}=110.21	Pt_{N1}=111.21 Pv=0.18 Pn=111.02
Tratto tubazione + terminale							
73	43 48	Q=79.9 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=359.98	Pt_{N1}=105.37 Pz=1.67 Pf=5.9 Pt_{N2}=99.47	Pt_{N1}=105.37 Pv=2.37 Pn=103.01
Tratto tubazione + terminale							
74	44 47	Q=79.6 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=358.46	Pt_{N1}=104.73 Pz=1.67 Pf=5.87 Pt_{N2}=98.86	Pt_{N1}=104.73 Pv=2.35 Pn=102.38
Tratto tubazione + terminale							
	45 46	Q=81 V=2.2	K_e=80 F=D	L=0.17 LE=0	C=120 DP=1265.27	Pt_{N1}=104.48 Pz=1.67	Pt_{N1}=104.48 Pv=2.44

75			DN=DN 25 Dint=0.03	LT=0.17		Pf=2.11 Pt_{N2}=102.37	Pn=102.04
Tratto tubazione + terminale							
	54 57	Q=79.7 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=359.28	Pt_{N1}=105.08 Pz=1.67	Pt_{N1}=105.08 Pv=2.36
76			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.88 Pt_{N2}=99.2	Pn=102.71
Tratto tubazione + terminale							
	53 58	Q=80.2 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=362.28	Pt_{N1}=106.34 Pz=1.67	Pt_{N1}=106.34 Pv=2.39
77			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.93 Pt_{N2}=100.41	Pn=103.95
	52 51	Q=-323.9 V=0.6	K_e=0 F=A	L=0.3 LE=3	C=120 DP=5.11	Pt_{N1}=110.05 Pz=0	Pt_{N1}=110.05 Pv=0.18
78			DN=DN 100 Dint=0.11	LT=3.3		Pf=0.17 Pt_{N2}=110.21	Pn=109.86
Tratto tubazione + terminale							
	60 65	Q=81.2 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=368.49	Pt_{N1}=108.97 Pz=1.67	Pt_{N1}=108.97 Pv=2.45
79			DN=DN 25 Dint=0.03	LT=1.67		Pf=6.03 Pt_{N2}=102.94	Pn=106.52
Tratto tubazione + terminale							
	61 64	Q=80.6 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=364.51	Pt_{N1}=107.28 Pz=1.67	Pt_{N1}=107.28 Pv=2.41
80			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.97 Pt_{N2}=101.31	Pn=104.87
Tratto tubazione + terminale							
	62 63	Q=80.3 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=362.83	Pt_{N1}=106.57 Pz=1.67	Pt_{N1}=106.57 Pv=2.4
81			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.94 Pt_{N2}=100.63	Pn=104.18
Tratto tubazione + terminale							
	36 37	Q=81.7 V=2.2	K_e=80 F=D	L=0.17 LE=0	C=120 DP=1269.69	Pt_{N1}=106.12 Pz=1.67	Pt_{N1}=106.12 Pv=2.48
82			DN=DN 25 Dint=0.03	LT=0.17		Pf=2.12 Pt_{N2}=104	Pn=103.63
Tratto tubazione + terminale							
	35 38	Q=80.3 V=2.2	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=362.38	Pt_{N1}=106.39 Pz=1.67	Pt_{N1}=106.39 Pv=2.39
83			DN=DN 25 Dint=0.03	LT=1.67		Pf=5.93 Pt_{N2}=100.46	Pn=104

Tratto tubazione + terminale							
84	34 39	Q=80.4 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=363.39	Pt_{N1}=106.81 Pz=1.67 Pf=5.95 Pt_{N2}=100.86	Pt_{N1}=106.81 Pv=2.4 Pn=104.41
Tratto tubazione + terminale							
85	33 40	Q=80.9 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=366.25	Pt_{N1}=108.02 Pz=1.67 Pf=6 Pt_{N2}=102.02	Pt_{N1}=108.02 Pv=2.43 Pn=105.59
86	32 41	Q=615.3 V=1.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=2.45 LE=0 LT=2.45	C=120 DP=16.81	Pt_{N1}=111.62 Pz=0 Pf=0.4 Pt_{N2}=111.22	Pt_{N1}=111.62 Pv=0.67 Pn=110.96
Tratto tubazione + terminale							
87	25 30	Q=80.2 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=362.14	Pt_{N1}=106.28 Pz=1.67 Pf=5.93 Pt_{N2}=100.35	Pt_{N1}=106.28 Pv=2.39 Pn=103.89
Tratto tubazione + terminale							
88	26 29	Q=79.9 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=360.31	Pt_{N1}=105.51 Pz=1.67 Pf=5.9 Pt_{N2}=99.61	Pt_{N1}=105.51 Pv=2.37 Pn=103.14
Tratto tubazione + terminale							
89	27 28	Q=80.6 V=2.2	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=443.39	Pt_{N1}=105.33 Pz=1.67 Pf=4.09 Pt_{N2}=101.24	Pt_{N1}=105.33 Pv=2.41 Pn=102.92
Tratto tubazione + terminale							
90	88 91	Q=80 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=360.8	Pt_{N1}=105.72 Pz=1.67 Pf=5.91 Pt_{N2}=99.81	Pt_{N1}=105.72 Pv=2.38 Pn=103.34
Tratto tubazione + terminale							
91	87 92	Q=80.4 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=363.43	Pt_{N1}=106.83 Pz=1.67 Pf=5.95 Pt_{N2}=100.88	Pt_{N1}=106.83 Pv=2.4 Pn=104.43
	86	Q=245.5	K_e=0	L=3.45	C=120	Pt_{N1}=110.23	Pt_{N1}=110.23

92	59	V=0.5	F=B DN=DN 100 Dint=0.11	LE=2.9 LT=6.35	DP=3.08	Pz=0 Pf=0.19 Pt_{N2}=109.85	Pv=0.11 Pn=110.12
Tratto tubazione + terminale							
93	82 85	Q=80.7 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=365.19	Pt_{N1}=107.57 Pz=1.67 Pf=5.98 Pt_{N2}=101.59	Pt_{N1}=107.57 Pv=2.42 Pn=105.16
Tratto tubazione + terminale							
94	83 84	Q=80.3 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=362.98	Pt_{N1}=106.64 Pz=1.67 Pf=5.94 Pt_{N2}=100.7	Pt_{N1}=106.64 Pv=2.4 Pn=104.24
Tratto tubazione + terminale							
95	17 18	Q=81.7 V=2.2	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1269.39	Pt_{N1}=105.81 Pz=1.67 Pf=2.12 Pt_{N2}=103.69	Pt_{N1}=105.81 Pv=2.48 Pn=103.33
Tratto tubazione + terminale							
96	16 19	Q=80.2 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=362	Pt_{N1}=106.22 Pz=1.67 Pf=5.93 Pt_{N2}=100.29	Pt_{N1}=106.22 Pv=2.39 Pn=103.84
Tratto tubazione + terminale							
97	15 20	Q=80.3 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=362.63	Pt_{N1}=106.49 Pz=1.67 Pf=5.94 Pt_{N2}=100.55	Pt_{N1}=106.49 Pv=2.39 Pn=104.1
Tratto tubazione + terminale							
98	14 21	Q=80.7 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=364.86	Pt_{N1}=107.43 Pz=1.67 Pf=5.98 Pt_{N2}=101.45	Pt_{N1}=107.43 Pv=2.42 Pn=105.02
Tratto tubazione + terminale							
99	13 22	Q=81.4 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=369.65	Pt_{N1}=109.45 Pz=1.67 Pf=6.05 Pt_{N2}=103.4	Pt_{N1}=109.45 Pv=2.46 Pn=106.99
	12 23	Q=1186.4 V=2.2	K_e=0 F=B	L=3.45 LE=0	C=120 DP=56.78	Pt_{N1}=114.65 Pz=0	Pt_{N1}=114.65 Pv=2.48

100			DN=DN 100 Dint=0.11	LT=3.45		Pf=1.92 Pt_{N2}=112.73	Pn=112.17
101	11 66	Q=-346.3 V=2.5	K_e=0 F=B DN=DN 50 Dint=0.05	L=0.9 LE=2.9 LT=3.8	C=120 DP=158.04	Pt_{N1}=117.65 Pz=0 Pf=5.89 Pt_{N2}=111.76	Pt_{N1}=117.65 Pv=3.2 Pn=114.46
102	10 76	Q=-967.1 V=1.8	K_e=0 F=C DN=DN 100 Dint=0.11	L=0.98 LE=6.1 LT=7.08	C=120 DP=38.7	Pt_{N1}=126.08 Pz=0 Pf=2.69 Pt_{N2}=123.39	Pt_{N1}=126.08 Pv=1.65 Pn=124.43

LEGENDA	
N1	Nodo iniziale
N2	Nodo finale
C	Coefficiente di Hazen-Williams per le tubazioni
Pt_{N1}	Pressione totale nel Nodo 1
Pt_{N2}	Pressione totale nel Nodo 2
Pz	Pressione piezometrica
Pf	Perdita di pressione totale lungo il tronco
Pv	Pressione dinamica
Pn	Pressione nominale del tronco
A	Curva
B	T divergente asimmetrica
C	T divergente simmetrica
D	T convergente simmetrica
E	T convergente asimmetrica
F	Croce mista
G	Croce divergente
H	Croce convergente
V	Valvola

RTB03 - Sprinkler -1 - sfavoriti Z1							
N° Tratto	**N1** **N2**	**Portata [l/min]** **Velocità [m/s]**	**K_e** **Tipo Pz** **DN** **Diam int. [m]**	**L [m]** **L.Eq. [m]** **L.Tot [m]**	**C** **DPM [mm H20/m]**	**Pressioni [kPa]**	
1	0 1	Q=1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=4.09 LE=0 LT=4.09	C=120 DP=15.21	Pt_{N1}=475 Pz=0 Pf=0.61 Pt_{N2}=474.39	Pt_{N1}=475 Pv=1 Pn=474
2	1 2	Q=-1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=2.98 LE=4.3 LT=7.28	C=120 DP=15.21	Pt_{N1}=474.39 Pz=29.2 Pf=1.09 Pt_{N2}=473.31	Pt_{N1}=474.39 Pv=1 Pn=473.39
3	2 3	Q=-1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=139.73 LE=4.3 LT=144.03	C=120 DP=35.89	Pt_{N1}=473.31 Pz=0 Pf=50.69 Pt_{N2}=422.61	Pt_{N1}=473.31 Pv=1 Pn=472.31
4	3 4	Q=-1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=3.31 LE=4.3 LT=7.61	C=120 DP=15.21	Pt_{N1}=422.61 Pz=0 Pf=1.13 Pt_{N2}=421.48	Pt_{N1}=422.61 Pv=1 Pn=421.61
5	4 5	Q=1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=6.5 LE=4.3 LT=10.8	C=120 DP=-586.51	Pt_{N1}=421.48 Pz=-63.7 Pf=-62.12 Pt_{N2}=483.59	Pt_{N1}=421.48 Pv=1 Pn=420.48
6	5 6	Q=-1689.1 V=1.4	K_e=0 F=A DN=DN 150 Dint=0.16	L=2.06 LE=4.3 LT=6.36	C=120 DP=15.21	Pt_{N1}=483.59 Pz=0 Pf=0.95 Pt_{N2}=482.64	Pt_{N1}=483.59 Pv=1 Pn=482.6
7	6 7	Q=1689.1 V=3.2	K_e=8433.3 F=V DN=DN 100 Dint=0.11	L=0.29 LE=3 LT=3.29	C=120 DP=196.93	Pt_{N1}=482.64 Pz=2.83 Pf=6.35 Pt_{N2}=472.28	Pt_{N1}=482.64 Pv=5.03 Pn=477.62
8	7 8	Q=-1689.1 V=3.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.1 LE=0 LT=6.1	C=120 DP=1126.84	Pt_{N1}=472.28 Pz=60.86 Pf=67.42 Pt_{N2}=404.86	Pt_{N1}=472.28 Pv=5.03 Pn=467.25
	8 9	Q=1689.1 V=3.2	K_e=0 F=A	L=3.53 LE=3	C=120 DP=109.05	Pt_{N1}=404.86 Pz=0	Pt_{N1}=404.86 Pv=5.03

9			DN=DN 100 Dint=0.11	LT=6.53		Pf=6.98 Pt_{N2}=397.88	Pn=399.84
10	9 10	Q=129.1 V=0.2	K_e=0 F=C DN=DN 100 Dint=0.11	L=2.71 LE=6.1 LT=8.81	C=120 DP=0.93	Pt_{N1}=397.88 Pz=0 Pf=0.08 Pt_{N2}=397.8	Pt_{N1}=397.88 Pv=0.03 Pn=397.85
11	10 11	Q=129.1 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0.77 LT=1.7	C=120 DP=629.44	Pt_{N1}=397.8 Pz=0 Pf=10.49 Pt_{N2}=387.31	Pt_{N1}=397.8 Pv=6.19 Pn=391.61
12	11 12	Q=129.1 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=629.44	Pt_{N1}=387.31 Pz=0 Pf=18.52 Pt_{N2}=368.78	Pt_{N1}=387.31 Pv=6.19 Pn=381.12
13	12 13	Q=129.1 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=0 LT=1.22	C=120 DP=629.44	Pt_{N1}=368.78 Pz=0 Pf=7.55 Pt_{N2}=361.23	Pt_{N1}=368.78 Pv=6.19 Pn=362.6
14	13 14	Q=-129.1 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.55 LE=0.77 LT=1.32	C=120 DP=0.93	Pt_{N1}=361.23 Pz=0 Pf=0.01 Pt_{N2}=361.22	Pt_{N1}=361.23 Pv=0.03 Pn=361.2
15	14 15	Q=-129.1 V=0.2	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.25 LE=0 LT=3.25	C=120 DP=0.93	Pt_{N1}=361.22 Pz=0 Pf=0.03 Pt_{N2}=351.15	Pt_{N1}=361.22 Pv=0.03 Pn=361.19
16	15 16	Q=-226.1 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.79 LE=0 LT=1.79	C=120 DP=2.66	Pt_{N1}=351.15 Pz=0 Pf=0.05 Pt_{N2}=361.14	Pt_{N1}=351.15 Pv=0.09 Pn=351.06
17	16 17	Q=-226.1 V=0.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.01 LE=0 LT=2.01	C=120 DP=2.66	Pt_{N1}=361.14 Pz=0 Pf=0.05 Pt_{N2}=352.06	Pt_{N1}=361.14 Pv=0.09 Pn=361.05
18	17 18	Q=-317.9 V=0.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=4.94	Pt_{N1}=352.06 Pz=0 Pf=0.18 Pt_{N2}=352.74	Pt_{N1}=352.06 Pv=0.18 Pn=351.88
	18	Q=-405.1	K_e=0	L=3.8	C=120	Pt_{N1}=352.74	Pt_{N1}=352.74

19	19	V=0.8	F=E DN=DN 100 Dint=0.11	LE=0 LT=3.8	DP=7.77	Pz=0 Pf=0.29 Pt_{N2}=353.17	Pv=0.29 Pn=352.45
20	19 20	Q=-488.3 V=0.9	K_e=0 F=E DN=DN 100 Dint=0.11	L=0.38 LE=0 LT=0.38	C=120 DP=11	Pt_{N1}=353.17 Pz=0 Pf=0.04 Pt_{N2}=360.57	Pt_{N1}=353.17 Pv=0.42 Pn=352.75
21	20 21	Q=-488.3 V=0.9	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.42 LE=0 LT=3.42	C=120 DP=11	Pt_{N1}=360.57 Pz=0 Pf=0.37 Pt_{N2}=353.35	Pt_{N1}=360.57 Pv=0.42 Pn=360.15
22	21 22	Q=-567.9 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=14.51	Pt_{N1}=353.35 Pz=0 Pf=0.54 Pt_{N2}=353.26	Pt_{N1}=353.35 Pv=0.57 Pn=352.78
23	22 23	Q=-644.6 V=1.2	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=18.32	Pt_{N1}=353.26 Pz=0 Pf=0.68 Pt_{N2}=352.91	Pt_{N1}=353.26 Pv=0.73 Pn=352.53
24	23 78	Q=74.7 V=2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=227.35	Pt_{N1}=352.91 Pz=0 Pf=6.07 Pt_{N2}=365.06	Pt_{N1}=352.91 Pv=2.07 Pn=350.84
25	78 77	Q=74.7 V=2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=227.35	Pt_{N1}=365.06 Pz=0 Pf=6.69 Pt_{N2}=371.75	Pt_{N1}=365.06 Pv=2.07 Pn=362.99
26	77 76	Q=74.7 V=2	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=227.35	Pt_{N1}=371.75 Pz=0 Pf=5.42 Pt_{N2}=377.16	Pt_{N1}=371.75 Pv=2.07 Pn=369.68
27	76 75	Q=-1044.5 V=2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=44.68	Pt_{N1}=377.16 Pz=0 Pf=1.66 Pt_{N2}=378.83	Pt_{N1}=377.16 Pv=1.92 Pn=375.24
28	75 74	Q=-1121.2 V=2.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=51.09	Pt_{N1}=378.83 Pz=0 Pf=1.9 Pt_{N2}=380.73	Pt_{N1}=378.83 Pv=2.22 Pn=376.61

29	74 73	Q=-1200.8 V=2.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=58.09	Pt_{N1}=380.73 Pz=0 Pf=2.16 Pt_{N2}=382.9	Pt_{N1}=380.73 Pv=2.54 Pn=378.19
30	73 72	Q=-1284 V=2.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=65.78	Pt_{N1}=382.9 Pz=0 Pf=2.45 Pt_{N2}=385.35	Pt_{N1}=382.9 Pv=2.9 Pn=379.99
31	72 71	Q=-1371.2 V=2.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=74.3	Pt_{N1}=385.35 Pz=0 Pf=2.77 Pt_{N2}=388.12	Pt_{N1}=385.35 Pv=3.31 Pn=382.04
32	71 70	Q=-1463 V=2.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=83.75	Pt_{N1}=388.12 Pz=0 Pf=3.12 Pt_{N2}=391.24	Pt_{N1}=388.12 Pv=3.77 Pn=384.35
33	70 212	Q=97 V=2.6	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=375.76	Pt_{N1}=391.24 Pz=0 Pf=8.95 Pt_{N2}=382.28	Pt_{N1}=391.24 Pv=3.5 Pn=387.74
34	212 213	Q=97 V=2.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=375.76	Pt_{N1}=382.28 Pz=0 Pf=11.06 Pt_{N2}=371.23	Pt_{N1}=382.28 Pv=3.5 Pn=378.79
35	71 210	Q=91.8 V=2.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=338.02	Pt_{N1}=388.12 Pz=0 Pf=8.05 Pt_{N2}=380.06	Pt_{N1}=388.12 Pv=3.13 Pn=384.99
36	210 211	Q=91.8 V=2.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=338.02	Pt_{N1}=380.06 Pz=0 Pf=9.95 Pt_{N2}=370.11	Pt_{N1}=380.06 Pv=3.13 Pn=376.93
37	72 208	Q=87.2 V=2.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=305.65	Pt_{N1}=385.35 Pz=0 Pf=7.28 Pt_{N2}=378.06	Pt_{N1}=385.35 Pv=2.82 Pn=382.52
38	208 209	Q=87.2 V=2.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=305.65	Pt_{N1}=378.06 Pz=0 Pf=9 Pt_{N2}=369.07	Pt_{N1}=378.06 Pv=2.82 Pn=375.24

39	73 206	Q=83.1 V=2.3	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=278.62	Pt_{N1}=382.9 Pz=0 Pf=6.64 Pt_{N2}=376.26	Pt_{N1}=382.9 Pv=2.56 Pn=380.33
40	206 207	Q=83.1 V=2.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=278.62	Pt_{N1}=376.26 Pz=0 Pf=8.2 Pt_{N2}=368.06	Pt_{N1}=376.26 Pv=2.56 Pn=373.69
41	74 204	Q=79.6 V=2.2	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=256.69	Pt_{N1}=380.73 Pz=0 Pf=6.12 Pt_{N2}=374.62	Pt_{N1}=380.73 Pv=2.35 Pn=378.38
42	204 205	Q=79.6 V=2.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=256.69	Pt_{N1}=374.62 Pz=0 Pf=7.55 Pt_{N2}=367.06	Pt_{N1}=374.62 Pv=2.35 Pn=372.26
43	75 202	Q=76.8 V=2.1	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=239.63	Pt_{N1}=378.83 Pz=0 Pf=5.71 Pt_{N2}=373.12	Pt_{N1}=378.83 Pv=2.19 Pn=376.64
44	202 203	Q=76.8 V=2.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=239.63	Pt_{N1}=373.12 Pz=0 Pf=7.05 Pt_{N2}=366.07	Pt_{N1}=373.12 Pv=2.19 Pn=370.93
45	76 79	Q=-969.8 V=1.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=38.9	Pt_{N1}=377.16 Pz=0 Pf=1.45 Pt_{N2}=375.71	Pt_{N1}=377.16 Pv=1.66 Pn=375.51
46	79 80	Q=-896.5 V=1.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=33.72	Pt_{N1}=375.71 Pz=0 Pf=1.26 Pt_{N2}=374.46	Pt_{N1}=375.71 Pv=1.42 Pn=374.3
47	80 81	Q=-827.4 V=1.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=29.09	Pt_{N1}=374.46 Pz=0 Pf=1.08 Pt_{N2}=373.37	Pt_{N1}=374.46 Pv=1.21 Pn=373.25
48	81 82	Q=-763.8 V=1.4	K_e=0 F=B DN=DN 100	L=3.8 LE=0 LT=3.8	C=120 DP=25.08	Pt_{N1}=373.37 Pz=0 Pf=0.93	Pt_{N1}=373.37 Pv=1.03 Pn=372.35

			Dint=0.11			Pt_{N2}=372.44	
49	82 83	Q=-705.2 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=21.63	Pt_{N1}=372.44 Pz=0 Pf=0.81 Pt_{N2}=371.63	Pt_{N1}=372.44 Pv=0.88 Pn=371.56
50	83 84	Q=-651.3 V=1.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=18.67	Pt_{N1}=371.63 Pz=0 Pf=0.7 Pt_{N2}=370.94	Pt_{N1}=371.63 Pv=0.75 Pn=370.89
51	84 85	Q=-601.7 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=16.13	Pt_{N1}=370.94 Pz=0 Pf=0.6 Pt_{N2}=370.34	Pt_{N1}=370.94 Pv=0.64 Pn=370.3
52	85 86	Q=-555.8 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=13.95	Pt_{N1}=370.34 Pz=0 Pf=0.52 Pt_{N2}=369.82	Pt_{N1}=370.34 Pv=0.54 Pn=369.79
53	86 87	Q=-513.4 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=12.07	Pt_{N1}=369.82 Pz=0 Pf=0.45 Pt_{N2}=369.37	Pt_{N1}=369.82 Pv=0.46 Pn=369.35
54	87 88	Q=-474.2 V=0.9	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=10.43	Pt_{N1}=369.37 Pz=0 Pf=0.39 Pt_{N2}=368.98	Pt_{N1}=369.37 Pv=0.4 Pn=368.97
55	88 89	Q=-438 V=0.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=8.99	Pt_{N1}=368.98 Pz=0 Pf=0.34 Pt_{N2}=368.64	Pt_{N1}=368.98 Pv=0.34 Pn=368.64
56	89 90	Q=-404.6 V=0.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=7.75	Pt_{N1}=368.64 Pz=0 Pf=0.29 Pt_{N2}=368.35	Pt_{N1}=368.64 Pv=0.29 Pn=368.35
57	90 91	Q=-373.8 V=0.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=6.68	Pt_{N1}=368.35 Pz=0 Pf=0.25 Pt_{N2}=368.11	Pt_{N1}=368.35 Pv=0.25 Pn=368.11
58	91 92	Q=-345.5 V=0.6	K_e=0 F=B DN=DN 100	L=3.8 LE=0 LT=3.8	C=120 DP=5.76	Pt_{N1}=368.11 Pz=0 Pf=0.21	Pt_{N1}=368.11 Pv=0.21 Pn=367.9

			Dint=0.11			Pt_{N2}=367.89	
59	92 93	Q=-319.6 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=4.98	Pt_{N1}=367.89 Pz=0 Pf=0.19 Pt_{N2}=367.71	Pt_{N1}=367.89 Pv=0.18 Pn=367.71
60	93 94	Q=-295.7 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=4.32	Pt_{N1}=367.71 Pz=0 Pf=0.16 Pt_{N2}=367.54	Pt_{N1}=367.71 Pv=0.15 Pn=367.55
61	94 95	Q=-273.8 V=0.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=3.75	Pt_{N1}=367.54 Pz=0 Pf=0.14 Pt_{N2}=367.4	Pt_{N1}=367.54 Pv=0.13 Pn=367.41
62	95 96	Q=-253.6 V=0.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=3.27	Pt_{N1}=367.4 Pz=0 Pf=0.12 Pt_{N2}=367.28	Pt_{N1}=367.4 Pv=0.11 Pn=367.29
63	96 97	Q=-235.1 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=2.85	Pt_{N1}=367.28 Pz=0 Pf=0.11 Pt_{N2}=367.18	Pt_{N1}=367.28 Pv=0.1 Pn=367.19
64	97 98	Q=-218.1 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=2.49	Pt_{N1}=367.18 Pz=0 Pf=0.09 Pt_{N2}=367.08	Pt_{N1}=367.18 Pv=0.08 Pn=367.09
65	98 99	Q=-202.7 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=2.17	Pt_{N1}=367.08 Pz=0 Pf=0.08 Pt_{N2}=367	Pt_{N1}=367.08 Pv=0.07 Pn=367.01
66	99 100	Q=-188.6 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.89	Pt_{N1}=367 Pz=0 Pf=0.07 Pt_{N2}=366.93	Pt_{N1}=367 Pv=0.06 Pn=366.94
67	100 101	Q=-176 V=0.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.65	Pt_{N1}=366.93 Pz=0 Pf=0.06 Pt_{N2}=366.87	Pt_{N1}=366.93 Pv=0.05 Pn=366.88
68	101 102	Q=-164.6 V=0.3	K_e=0 F=B DN=DN 100	L=3.8 LE=0 LT=3.8	C=120 DP=1.46	Pt_{N1}=366.87 Pz=0 Pf=0.05	Pt_{N1}=366.87 Pv=0.05 Pn=366.82

			Dint=0.11			Pt_{N2}=366.82	
69	102 103	Q=-151.6 V=0.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.25	Pt_{N1}=366.82 Pz=0 Pf=0.05 Pt_{N2}=366.77	Pt_{N1}=366.82 Pv=0.04 Pn=366.78
70	103 104	Q=-140.1 V=0.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.08	Pt_{N1}=366.77 Pz=0 Pf=0.04 Pt_{N2}=366.73	Pt_{N1}=366.77 Pv=0.03 Pn=366.73
71	104 105	Q=-130.1 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.95	Pt_{N1}=366.73 Pz=0 Pf=0.04 Pt_{N2}=366.69	Pt_{N1}=366.73 Pv=0.03 Pn=366.7
72	105 106	Q=-121.5 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.84	Pt_{N1}=366.69 Pz=0 Pf=0.03 Pt_{N2}=366.66	Pt_{N1}=366.69 Pv=0.03 Pn=366.67
73	106 107	Q=-114.4 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.75	Pt_{N1}=366.66 Pz=0 Pf=0.03 Pt_{N2}=366.63	Pt_{N1}=366.66 Pv=0.02 Pn=366.64
74	107 108	Q=-108.8 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.38 LE=0 LT=1.38	C=120 DP=0.69	Pt_{N1}=366.63 Pz=0 Pf=0.01 Pt_{N2}=366.63	Pt_{N1}=366.63 Pv=0.02 Pn=366.61
75	108 109	Q=108.8 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=5.16 LE=3 LT=8.15	C=120 DP=0.69	Pt_{N1}=366.63 Pz=0 Pf=0.06 Pt_{N2}=366.57	Pt_{N1}=366.63 Pv=0.02 Pn=366.6
76	109 110	Q=108.8 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.38 LE=3 LT=4.38	C=120 DP=0.69	Pt_{N1}=366.57 Pz=0 Pf=0.03 Pt_{N2}=366.52	Pt_{N1}=366.57 Pv=0.02 Pn=366.55
77	110 111	Q=114.4 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.75	Pt_{N1}=366.52 Pz=0 Pf=0.03 Pt_{N2}=366.48	Pt_{N1}=366.52 Pv=0.02 Pn=366.5
	111 112	Q=121.5 V=0.2	K_e=0 F=A	L=3.8 LE=0	C=120 DP=0.84	Pt_{N1}=366.48 Pz=0	Pt_{N1}=366.48 Pv=0.03

78			DN=DN 100 Dint=0.11	LT=3.8		Pf=0.03 Pt_{N2}=366.43	Pn=366.45
79	112 113	Q=130.1 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.95	Pt_{N1}=366.43 Pz=0 Pf=0.04 Pt_{N2}=366.38	Pt_{N1}=366.43 Pv=0.03 Pn=366.4
80	113 114	Q=140.1 V=0.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.59 LE=0 LT=0.59	C=120 DP=1.08	Pt_{N1}=366.38 Pz=0 Pf=0.01 Pt_{N2}=366.44	Pt_{N1}=366.38 Pv=0.03 Pn=366.34
81	114 115	Q=140.1 V=0.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.21 LE=0 LT=3.21	C=120 DP=1.08	Pt_{N1}=366.44 Pz=0 Pf=0.03 Pt_{N2}=366.32	Pt_{N1}=366.44 Pv=0.03 Pn=366.41
82	115 116	Q=151.6 V=0.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.25	Pt_{N1}=366.32 Pz=0 Pf=0.05 Pt_{N2}=366.25	Pt_{N1}=366.32 Pv=0.04 Pn=366.28
83	116 117	Q=164.6 V=0.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.46	Pt_{N1}=366.25 Pz=0 Pf=0.05 Pt_{N2}=366.12	Pt_{N1}=366.25 Pv=0.05 Pn=366.2
84	117 118	Q=176 V=0.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.65	Pt_{N1}=366.12 Pz=0 Pf=0.06 Pt_{N2}=366.01	Pt_{N1}=366.12 Pv=0.05 Pn=366.06
85	118 119	Q=188.6 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=1.89	Pt_{N1}=366.01 Pz=0 Pf=0.07 Pt_{N2}=365.9	Pt_{N1}=366.01 Pv=0.06 Pn=365.95
86	119 120	Q=202.7 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=2.17	Pt_{N1}=365.9 Pz=0 Pf=0.08 Pt_{N2}=365.76	Pt_{N1}=365.9 Pv=0.07 Pn=365.82
87	120 121	Q=218.1 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=2.49	Pt_{N1}=365.76 Pz=0 Pf=0.09 Pt_{N2}=365.61	Pt_{N1}=365.76 Pv=0.08 Pn=365.68
	121	Q=235.1	K_e=0	L=0.58	C=120	Pt_{N1}=365.61	Pt_{N1}=365.61

88	122	V=0.4	F=A DN=DN 100 Dint=0.11	LE=0 LT=0.58	DP=2.85	Pz=0 Pf=0.02 Pt_{N2}=365.98	Pv=0.1 Pn=365.51
89	122 123	Q=235.1 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.22 LE=0 LT=3.22	C=120 DP=2.85	Pt_{N1}=365.98 Pz=0 Pf=0.09 Pt_{N2}=365.43	Pt_{N1}=365.98 Pv=0.1 Pn=365.89
90	123 124	Q=253.6 V=0.5	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=3.27	Pt_{N1}=365.43 Pz=0 Pf=0.12 Pt_{N2}=365.23	Pt_{N1}=365.43 Pv=0.11 Pn=365.32
91	124 125	Q=273.8 V=0.5	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.19 LE=0 LT=3.19	C=120 DP=3.75	Pt_{N1}=365.23 Pz=0 Pf=0.12 Pt_{N2}=365.65	Pt_{N1}=365.23 Pv=0.13 Pn=365.09
92	125 126	Q=273.8 V=0.5	K_e=0 F=E DN=DN 100 Dint=0.11	L=0.61 LE=0 LT=0.61	C=120 DP=3.75	Pt_{N1}=365.65 Pz=0 Pf=0.02 Pt_{N2}=364.99	Pt_{N1}=365.65 Pv=0.13 Pn=365.52
93	126 127	Q=295.7 V=0.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=4.32	Pt_{N1}=364.99 Pz=0 Pf=0.16 Pt_{N2}=364.72	Pt_{N1}=364.99 Pv=0.15 Pn=364.84
94	127 128	Q=319.6 V=0.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=4.98	Pt_{N1}=364.72 Pz=0 Pf=0.19 Pt_{N2}=364.41	Pt_{N1}=364.72 Pv=0.18 Pn=364.54
95	128 129	Q=345.5 V=0.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=5.76	Pt_{N1}=364.41 Pz=0 Pf=0.21 Pt_{N2}=364.06	Pt_{N1}=364.41 Pv=0.21 Pn=364.2
96	129 130	Q=373.8 V=0.7	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.81 LE=0 LT=0.81	C=120 DP=6.68	Pt_{N1}=364.06 Pz=0 Pf=0.05 Pt_{N2}=365.02	Pt_{N1}=364.06 Pv=0.25 Pn=363.81
97	130 131	Q=373.8 V=0.7	K_e=0 F=E DN=DN 100 Dint=0.11	L=2.99 LE=0 LT=2.99	C=120 DP=6.68	Pt_{N1}=365.02 Pz=0 Pf=0.2 Pt_{N2}=363.64	Pt_{N1}=365.02 Pv=0.25 Pn=364.77
	131	Q=404.6	K_e=0	L=3.8	C=120	Pt_{N1}=363.64	Pt_{N1}=363.64

98	132	V=0.8	F=E DN=DN 100 Dint=0.11	LE=0 LT=3.8	DP=7.75	Pz=0 Pf=0.29 Pt_{N2}=363.16	Pv=0.29 Pn=363.35
99	132 133	Q=438 V=0.8	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=8.99	Pt_{N1}=363.16 Pz=0 Pf=0.34 Pt_{N2}=362.6	Pt_{N1}=363.16 Pv=0.34 Pn=362.82
100	133 134	Q=474.2 V=0.9	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.63 LE=0 LT=2.63	C=120 DP=10.43	Pt_{N1}=362.6 Pz=0 Pf=0.27 Pt_{N2}=363.93	Pt_{N1}=362.6 Pv=0.4 Pn=362.2
101	134 135	Q=474.2 V=0.9	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.17 LE=0 LT=1.17	C=120 DP=10.43	Pt_{N1}=363.93 Pz=0 Pf=0.12 Pt_{N2}=361.95	Pt_{N1}=363.93 Pv=0.4 Pn=363.53
102	135 136	Q=513.4 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=12.07	Pt_{N1}=361.95 Pz=0 Pf=0.45 Pt_{N2}=361.2	Pt_{N1}=361.95 Pv=0.46 Pn=361.49
103	136 137	Q=555.8 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=13.95	Pt_{N1}=361.2 Pz=0 Pf=0.52 Pt_{N2}=360.33	Pt_{N1}=361.2 Pv=0.54 Pn=360.66
104	137 138	Q=601.7 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=16.13	Pt_{N1}=360.33 Pz=0 Pf=0.6 Pt_{N2}=359.33	Pt_{N1}=360.33 Pv=0.64 Pn=359.7
105	138 139	Q=651.3 V=1.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.7 LE=0 LT=2.7	C=120 DP=18.67	Pt_{N1}=359.33 Pz=0 Pf=0.49 Pt_{N2}=361.74	Pt_{N1}=359.33 Pv=0.75 Pn=358.58
106	139 140	Q=651.3 V=1.2	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.1 LE=0 LT=1.1	C=120 DP=18.67	Pt_{N1}=361.74 Pz=0 Pf=0.2 Pt_{N2}=358.17	Pt_{N1}=361.74 Pv=0.75 Pn=361
107	140 141	Q=705.2 V=1.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=21.63	Pt_{N1}=358.17 Pz=0 Pf=0.81 Pt_{N2}=356.83	Pt_{N1}=358.17 Pv=0.88 Pn=357.29

108	141 142	Q=763.8 V=1.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=25.08	Pt_{N1}=356.83 Pz=0 Pf=0.93 Pt_{N2}=355.27	Pt_{N1}=356.83 Pv=1.03 Pn=355.8
109	142 143	Q=827.4 V=1.6	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=29.09	Pt_{N1}=355.27 Pz=0 Pf=1.08 Pt_{N2}=353.46	Pt_{N1}=355.27 Pv=1.21 Pn=354.06
110	143 25	Q=896.5 V=1.7	K_e=0 F=D DN=DN 100 Dint=0.11	L=1.96 LE=6.1 LT=8.06	C=120 DP=33.72	Pt_{N1}=353.46 Pz=0 Pf=2.66 Pt_{N2}=353.39	Pt_{N1}=353.46 Pv=1.42 Pn=352.04
111	25 24	Q=-792.6 V=1.5	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.85 LE=6.1 LT=7.95	C=120 DP=26.86	Pt_{N1}=353.39 Pz=0 Pf=2.09 Pt_{N2}=352.28	Pt_{N1}=353.39 Pv=1.11 Pn=352.28
112	24 201	Q=73.3 V=2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=219.68	Pt_{N1}=352.28 Pz=0 Pf=5.87 Pt_{N2}=364.01	Pt_{N1}=352.28 Pv=1.99 Pn=350.28
113	201 200	Q=73.3 V=2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=219.68	Pt_{N1}=364.01 Pz=0 Pf=6.47 Pt_{N2}=370.48	Pt_{N1}=364.01 Pv=1.99 Pn=362.02
114	25 26	Q=1689.1 V=3.2	K_e=0 F=D DN=DN 100 Dint=0.11	L=1.15 LE=0 LT=1.15	C=120 DP=109.05	Pt_{N1}=353.39 Pz=0 Pf=1.23 Pt_{N2}=354.82	Pt_{N1}=353.39 Pv=5.03 Pn=348.36
115	26 27	Q=147.6 V=0.6	K_e=0 F=C DN=DN 65 Dint=0.07	L=1.8 LE=3.8 LT=5.6	C=120 DP=9.29	Pt_{N1}=354.82 Pz=0 Pf=0.51 Pt_{N2}=354.31	Pt_{N1}=354.82 Pv=0.21 Pn=354.61
116	27 28	Q=147.6 V=1.7	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.82 LE=1.2 LT=2.02	C=120 DP=103.38	Pt_{N1}=354.31 Pz=0 Pf=2.05 Pt_{N2}=352.26	Pt_{N1}=354.31 Pv=1.5 Pn=352.81
117	28 29	Q=147.6 V=1.7	K_e=0 F=A DN=DN 40 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=103.38	Pt_{N1}=352.26 Pz=0 Pf=2.94 Pt_{N2}=349.32	Pt_{N1}=352.26 Pv=1.5 Pn=350.76

Tratto tubazione + terminale							
118	29 30	Q=147.6 V=4	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=983.61	Pt_{N1}=349.32 Pz=1.67 Pf=9.07 Pt_{N2}=340.25	Pt_{N1}=349.32 Pv=8.09 Pn=341.24
119	26 31	Q=-1541.5 V=6.7	K_e=0 F=C DN=DN 65 Dint=0.07	L=2.2 LE=3.8 LT=6	C=120 DP=720.34	Pt_{N1}=354.82 Pz=0 Pf=42.4 Pt_{N2}=312.43	Pt_{N1}=354.82 Pv=22.65 Pn=332.17
120	31 32	Q=616.9 V=7.2	K_e=0 F=B DN=DN 40 Dint=0.04	L=0.82 LE=2.4 LT=3.22	C=120 DP=1467.77	Pt_{N1}=312.43 Pz=0 Pf=46.37 Pt_{N2}=266.05	Pt_{N1}=312.43 Pv=26.24 Pn=286.18
121	32 33	Q=489.3 V=5.7	K_e=0 F=B DN=DN 40 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=959.58	Pt_{N1}=266.05 Pz=0 Pf=27.29 Pt_{N2}=238.76	Pt_{N1}=266.05 Pv=16.51 Pn=249.54
122	33 34	Q=368.5 V=5.8	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=1169.65	Pt_{N1}=238.76 Pz=0 Pf=33.26 Pt_{N2}=205.5	Pt_{N1}=238.76 Pv=17.03 Pn=221.74
123	34 35	Q=256.5 V=7	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=2251.99	Pt_{N1}=205.5 Pz=0 Pf=64.04 Pt_{N2}=141.46	Pt_{N1}=205.5 Pv=24.44 Pn=181.07
124	35 36	Q=163.8 V=4.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=975.48	Pt_{N1}=141.46 Pz=0 Pf=27.74 Pt_{N2}=113.72	Pt_{N1}=141.46 Pv=9.97 Pn=131.49
125	36 37	Q=80.9 V=2.2	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=264.42	Pt_{N1}=113.72 Pz=0 Pf=7.52 Pt_{N2}=106.2	Pt_{N1}=113.72 Pv=2.43 Pn=111.29
Tratto tubazione + terminale							
126	37 38	Q=80.9 V=2.2	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=445.23	Pt_{N1}=106.2 Pz=1.67 Pf=4.1 Pt_{N2}=102.1	Pt_{N1}=106.2 Pv=2.43 Pn=103.77

Tratto tubazione + terminale							
127	36 39	Q=83 V=2.3	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=379.55	Pt_{N1}=113.72 Pz=1.67 Pf=6.22 Pt_{N2}=107.5	Pt_{N1}=113.72 Pv=2.56 Pn=111.16
Tratto tubazione + terminale							
128	35 40	Q=92.7 V=2.5	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=446.03	Pt_{N1}=141.46 Pz=1.67 Pf=7.3 Pt_{N2}=134.16	Pt_{N1}=141.46 Pv=3.19 Pn=138.27
Tratto tubazione + terminale							
129	34 41	Q=112 V=3.1	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=590.84	Pt_{N1}=205.5 Pz=1.67 Pf=9.68 Pt_{N2}=195.82	Pt_{N1}=205.5 Pv=4.66 Pn=200.85
Tratto tubazione + terminale							
130	33 42	Q=120.8 V=3.3	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=660.98	Pt_{N1}=238.76 Pz=1.67 Pf=10.82 Pt_{N2}=227.94	Pt_{N1}=238.76 Pv=5.42 Pn=233.35
Tratto tubazione + terminale							
131	32 43	Q=127.6 V=3.5	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=718.12	Pt_{N1}=266.05 Pz=1.67 Pf=11.76 Pt_{N2}=254.29	Pt_{N1}=266.05 Pv=6.04 Pn=260.01
132	31 44	Q=-924.6 V=10.9	K_e=0 F=B DN=DN 40 Dint=0.04	L=4 LE=0 LT=4	C=120 DP=3098.65	Pt_{N1}=312.43 Pz=0 Pf=121.63 Pt_{N2}=190.8	Pt_{N1}=312.43 Pv=58.96 Pn=253.47
133	44 45	Q=477.3 V=5.6	K_e=0 F=B DN=DN 40 Dint=0.04	L=0.82 LE=2.4 LT=3.22	C=120 DP=916.55	Pt_{N1}=190.8 Pz=0 Pf=28.96 Pt_{N2}=161.84	Pt_{N1}=190.8 Pv=15.71 Pn=175.09
134	45 46	Q=378 V=4.4	K_e=0 F=B DN=DN 40 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=592.69	Pt_{N1}=161.84 Pz=0 Pf=16.86 Pt_{N2}=144.98	Pt_{N1}=161.84 Pv=9.86 Pn=151.98
135	46 47	Q=284.2 V=4.5	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=722.64	Pt_{N1}=144.98 Pz=0 Pf=20.55 Pt_{N2}=124.43	Pt_{N1}=144.98 Pv=10.13 Pn=134.86

136	47 48	Q=197.3 V=5.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=1389.47	Pt_{N1}=124.43 Pz=0 Pf=39.51 Pt_{N2}=84.92	Pt_{N1}=124.43 Pv=14.46 Pn=109.98
137	48 49	Q=125.8 V=3.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=600.99	Pt_{N1}=84.92 Pz=0 Pf=17.09 Pt_{N2}=67.83	Pt_{N1}=84.92 Pv=5.88 Pn=79.04
138	49 50	Q=62.1 V=1.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=162.1	Pt_{N1}=67.83 Pz=0 Pf=4.61 Pt_{N2}=63.22	Pt_{N1}=67.83 Pv=1.43 Pn=66.4
Tratto tubazione + terminale							
139	50 51	Q=62.1 V=1.7	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=342.91	Pt_{N1}=63.22 Pz=1.67 Pf=3.16 Pt_{N2}=60.06	Pt_{N1}=63.22 Pv=1.43 Pn=61.79
Tratto tubazione + terminale							
140	49 52	Q=63.7 V=1.7	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=271.87	Pt_{N1}=67.83 Pz=1.67 Pf=4.45 Pt_{N2}=63.38	Pt_{N1}=67.83 Pv=1.51 Pn=66.32
Tratto tubazione + terminale							
141	48 53	Q=71.5 V=1.9	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=311.66	Pt_{N1}=84.92 Pz=1.67 Pf=5.1 Pt_{N2}=79.82	Pt_{N1}=84.92 Pv=1.9 Pn=83.02
Tratto tubazione + terminale							
142	47 54	Q=86.9 V=2.4	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=405.1	Pt_{N1}=124.43 Pz=1.67 Pf=6.63 Pt_{N2}=117.8	Pt_{N1}=124.43 Pv=2.8 Pn=121.63
Tratto tubazione + terminale							
143	46 55	Q=93.9 V=2.6	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=454.44	Pt_{N1}=144.98 Pz=1.67 Pf=7.44 Pt_{N2}=137.54	Pt_{N1}=144.98 Pv=3.27 Pn=141.71
Tratto tubazione + terminale							
	45 56	Q=99.2 V=2.7	K_e=80 F=B	L=0.17 LE=1.5	C=120 DP=493.76	Pt_{N1}=161.84 Pz=1.67	Pt_{N1}=161.84 Pv=3.66

144			DN=DN 25 Dint=0.03	LT=1.67		Pf=8.09 Pt_{N2}=153.75	Pn=158.18
145	44 57	Q=-447.4 V=5.3	K_e=0 F=B DN=DN 40 Dint=0.04	L=4 LE=0 LT=4	C=120 DP=812.79	Pt_{N1}=190.8 Pz=0 Pf=31.9 Pt_{N2}=158.89	Pt_{N1}=190.8 Pv=13.8 Pn=177
146	57 58	Q=447.4 V=5.3	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.82 LE=1.2 LT=2.02	C=120 DP=812.79	Pt_{N1}=158.89 Pz=0 Pf=16.11 Pt_{N2}=142.78	Pt_{N1}=158.89 Pv=13.8 Pn=145.09
147	58 59	Q=354.2 V=4.2	K_e=0 F=B DN=DN 40 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=524.51	Pt_{N1}=142.78 Pz=0 Pf=14.92 Pt_{N2}=127.86	Pt_{N1}=142.78 Pv=8.65 Pn=134.13
148	59 60	Q=266.2 V=4.2	K_e=0 F=B DN=DN 32 Dint=0.04	L=2.9 LE=0 LT=2.9	C=120 DP=641.72	Pt_{N1}=127.86 Pz=0 Pf=18.25 Pt_{N2}=109.61	Pt_{N1}=127.86 Pv=8.88 Pn=118.98
149	60 61	Q=184.7 V=5	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=1224.62	Pt_{N1}=109.61 Pz=0 Pf=34.83 Pt_{N2}=74.79	Pt_{N1}=109.61 Pv=12.67 Pn=96.94
150	61 62	Q=117.7 V=3.2	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=533.97	Pt_{N1}=74.79 Pz=0 Pf=15.19 Pt_{N2}=59.6	Pt_{N1}=74.79 Pv=5.14 Pn=69.64
151	62 63	Q=58 V=1.6	K_e=0 F=B DN=DN 25 Dint=0.03	L=2.9 LE=0 LT=2.9	C=120 DP=144.01	Pt_{N1}=59.6 Pz=0 Pf=4.1 Pt_{N2}=55.51	Pt_{N1}=59.6 Pv=1.25 Pn=58.35
Tratto tubazione + terminale							
152	63 64	Q=58 V=1.6	K_e=80 F=A DN=DN 25 Dint=0.03	L=0.17 LE=0.77 LT=0.94	C=120 DP=324.82	Pt_{N1}=55.51 Pz=1.67 Pf=2.99 Pt_{N2}=52.52	Pt_{N1}=55.51 Pv=1.25 Pn=54.25
Tratto tubazione + terminale							
153	62 65	Q=59.6 V=1.6	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=252.85	Pt_{N1}=59.6 Pz=1.67 Pf=4.14 Pt_{N2}=55.46	Pt_{N1}=59.6 Pv=1.32 Pn=58.28

Tratto tubazione + terminale							
154	61 66	Q=67 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=288.05	Pt_{N1}=74.79 Pz=1.67 Pf=4.72 Pt_{N2}=70.07	Pt_{N1}=74.79 Pv=1.67 Pn=73.12
Tratto tubazione + terminale							
155	60 67	Q=81.5 V=2.2	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=369.88	Pt_{N1}=109.61 Pz=1.67 Pf=6.06 Pt_{N2}=103.55	Pt_{N1}=109.61 Pv=2.46 Pn=107.15
Tratto tubazione + terminale							
156	59 68	Q=88.1 V=2.4	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=413.31	Pt_{N1}=127.86 Pz=1.67 Pf=6.77 Pt_{N2}=121.09	Pt_{N1}=127.86 Pv=2.88 Pn=124.98
Tratto tubazione + terminale							
157	58 69	Q=93.1 V=2.5	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=449.23	Pt_{N1}=142.78 Pz=1.67 Pf=7.36 Pt_{N2}=135.42	Pt_{N1}=142.78 Pv=3.22 Pn=139.56
158	143 199	Q=69.1 V=1.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=196.83	Pt_{N1}=353.46 Pz=0 Pf=5.26 Pt_{N2}=363.98	Pt_{N1}=353.46 Pv=1.77 Pn=351.69
159	199 198	Q=69.1 V=1.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=196.83	Pt_{N1}=363.98 Pz=0 Pf=5.79 Pt_{N2}=369.77	Pt_{N1}=363.98 Pv=1.77 Pn=362.2
160	142 197	Q=63.7 V=1.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=169.71	Pt_{N1}=355.27 Pz=0 Pf=4.53 Pt_{N2}=364.33	Pt_{N1}=355.27 Pv=1.5 Pn=353.76
161	197 196	Q=63.7 V=1.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=169.71	Pt_{N1}=364.33 Pz=0 Pf=4.99 Pt_{N2}=369.33	Pt_{N1}=364.33 Pv=1.5 Pn=362.83
162	141 195	Q=58.6 V=1.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=146.34	Pt_{N1}=356.83 Pz=0 Pf=3.91 Pt_{N2}=364.65	Pt_{N1}=356.83 Pv=1.27 Pn=355.55

163	195 194	Q=58.6 V=1.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=146.34	Pt_{N1}=364.65 Pz=0 Pf=4.31 Pt_{N2}=368.95	Pt_{N1}=364.65 Pv=1.27 Pn=363.37
164	140 193	Q=53.9 V=1.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=126.19	Pt_{N1}=358.17 Pz=0 Pf=3.37 Pt_{N2}=364.91	Pt_{N1}=358.17 Pv=1.08 Pn=357.09
165	193 192	Q=53.9 V=1.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=126.19	Pt_{N1}=364.91 Pz=0 Pf=3.71 Pt_{N2}=368.63	Pt_{N1}=364.91 Pv=1.08 Pn=363.83
166	138 191	Q=49.7 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=108.79	Pt_{N1}=359.33 Pz=0 Pf=2.91 Pt_{N2}=365.14	Pt_{N1}=359.33 Pv=0.92 Pn=358.42
167	191 190	Q=49.7 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=108.79	Pt_{N1}=365.14 Pz=0 Pf=3.2 Pt_{N2}=368.35	Pt_{N1}=365.14 Pv=0.92 Pn=364.23
168	137 189	Q=45.8 V=1.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=93.75	Pt_{N1}=360.33 Pz=0 Pf=2.5 Pt_{N2}=365.34	Pt_{N1}=360.33 Pv=0.78 Pn=359.55
169	189 188	Q=45.8 V=1.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=93.75	Pt_{N1}=365.34 Pz=0 Pf=2.76 Pt_{N2}=368.1	Pt_{N1}=365.34 Pv=0.78 Pn=364.56
170	136 187	Q=42.4 V=1.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=80.75	Pt_{N1}=361.2 Pz=0 Pf=2.16 Pt_{N2}=365.52	Pt_{N1}=361.2 Pv=0.67 Pn=360.54
171	187 186	Q=42.4 V=1.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=80.75	Pt_{N1}=365.52 Pz=0 Pf=2.38 Pt_{N2}=367.89	Pt_{N1}=365.52 Pv=0.67 Pn=364.85
172	135 185	Q=39.2 V=1.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=69.51	Pt_{N1}=361.95 Pz=0 Pf=1.86 Pt_{N2}=365.66	Pt_{N1}=361.95 Pv=0.57 Pn=361.38

173	185 184	Q=39.2 V=1.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=69.51	Pt_{N1}=365.66 Pz=0 Pf=2.05 Pt_{N2}=367.71	Pt_{N1}=365.66 Pv=0.57 Pn=365.09
174	133 183	Q=36.2 V=1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=59.79	Pt_{N1}=362.6 Pz=0 Pf=1.6 Pt_{N2}=365.79	Pt_{N1}=362.6 Pv=0.49 Pn=362.11
175	183 182	Q=36.2 V=1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=59.79	Pt_{N1}=365.79 Pz=0 Pf=1.76 Pt_{N2}=367.55	Pt_{N1}=365.79 Pv=0.49 Pn=365.31
176	132 181	Q=33.4 V=0.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=51.41	Pt_{N1}=363.16 Pz=0 Pf=1.37 Pt_{N2}=365.91	Pt_{N1}=363.16 Pv=0.41 Pn=362.74
177	181 180	Q=33.4 V=0.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=51.41	Pt_{N1}=365.91 Pz=0 Pf=1.51 Pt_{N2}=367.42	Pt_{N1}=365.91 Pv=0.41 Pn=365.49
178	131 179	Q=30.8 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=44.19	Pt_{N1}=363.64 Pz=0 Pf=1.18 Pt_{N2}=366	Pt_{N1}=363.64 Pv=0.35 Pn=363.29
179	179 178	Q=30.8 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=44.19	Pt_{N1}=366 Pz=0 Pf=1.3 Pt_{N2}=367.3	Pt_{N1}=366 Pv=0.35 Pn=365.65
180	129 177	Q=28.3 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=37.96	Pt_{N1}=364.06 Pz=0 Pf=1.01 Pt_{N2}=366.08	Pt_{N1}=364.06 Pv=0.3 Pn=363.76
181	177 176	Q=28.3 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=37.96	Pt_{N1}=366.08 Pz=0 Pf=1.12 Pt_{N2}=367.2	Pt_{N1}=366.08 Pv=0.3 Pn=365.79
182	128 175	Q=26 V=0.7	K_e=0 F=A DN=DN 25	L=1.22 LE=1.5 LT=2.72	C=120 DP=32.59	Pt_{N1}=364.41 Pz=0 Pf=0.87	Pt_{N1}=364.41 Pv=0.25 Pn=364.16

			Dint=0.03			Pt_{N2}=366.15	
183	175 174	Q=26 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=32.59	Pt_{N1}=366.15 Pz=0 Pf=0.96 Pt_{N2}=367.11	Pt_{N1}=366.15 Pv=0.25 Pn=365.9
184	127 173	Q=23.9 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=27.95	Pt_{N1}=364.72 Pz=0 Pf=0.75 Pt_{N2}=366.22	Pt_{N1}=364.72 Pv=0.21 Pn=364.51
185	173 172	Q=23.9 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=27.95	Pt_{N1}=366.22 Pz=0 Pf=0.82 Pt_{N2}=367.04	Pt_{N1}=366.22 Pv=0.21 Pn=366.01
186	126 171	Q=21.9 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=23.92	Pt_{N1}=364.99 Pz=0 Pf=0.64 Pt_{N2}=366.27	Pt_{N1}=364.99 Pv=0.18 Pn=364.81
187	171 170	Q=21.9 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=23.92	Pt_{N1}=366.27 Pz=0 Pf=0.7 Pt_{N2}=366.97	Pt_{N1}=366.27 Pv=0.18 Pn=366.09
188	124 169	Q=20.2 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=20.43	Pt_{N1}=365.23 Pz=0 Pf=0.55 Pt_{N2}=366.32	Pt_{N1}=365.23 Pv=0.15 Pn=365.07
189	169 168	Q=20.2 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=20.43	Pt_{N1}=366.32 Pz=0 Pf=0.6 Pt_{N2}=366.92	Pt_{N1}=366.32 Pv=0.15 Pn=366.17
190	123 167	Q=18.5 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=17.38	Pt_{N1}=365.43 Pz=0 Pf=0.46 Pt_{N2}=366.36	Pt_{N1}=365.43 Pv=0.13 Pn=365.3
191	167 166	Q=18.5 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=17.38	Pt_{N1}=366.36 Pz=0 Pf=0.51 Pt_{N2}=366.87	Pt_{N1}=366.36 Pv=0.13 Pn=366.23
	121 165	Q=17 V=0.5	K_e=0 F=A	L=1.22 LE=1.5	C=120 DP=14.72	Pt_{N1}=365.61 Pz=0	Pt_{N1}=365.61 Pv=0.11

192			DN=DN 25 Dint=0.03	LT=2.72		Pf=0.39 Pt_{N2}=366.39	Pn=365.5
193	165 164	Q=17 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=14.72	Pt_{N1}=366.39 Pz=0 Pf=0.43 Pt_{N2}=366.83	Pt_{N1}=366.39 Pv=0.11 Pn=366.29
194	120 163	Q=15.5 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=12.4	Pt_{N1}=365.76 Pz=0 Pf=0.33 Pt_{N2}=366.42	Pt_{N1}=365.76 Pv=0.09 Pn=365.67
195	163 162	Q=15.5 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=12.4	Pt_{N1}=366.42 Pz=0 Pf=0.36 Pt_{N2}=366.79	Pt_{N1}=366.42 Pv=0.09 Pn=366.33
196	119 161	Q=14 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=10.38	Pt_{N1}=365.9 Pz=0 Pf=0.28 Pt_{N2}=366.45	Pt_{N1}=365.9 Pv=0.07 Pn=365.82
197	161 160	Q=14 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=10.38	Pt_{N1}=366.45 Pz=0 Pf=0.31 Pt_{N2}=366.76	Pt_{N1}=366.45 Pv=0.07 Pn=366.38
198	118 159	Q=12.7 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=8.61	Pt_{N1}=366.01 Pz=0 Pf=0.23 Pt_{N2}=366.47	Pt_{N1}=366.01 Pv=0.06 Pn=365.95
199	159 158	Q=12.7 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=8.61	Pt_{N1}=366.47 Pz=0 Pf=0.25 Pt_{N2}=366.73	Pt_{N1}=366.47 Pv=0.06 Pn=366.41
200	117 157	Q=11.4 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=7.07	Pt_{N1}=366.12 Pz=0 Pf=0.19 Pt_{N2}=366.49	Pt_{N1}=366.12 Pv=0.05 Pn=366.07
201	157 156	Q=11.4 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=7.07	Pt_{N1}=366.49 Pz=0 Pf=0.21 Pt_{N2}=366.7	Pt_{N1}=366.49 Pv=0.05 Pn=366.45
	116 155	Q=13 V=0.4	K_e=0 F=A	L=1.22 LE=0	C=120 DP=9.04	Pt_{N1}=366.25 Pz=0	Pt_{N1}=366.25 Pv=0.06

202			DN=DN 25 Dint=0.03	LT=1.22		Pf=0.11 Pt_{N2}=366.47	Pn=366.19
203	155 154	Q=13 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=9.04	Pt_{N1}=366.47 Pz=0 Pf=0.27 Pt_{N2}=366.73	Pt_{N1}=366.47 Pv=0.06 Pn=366.4
204	115 153	Q=11.5 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=0 LT=1.22	C=120 DP=7.19	Pt_{N1}=366.32 Pz=0 Pf=0.09 Pt_{N2}=366.49	Pt_{N1}=366.32 Pv=0.05 Pn=366.27
205	153 152	Q=11.5 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=7.19	Pt_{N1}=366.49 Pz=0 Pf=0.21 Pt_{N2}=366.7	Pt_{N1}=366.49 Pv=0.05 Pn=366.44
206	113 151	Q=10 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=0 LT=1.22	C=120 DP=5.6	Pt_{N1}=366.38 Pz=0 Pf=0.07 Pt_{N2}=366.51	Pt_{N1}=366.38 Pv=0.04 Pn=366.34
207	151 150	Q=10 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=5.6	Pt_{N1}=366.51 Pz=0 Pf=0.16 Pt_{N2}=366.68	Pt_{N1}=366.51 Pv=0.04 Pn=366.48
208	112 149	Q=8.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=0 LT=1.22	C=120 DP=4.2	Pt_{N1}=366.43 Pz=0 Pf=0.05 Pt_{N2}=366.53	Pt_{N1}=366.43 Pv=0.03 Pn=366.4
209	149 148	Q=8.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=4.2	Pt_{N1}=366.53 Pz=0 Pf=0.12 Pt_{N2}=366.66	Pt_{N1}=366.53 Pv=0.03 Pn=366.5
210	111 147	Q=7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=0 LT=1.22	C=120 DP=2.97	Pt_{N1}=366.48 Pz=0 Pf=0.04 Pt_{N2}=366.55	Pt_{N1}=366.48 Pv=0.02 Pn=366.46
211	147 146	Q=7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=2.97	Pt_{N1}=366.55 Pz=0 Pf=0.09 Pt_{N2}=366.64	Pt_{N1}=366.55 Pv=0.02 Pn=366.53
	110	Q=5.5	K_e=0	L=1.22	C=120	Pt_{N1}=366.52	Pt_{N1}=366.52

212	145	V=0.2	F=A DN=DN 25 Dint=0.03	LE=0 LT=1.22	DP=1.86	Pz=0 Pf=0.02 Pt_{N2}=366.56	Pv=0.01 Pn=366.51
213	145 144	Q=5.5 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=1.86	Pt_{N1}=366.56 Pz=0 Pf=0.05 Pt_{N2}=366.62	Pt_{N1}=366.56 Pv=0.01 Pn=366.55
214	107 144	Q=5.5 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=1.86	Pt_{N1}=366.63 Pz=0 Pf=0.02 Pt_{N2}=366.62	Pt_{N1}=366.63 Pv=0.01 Pn=366.62
215	106 146	Q=7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=2.97	Pt_{N1}=366.66 Pz=0 Pf=0.03 Pt_{N2}=366.64	Pt_{N1}=366.66 Pv=0.02 Pn=366.64
216	105 148	Q=8.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=4.2	Pt_{N1}=366.69 Pz=0 Pf=0.04 Pt_{N2}=366.66	Pt_{N1}=366.69 Pv=0.03 Pn=366.67
217	104 150	Q=10 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=5.6	Pt_{N1}=366.73 Pz=0 Pf=0.05 Pt_{N2}=366.68	Pt_{N1}=366.73 Pv=0.04 Pn=366.69
218	103 152	Q=11.5 V=0.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=7.19	Pt_{N1}=366.77 Pz=0 Pf=0.07 Pt_{N2}=366.7	Pt_{N1}=366.77 Pv=0.05 Pn=366.72
219	102 154	Q=13 V=0.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.93 LE=0 LT=0.93	C=120 DP=9.04	Pt_{N1}=366.82 Pz=0 Pf=0.08 Pt_{N2}=366.73	Pt_{N1}=366.82 Pv=0.06 Pn=366.75
220	101 156	Q=11.4 V=0.3	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=7.07	Pt_{N1}=366.87 Pz=0 Pf=0.17 Pt_{N2}=366.7	Pt_{N1}=366.87 Pv=0.05 Pn=366.82
221	100 158	Q=12.7 V=0.3	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=8.61	Pt_{N1}=366.93 Pz=0 Pf=0.21 Pt_{N2}=366.73	Pt_{N1}=366.93 Pv=0.06 Pn=366.87

222	99 160	Q=14 V=0.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=10.38	Pt_{N1}=367 Pz=0 Pf=0.25 Pt_{N2}=366.76	Pt_{N1}=367 Pv=0.07 Pn=366.93
223	98 162	Q=15.5 V=0.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=12.4	Pt_{N1}=367.08 Pz=0 Pf=0.3 Pt_{N2}=366.79	Pt_{N1}=367.08 Pv=0.09 Pn=366.99
224	97 164	Q=17 V=0.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=14.72	Pt_{N1}=367.18 Pz=0 Pf=0.35 Pt_{N2}=366.83	Pt_{N1}=367.18 Pv=0.11 Pn=367.07
225	96 166	Q=18.5 V=0.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=17.38	Pt_{N1}=367.28 Pz=0 Pf=0.41 Pt_{N2}=366.87	Pt_{N1}=367.28 Pv=0.13 Pn=367.16
226	95 168	Q=20.2 V=0.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=20.43	Pt_{N1}=367.4 Pz=0 Pf=0.49 Pt_{N2}=366.92	Pt_{N1}=367.4 Pv=0.15 Pn=367.25
227	94 170	Q=21.9 V=0.6	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=23.92	Pt_{N1}=367.54 Pz=0 Pf=0.57 Pt_{N2}=366.97	Pt_{N1}=367.54 Pv=0.18 Pn=367.37
228	93 172	Q=23.9 V=0.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=27.95	Pt_{N1}=367.71 Pz=0 Pf=0.67 Pt_{N2}=367.04	Pt_{N1}=367.71 Pv=0.21 Pn=367.49
229	92 174	Q=26 V=0.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=32.59	Pt_{N1}=367.89 Pz=0 Pf=0.78 Pt_{N2}=367.11	Pt_{N1}=367.89 Pv=0.25 Pn=367.64
230	91 176	Q=28.3 V=0.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=37.96	Pt_{N1}=368.11 Pz=0 Pf=0.9 Pt_{N2}=367.2	Pt_{N1}=368.11 Pv=0.3 Pn=367.81
231	90 178	Q=30.8 V=0.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=44.19	Pt_{N1}=368.35 Pz=0 Pf=1.05 Pt_{N2}=367.3	Pt_{N1}=368.35 Pv=0.35 Pn=368

232	89 180	Q=33.4 V=0.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=51.41	Pt_{N1}=368.64 Pz=0 Pf=1.23 Pt_{N2}=367.42	Pt_{N1}=368.64 Pv=0.41 Pn=368.23
233	88 182	Q=36.2 V=1	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=59.79	Pt_{N1}=368.98 Pz=0 Pf=1.42 Pt_{N2}=367.55	Pt_{N1}=368.98 Pv=0.49 Pn=368.49
234	87 184	Q=39.2 V=1.1	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=69.51	Pt_{N1}=369.37 Pz=0 Pf=1.66 Pt_{N2}=367.71	Pt_{N1}=369.37 Pv=0.57 Pn=368.8
235	86 186	Q=42.4 V=1.2	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=80.75	Pt_{N1}=369.82 Pz=0 Pf=1.92 Pt_{N2}=367.89	Pt_{N1}=369.82 Pv=0.67 Pn=369.15
236	85 188	Q=45.8 V=1.2	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=93.75	Pt_{N1}=370.34 Pz=0 Pf=2.23 Pt_{N2}=368.1	Pt_{N1}=370.34 Pv=0.78 Pn=369.56
237	84 190	Q=49.7 V=1.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=108.79	Pt_{N1}=370.94 Pz=0 Pf=2.59 Pt_{N2}=368.35	Pt_{N1}=370.94 Pv=0.92 Pn=370.02
238	83 192	Q=53.9 V=1.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=126.19	Pt_{N1}=371.63 Pz=0 Pf=3.01 Pt_{N2}=368.63	Pt_{N1}=371.63 Pv=1.08 Pn=370.56
239	82 194	Q=58.6 V=1.6	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=146.34	Pt_{N1}=372.44 Pz=0 Pf=3.49 Pt_{N2}=368.95	Pt_{N1}=372.44 Pv=1.27 Pn=371.17
240	81 196	Q=63.7 V=1.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=169.71	Pt_{N1}=373.37 Pz=0 Pf=4.04 Pt_{N2}=369.33	Pt_{N1}=373.37 Pv=1.5 Pn=371.87
241	80 198	Q=69.1 V=1.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=196.83	Pt_{N1}=374.46 Pz=0 Pf=4.69 Pt_{N2}=369.77	Pt_{N1}=374.46 Pv=1.77 Pn=372.69

242	79 200	Q=73.3 V=2	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.93 LE=1.5 LT=2.43	C=120 DP=219.68	Pt_{N1}=375.71 Pz=0 Pf=5.23 Pt_{N2}=370.48	Pt_{N1}=375.71 Pv=1.99 Pn=373.72
243	23 24	Q=-719.3 V=1.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=22.44	Pt_{N1}=352.91 Pz=0 Pf=0.84 Pt_{N2}=352.28	Pt_{N1}=352.91 Pv=0.91 Pn=352
244	22 203	Q=76.8 V=2.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=239.63	Pt_{N1}=353.26 Pz=0 Pf=6.4 Pt_{N2}=366.07	Pt_{N1}=353.26 Pv=2.19 Pn=351.07
245	21 205	Q=79.6 V=2.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=256.69	Pt_{N1}=353.35 Pz=0 Pf=6.86 Pt_{N2}=367.06	Pt_{N1}=353.35 Pv=2.35 Pn=350.99
246	19 207	Q=83.1 V=2.3	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=278.62	Pt_{N1}=353.17 Pz=0 Pf=7.44 Pt_{N2}=368.06	Pt_{N1}=353.17 Pv=2.56 Pn=350.61
247	18 209	Q=87.2 V=2.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=305.65	Pt_{N1}=352.74 Pz=0 Pf=8.16 Pt_{N2}=369.07	Pt_{N1}=352.74 Pv=2.82 Pn=349.92
248	17 211	Q=91.8 V=2.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=338.02	Pt_{N1}=352.06 Pz=0 Pf=9.03 Pt_{N2}=370.11	Pt_{N1}=352.06 Pv=3.13 Pn=348.93
249	15 213	Q=97 V=2.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.22 LE=1.5 LT=2.72	C=120 DP=375.76	Pt_{N1}=351.15 Pz=0 Pf=10.04 Pt_{N2}=371.23	Pt_{N1}=351.15 Pv=3.5 Pn=347.65
250	9 70	Q=-1560 V=2.9	K_e=0 F=C DN=DN 100 Dint=0.11	L=1.09 LE=6.1 LT=7.19	C=120 DP=94.27	Pt_{N1}=397.88 Pz=0 Pf=6.64 Pt_{N2}=391.24	Pt_{N1}=397.88 Pv=4.29 Pn=393.59

LEGENDA	
N1	Nodo iniziale
N2	Nodo finale

C	Coefficiente di Hazen-Williams per le tubazioni
Pt_{N1}	Pressione totale nel Nodo 1
Pt_{N2}	Pressione totale nel Nodo 2
Pz	Pressione piezometrica
Pf	Perdita di pressione totale lungo il tronco
Pv	Pressione dinamica
Pn	Pressione nominale del tronco
A	Curva
B	T divergente asimmetrica
C	T divergente simmetrica
D	T convergente simmetrica
E	T convergente asimmetrica
F	Croce mista
G	Croce divergente
H	Croce convergente
V	Valvola

RTB04 - Sprinkler -1 - sfavoriti Z2							
N° Tratto	**N1** **N2**	**Portata [l/min]** **Velocità [m/s]**	**K_e** **Tipo Pz** **DN** **Diam int. [m]**	**L [m]** **L.Eq. [m]** **L.Tot [m]**	**C** **DPM [mm H20/m]**	**Pressioni [kPa]**	
1	0 1	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=4.09 LE=0 LT=4.09	C=120 DP=11.78	Pt_{N1}=475 Pz=0 Pf=0.47 Pt_{N2}=474.53	Pt_{N1}=475 Pv=0.75 Pn=474.25
2	1 2	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=2.98 LE=4.3 LT=7.28	C=120 DP=421.03	Pt_{N1}=474.53 Pz=29.2 Pf=30.06 Pt_{N2}=444.47	Pt_{N1}=474.53 Pv=0.75 Pn=473.77
3	2 3	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=139.73 LE=4.3 LT=144.03	C=120 DP=11.78	Pt_{N1}=444.47 Pz=0 Pf=16.64 Pt_{N2}=427.83	Pt_{N1}=444.47 Pv=0.75 Pn=443.72
4	3 4	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=3.3 LE=4.3 LT=7.6	C=120 DP=11.78	Pt_{N1}=427.83 Pz=0 Pf=0.88 Pt_{N2}=426.95	Pt_{N1}=427.83 Pv=0.75 Pn=427.07
5	4 5	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=6.5 LE=4.3 LT=10.8	C=120 DP=-589.93	Pt_{N1}=426.95 Pz=-63.7 Pf=-62.48 Pt_{N2}=489.43	Pt_{N1}=426.95 Pv=0.75 Pn=426.19
6	5 6	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=2.06 LE=4.3 LT=6.36	C=120 DP=11.78	Pt_{N1}=489.43 Pz=0 Pf=0.73 Pt_{N2}=488.69	Pt_{N1}=489.43 Pv=0.75 Pn=488.67
7	6 7	Q=1470 V=1.2	K_e=0 F=A DN=DN 150 Dint=0.16	L=0.82 LE=0 LT=0.82	C=120 DP=11.78	Pt_{N1}=488.69 Pz=0 Pf=0.09 Pt_{N2}=488.6	Pt_{N1}=488.69 Pv=0.75 Pn=487.94
8	7 8	Q=1470 V=2.8	K_e=8433.3 F=V DN=DN 100 Dint=0.11	L=0.29 LE=3 LT=3.29	C=120 DP=172.38	Pt_{N1}=488.6 Pz=2.83 Pf=5.56 Pt_{N2}=480	Pt_{N1}=488.6 Pv=3.81 Pn=484.79
	8 9	Q=-1470 V=2.8	K_e=0 F=A	L=6.1 LE=0	C=120 DP=1102.29	Pt_{N1}=480 Pz=60.86	Pt_{N1}=480 Pv=3.81

9			DN=DN 100 Dint=0.11	LT=6.1		Pf=65.95 Pt_{N2}=414.05	Pn=476.19
10	9 10	Q=1470 V=2.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=8.55 LE=3 LT=11.55	C=120 DP=84.5	Pt_{N1}=414.05 Pz=0 Pf=9.57 Pt_{N2}=404.48	Pt_{N1}=414.05 Pv=3.81 Pn=410.24
11	10 11	Q=1470 V=2.8	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.55 LE=3 LT=4.55	C=120 DP=84.5	Pt_{N1}=404.48 Pz=0 Pf=3.77 Pt_{N2}=400.71	Pt_{N1}=404.48 Pv=3.81 Pn=400.67
12	11 12	Q=708.4 V=1.3	K_e=0 F=C DN=DN 100 Dint=0.11	L=1.09 LE=6.1 LT=7.19	C=120 DP=21.81	Pt_{N1}=400.71 Pz=0 Pf=1.54 Pt_{N2}=399.17	Pt_{N1}=400.71 Pv=0.88 Pn=399.83
13	12 13	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.87 LE=0 LT=0.87	C=120 DP=21.81	Pt_{N1}=399.17 Pz=0 Pf=0.19 Pt_{N2}=398.99	Pt_{N1}=399.17 Pv=0.88 Pn=398.29
14	13 14	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.72 LE=0.87 LT=2.59	C=120 DP=21.81	Pt_{N1}=398.99 Pz=0 Pf=0.55 Pt_{N2}=398.43	Pt_{N1}=398.99 Pv=0.88 Pn=398.1
15	14 15	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3 LE=0 LT=3	C=120 DP=21.81	Pt_{N1}=398.43 Pz=0 Pf=0.64 Pt_{N2}=397.79	Pt_{N1}=398.43 Pv=0.88 Pn=397.55
16	15 16	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.99 LE=0 LT=2.99	C=120 DP=21.81	Pt_{N1}=397.79 Pz=0 Pf=0.64 Pt_{N2}=397.15	Pt_{N1}=397.79 Pv=0.88 Pn=396.91
17	16 17	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.5 LE=0 LT=1.5	C=120 DP=21.81	Pt_{N1}=397.15 Pz=0 Pf=0.32 Pt_{N2}=396.83	Pt_{N1}=397.15 Pv=0.88 Pn=396.27
18	17 18	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.5 LE=0 LT=1.5	C=120 DP=21.81	Pt_{N1}=396.83 Pz=0 Pf=0.32 Pt_{N2}=396.51	Pt_{N1}=396.83 Pv=0.88 Pn=395.95
	18	Q=708.4	K_e=0	L=1.5	C=120	Pt_{N1}=396.51	Pt_{N1}=396.51

19	19	V=1.3	F=A DN=DN 100 Dint=0.11	LE=0 LT=1.5	DP=21.81	Pz=0 Pf=0.32 Pt_{N2}=396.19	Pv=0.88 Pn=395.62
20	19 20	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1 LE=0 LT=1	C=120 DP=21.81	Pt_{N1}=396.19 Pz=0 Pf=0.21 Pt_{N2}=395.97	Pt_{N1}=396.19 Pv=0.88 Pn=395.3
21	20 21	Q=708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.55 LE=0 LT=0.55	C=120 DP=21.81	Pt_{N1}=395.97 Pz=0 Pf=0.12 Pt_{N2}=395.86	Pt_{N1}=395.97 Pv=0.88 Pn=395.09
22	21 22	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=5.24 LE=3 LT=8.24	C=120 DP=21.81	Pt_{N1}=395.86 Pz=0 Pf=1.76 Pt_{N2}=394.09	Pt_{N1}=395.86 Pv=0.88 Pn=394.97
23	22 23	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.36 LE=0 LT=3.36	C=120 DP=21.81	Pt_{N1}=394.09 Pz=0 Pf=0.72 Pt_{N2}=393.37	Pt_{N1}=394.09 Pv=0.88 Pn=393.21
24	23 24	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.36 LE=0 LT=3.36	C=120 DP=21.81	Pt_{N1}=393.37 Pz=0 Pf=0.72 Pt_{N2}=392.66	Pt_{N1}=393.37 Pv=0.88 Pn=392.49
25	24 25	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.36 LE=0 LT=3.36	C=120 DP=21.81	Pt_{N1}=392.66 Pz=0 Pf=0.72 Pt_{N2}=391.94	Pt_{N1}=392.66 Pv=0.88 Pn=391.77
26	25 26	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.87 LE=0 LT=3.87	C=120 DP=21.81	Pt_{N1}=391.94 Pz=0 Pf=0.83 Pt_{N2}=391.11	Pt_{N1}=391.94 Pv=0.88 Pn=391.05
27	26 27	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.87 LE=0 LT=3.87	C=120 DP=21.81	Pt_{N1}=391.11 Pz=0 Pf=0.83 Pt_{N2}=390.28	Pt_{N1}=391.11 Pv=0.88 Pn=390.23
28	27 28	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.87 LE=0 LT=3.87	C=120 DP=21.81	Pt_{N1}=390.28 Pz=0 Pf=0.83 Pt_{N2}=389.46	Pt_{N1}=390.28 Pv=0.88 Pn=389.4

29	28 29	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.83 LE=0 LT=0.83	C=120 DP=21.81	Pt_{N1}=389.46 Pz=0 Pf=0.18 Pt_{N2}=389.28	Pt_{N1}=389.46 Pv=0.88 Pn=388.57
30	29 30	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.98 LE=0 LT=0.98	C=120 DP=21.81	Pt_{N1}=389.28 Pz=0 Pf=0.21 Pt_{N2}=389.07	Pt_{N1}=389.28 Pv=0.88 Pn=388.39
31	30 31	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.01 LE=3 LT=6	C=120 DP=21.81	Pt_{N1}=389.07 Pz=0 Pf=1.28 Pt_{N2}=387.79	Pt_{N1}=389.07 Pv=0.88 Pn=388.18
32	31 32	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.32 LE=3 LT=6.32	C=120 DP=21.81	Pt_{N1}=387.79 Pz=0 Pf=1.35 Pt_{N2}=386.43	Pt_{N1}=387.79 Pv=0.88 Pn=386.9
33	32 33	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.31 LE=3 LT=4.31	C=120 DP=21.81	Pt_{N1}=386.43 Pz=0 Pf=0.92 Pt_{N2}=385.51	Pt_{N1}=386.43 Pv=0.88 Pn=385.55
34	33 34	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3 LE=0 LT=3	C=120 DP=21.81	Pt_{N1}=385.51 Pz=0 Pf=0.64 Pt_{N2}=384.87	Pt_{N1}=385.51 Pv=0.88 Pn=384.63
35	34 35	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3 LE=0 LT=3	C=120 DP=21.81	Pt_{N1}=384.87 Pz=0 Pf=0.64 Pt_{N2}=384.23	Pt_{N1}=384.87 Pv=0.88 Pn=383.99
36	35 36	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3 LE=0 LT=3	C=120 DP=21.81	Pt_{N1}=384.23 Pz=0 Pf=0.64 Pt_{N2}=383.59	Pt_{N1}=384.23 Pv=0.88 Pn=383.35
37	36 37	Q=-708.4 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=3 LE=0 LT=3	C=120 DP=21.81	Pt_{N1}=383.59 Pz=0 Pf=0.64 Pt_{N2}=382.95	Pt_{N1}=383.59 Pv=0.88 Pn=382.7
38	37 38	Q=-708.4 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=2.6 LE=0 LT=2.6	C=120 DP=21.81	Pt_{N1}=382.95 Pz=0 Pf=0.56 Pt_{N2}=382.39	Pt_{N1}=382.95 Pv=0.88 Pn=382.06

39	38 39	Q=-180.1 V=0.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.8 LE=0 LT=1.8	C=120 DP=1.73	Pt_{N1}=382.39 Pz=0 Pf=0.03 Pt_{N2}=380.24	Pt_{N1}=382.39 Pv=0.06 Pn=382.33
40	39 287	Q=50.8 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.4 LE=1.5 LT=1.9	C=120 DP=113.44	Pt_{N1}=380.24 Pz=0 Pf=2.12 Pt_{N2}=384.48	Pt_{N1}=380.24 Pv=0.96 Pn=379.29
41	287 286	Q=50.8 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=113.44	Pt_{N1}=384.48 Pz=0 Pf=3.34 Pt_{N2}=387.81	Pt_{N1}=384.48 Pv=0.96 Pn=383.52
42	286 285	Q=50.8 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=113.44	Pt_{N1}=387.81 Pz=0 Pf=3.34 Pt_{N2}=391.15	Pt_{N1}=387.81 Pv=0.96 Pn=386.86
43	285 284	Q=50.8 V=1.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.41 LE=0.77 LT=1.18	C=120 DP=113.44	Pt_{N1}=391.15 Pz=0 Pf=1.32 Pt_{N2}=392.47	Pt_{N1}=391.15 Pv=0.96 Pn=390.19
44	284 247	Q=50.8 V=0.1	K_e=0 F=C DN=DN 100 Dint=0.11	L=0.9 LE=6.1 LT=7	C=120 DP=0.17	Pt_{N1}=392.47 Pz=0 Pf=0.01 Pt_{N2}=392.48	Pt_{N1}=392.47 Pv=0 Pn=392.46
45	247 248	Q=-710.8 V=1.3	K_e=0 F=C DN=DN 100 Dint=0.11	L=3.19 LE=6.1 LT=9.29	C=120 DP=21.95	Pt_{N1}=392.48 Pz=0 Pf=2 Pt_{N2}=390.48	Pt_{N1}=392.48 Pv=0.89 Pn=391.59
46	248 249	Q=-41.2 V=1.1	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.41 LE=1.5 LT=1.91	C=120 DP=76.7	Pt_{N1}=390.48 Pz=0 Pf=1.44 Pt_{N2}=389.04	Pt_{N1}=390.48 Pv=0.63 Pn=389.85
47	249 250	Q=-41.2 V=1.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=76.7	Pt_{N1}=389.04 Pz=0 Pf=2.27 Pt_{N2}=386.77	Pt_{N1}=389.04 Pv=0.63 Pn=388.41
48	250 251	Q=-41.2 V=1.1	K_e=0 F=A DN=DN 25	L=2.99 LE=0 LT=2.99	C=120 DP=76.7	Pt_{N1}=386.77 Pz=0 Pf=2.25	Pt_{N1}=386.77 Pv=0.63 Pn=386.14

			Dint=0.03			Pt_{N2}=384.52	
49	251 252	Q=-41.2 V=1.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.39 LE=1.5 LT=1.89	C=120 DP=76.7	Pt_{N1}=384.52 Pz=0 Pf=1.42 Pt_{N2}=382.44	Pt_{N1}=384.52 Pv=0.63 Pn=383.89
50	252 268	Q=669.5 V=1.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=19.65	Pt_{N1}=382.44 Pz=0 Pf=0.66 Pt_{N2}=382.59	Pt_{N1}=382.44 Pv=0.79 Pn=381.65
51	268 267	Q=632.3 V=1.2	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=17.67	Pt_{N1}=382.59 Pz=0 Pf=0.59 Pt_{N2}=383.41	Pt_{N1}=382.59 Pv=0.7 Pn=381.88
52	267 266	Q=599 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=16	Pt_{N1}=383.41 Pz=0 Pf=0.5 Pt_{N2}=384.1	Pt_{N1}=383.41 Pv=0.63 Pn=382.77
53	266 265	Q=569.8 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=14.6	Pt_{N1}=384.1 Pz=0 Pf=0.49 Pt_{N2}=384.78	Pt_{N1}=384.1 Pv=0.57 Pn=383.53
54	265 264	Q=544.9 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=13.45	Pt_{N1}=384.78 Pz=0 Pf=0.45 Pt_{N2}=385.4	Pt_{N1}=384.78 Pv=0.52 Pn=384.25
55	264 263	Q=524.4 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.25 LE=3 LT=4.25	C=120 DP=12.54	Pt_{N1}=385.4 Pz=0 Pf=0.52 Pt_{N2}=386.31	Pt_{N1}=385.4 Pv=0.48 Pn=384.91
56	263 262	Q=524.4 V=1	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.08 LE=1.49 LT=7.57	C=120 DP=12.54	Pt_{N1}=386.31 Pz=0 Pf=0.93 Pt_{N2}=387.24	Pt_{N1}=386.31 Pv=0.48 Pn=385.82
57	262 261	Q=524.4 V=1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.17 LE=0 LT=0.17	C=120 DP=12.54	Pt_{N1}=387.24 Pz=0 Pf=0.02 Pt_{N2}=387.26	Pt_{N1}=387.24 Pv=0.48 Pn=386.75
58	261 260	Q=524.4 V=1	K_e=0 F=A DN=DN 100	L=0.82 LE=3 LT=3.82	C=120 DP=12.54	Pt_{N1}=387.26 Pz=0 Pf=0.47	Pt_{N1}=387.26 Pv=0.48 Pn=386.77

			Dint=0.11			Pt_{N2}=387.73	
59	260 259	Q=-524.4 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=0.59 LE=0 LT=0.59	C=120 DP=12.54	Pt_{N1}=387.73 Pz=0 Pf=0.07 Pt_{N2}=387.8	Pt_{N1}=387.73 Pv=0.48 Pn=387.24
60	259 258	Q=-544.9 V=1	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.7 LE=0 LT=1.7	C=120 DP=13.45	Pt_{N1}=387.8 Pz=0 Pf=0.22 Pt_{N2}=388.02	Pt_{N1}=387.8 Pv=0.52 Pn=387.28
61	258 257	Q=-544.9 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=1.7 LE=0 LT=1.7	C=120 DP=13.45	Pt_{N1}=388.02 Pz=0 Pf=0.22 Pt_{N2}=388.25	Pt_{N1}=388.02 Pv=0.52 Pn=387.5
62	257 256	Q=-569.8 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=14.6	Pt_{N1}=388.25 Pz=0 Pf=0.49 Pt_{N2}=388.73	Pt_{N1}=388.25 Pv=0.57 Pn=387.68
63	256 255	Q=-599 V=1.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=16	Pt_{N1}=388.73 Pz=0 Pf=0.5 Pt_{N2}=389.24	Pt_{N1}=388.73 Pv=0.63 Pn=388.1
64	255 254	Q=-632.3 V=1.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=17.67	Pt_{N1}=389.24 Pz=0 Pf=0.59 Pt_{N2}=389.83	Pt_{N1}=389.24 Pv=0.7 Pn=388.53
65	254 253	Q=-669.5 V=1.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.69 LE=0 LT=1.69	C=120 DP=19.65	Pt_{N1}=389.83 Pz=0 Pf=0.33 Pt_{N2}=390.15	Pt_{N1}=389.83 Pv=0.79 Pn=389.04
66	254 281	Q=-37.3 V=1	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.42 LE=1.5 LT=1.92	C=120 DP=63.07	Pt_{N1}=389.83 Pz=0 Pf=1.18 Pt_{N2}=388.64	Pt_{N1}=389.83 Pv=0.52 Pn=389.31
67	281 282	Q=-37.3 V=1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=63.07	Pt_{N1}=388.64 Pz=0 Pf=1.87 Pt_{N2}=386.77	Pt_{N1}=388.64 Pv=0.52 Pn=388.13
68	282 283	Q=-37.3 V=1	K_e=0 F=A DN=DN 25	L=2.99 LE=0 LT=2.99	C=120 DP=63.07	Pt_{N1}=386.77 Pz=0 Pf=1.85	Pt_{N1}=386.77 Pv=0.52 Pn=386.26

			Dint=0.03			Pt_{N2}=384.92	
69	255 278	Q=-33.2 V=0.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.42 LE=1.5 LT=1.92	C=120 DP=50.83	Pt_{N1}=389.24 Pz=0 Pf=0.96 Pt_{N2}=388.28	Pt_{N1}=389.24 Pv=0.41 Pn=388.83
70	278 279	Q=-33.2 V=0.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=50.83	Pt_{N1}=388.28 Pz=0 Pf=1.51 Pt_{N2}=386.78	Pt_{N1}=388.28 Pv=0.41 Pn=387.87
71	279 280	Q=-33.2 V=0.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.99 LE=0 LT=2.99	C=120 DP=50.83	Pt_{N1}=386.78 Pz=0 Pf=1.49 Pt_{N2}=385.28	Pt_{N1}=386.78 Pv=0.41 Pn=386.37
72	256 275	Q=-29.3 V=0.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.42 LE=1.5 LT=1.92	C=120 DP=40.39	Pt_{N1}=388.73 Pz=0 Pf=0.76 Pt_{N2}=387.97	Pt_{N1}=388.73 Pv=0.32 Pn=388.42
73	275 276	Q=-29.3 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=40.39	Pt_{N1}=387.97 Pz=0 Pf=1.2 Pt_{N2}=386.78	Pt_{N1}=387.97 Pv=0.32 Pn=387.66
74	276 277	Q=-29.3 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.99 LE=0 LT=2.99	C=120 DP=40.39	Pt_{N1}=386.78 Pz=0 Pf=1.19 Pt_{N2}=385.59	Pt_{N1}=386.78 Pv=0.32 Pn=386.46
75	257 272	Q=-24.9 V=0.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.42 LE=1.5 LT=1.92	C=120 DP=30.27	Pt_{N1}=388.25 Pz=0 Pf=0.57 Pt_{N2}=387.68	Pt_{N1}=388.25 Pv=0.23 Pn=388.02
76	272 273	Q=-24.9 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=30.27	Pt_{N1}=387.68 Pz=0 Pf=0.9 Pt_{N2}=386.78	Pt_{N1}=387.68 Pv=0.23 Pn=387.45
77	273 274	Q=-24.9 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.99 LE=0 LT=2.99	C=120 DP=30.27	Pt_{N1}=386.78 Pz=0 Pf=0.89 Pt_{N2}=385.89	Pt_{N1}=386.78 Pv=0.23 Pn=386.55
	259 269	Q=-20.4 V=0.6	K_e=0 F=B	L=0.43 LE=1.5	C=120 DP=20.95	Pt_{N1}=387.8 Pz=0	Pt_{N1}=387.8 Pv=0.16

78			DN=DN 25 Dint=0.03	LT=1.93		Pf=0.4 Pt_{N2}=387.4	Pn=387.64
79	269 270	Q=-20.4 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.02 LE=0 LT=3.02	C=120 DP=20.95	Pt_{N1}=387.4 Pz=0 Pf=0.62 Pt_{N2}=386.78	Pt_{N1}=387.4 Pv=0.16 Pn=387.25
80	270 271	Q=-20.4 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.99 LE=0 LT=2.99	C=120 DP=20.95	Pt_{N1}=386.78 Pz=0 Pf=0.62 Pt_{N2}=386.17	Pt_{N1}=386.78 Pv=0.16 Pn=386.63
81	264 271	Q=-20.4 V=0.6	K_e=0 F=E DN=DN 25 Dint=0.03	L=0.38 LE=1.5 LT=1.88	C=120 DP=20.95	Pt_{N1}=385.4 Pz=0 Pf=0.39 Pt_{N2}=386.17	Pt_{N1}=385.4 Pv=0.16 Pn=385.24
82	265 274	Q=-24.9 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.38 LE=1.5 LT=1.88	C=120 DP=30.27	Pt_{N1}=384.78 Pz=0 Pf=0.56 Pt_{N2}=385.89	Pt_{N1}=384.78 Pv=0.23 Pn=384.55
83	266 277	Q=-29.3 V=0.8	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.38 LE=1.5 LT=1.88	C=120 DP=40.39	Pt_{N1}=384.1 Pz=0 Pf=0.75 Pt_{N2}=385.59	Pt_{N1}=384.1 Pv=0.32 Pn=383.78
84	267 280	Q=-33.2 V=0.9	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.38 LE=1.5 LT=1.88	C=120 DP=50.83	Pt_{N1}=383.41 Pz=0 Pf=0.94 Pt_{N2}=385.28	Pt_{N1}=383.41 Pv=0.41 Pn=383
85	268 283	Q=-37.3 V=1	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.39 LE=1.5 LT=1.89	C=120 DP=63.07	Pt_{N1}=382.59 Pz=0 Pf=1.17 Pt_{N2}=384.92	Pt_{N1}=382.59 Pv=0.52 Pn=382.07
86	252 40	Q=710.8 V=1.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=2.35 LE=1.5 LT=3.85	C=120 DP=21.95	Pt_{N1}=382.44 Pz=0 Pf=0.83 Pt_{N2}=381.44	Pt_{N1}=382.44 Pv=0.89 Pn=381.55
87	40 41	Q=-941.7 V=25.7	K_e=0 F=D DN=DN 25 Dint=0.03	L=1.2 LE=0 LT=1.2	C=120 DP=24869.02	Pt_{N1}=381.44 Pz=0 Pf=293.18 Pt_{N2}=89.09	Pt_{N1}=381.44 Pv=329.26 Pn=52.18
	41	Q=-914.6	K_e=0	L=2.9	C=120	Pt_{N1}=89.09	Pt_{N1}=89.09

88	42	V=1.7	F=C DN=DN 100 Dint=0.11	LE=1.5 LT=4.4	DP=34.97	Pz=0 Pf=1.51 Pt_{N2}=87.58	Pv=1.47 Pn=87.61
89	42 43	Q=-890.4 V=1.7	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=33.3	Pt_{N1}=87.58 Pz=0 Pf=1.04 Pt_{N2}=86.53	Pt_{N1}=87.58 Pv=1.4 Pn=86.18
90	43 44	Q=-868.7 V=1.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=31.83	Pt_{N1}=86.53 Pz=0 Pf=1 Pt_{N2}=85.54	Pt_{N1}=86.53 Pv=1.33 Pn=85.21
91	44 45	Q=-849.3 V=1.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=2.14 LE=0 LT=2.14	C=120 DP=30.53	Pt_{N1}=85.54 Pz=0 Pf=0.64 Pt_{N2}=84.9	Pt_{N1}=85.54 Pv=1.27 Pn=84.27
92	45 46	Q=-103.5 V=2.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=424.26	Pt_{N1}=84.9 Pz=0 Pf=9.89 Pt_{N2}=75	Pt_{N1}=84.9 Pv=3.98 Pn=80.92
93	46 47	Q=-36.4 V=1	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=60.34	Pt_{N1}=75 Pz=0 Pf=2.78 Pt_{N2}=70.19	Pt_{N1}=75 Pv=0.49 Pn=74.51
Tratto tubazione + terminale							
94	47 48	Q=67.1 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1186.44	Pt_{N1}=70.19 Pz=1.67 Pf=1.98 Pt_{N2}=68.21	Pt_{N1}=70.19 Pv=1.67 Pn=68.52
95	47 202	Q=30.7 V=0.8	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=43.97	Pt_{N1}=70.19 Pz=0 Pf=2.03 Pt_{N2}=74.25	Pt_{N1}=70.19 Pv=0.35 Pn=69.84
96	202 186	Q=97.5 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=378.88	Pt_{N1}=74.25 Pz=0 Pf=8.85 Pt_{N2}=83.1	Pt_{N1}=74.25 Pv=3.53 Pn=70.72
97	186 187	Q=523.3 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=12.49	Pt_{N1}=83.1 Pz=0 Pf=0.39 Pt_{N2}=82.71	Pt_{N1}=83.1 Pv=0.48 Pn=82.62

98	187 188	Q=425.6 V=0.8	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=8.52	Pt_{N1}=82.71 Pz=0 Pf=0.27 Pt_{N2}=82.44	Pt_{N1}=82.71 Pv=0.32 Pn=82.39
99	188 189	Q=327.6 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=5.22	Pt_{N1}=82.44 Pz=0 Pf=0.16 Pt_{N2}=82.28	Pt_{N1}=82.44 Pv=0.19 Pn=82.25
100	189 190	Q=229.4 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=2.73	Pt_{N1}=82.28 Pz=0 Pf=0.09 Pt_{N2}=82.19	Pt_{N1}=82.28 Pv=0.09 Pn=82.18
101	190 191	Q=131 V=0.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.96	Pt_{N1}=82.19 Pz=0 Pf=0.03 Pt_{N2}=82.16	Pt_{N1}=82.19 Pv=0.03 Pn=82.16
102	191 91	Q=32.4 V=0.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.07	Pt_{N1}=82.16 Pz=0 Pf=0 Pt_{N2}=82.16	Pt_{N1}=82.16 Pv=0 Pn=82.16
103	91 90	Q=-72.5 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.32	Pt_{N1}=82.16 Pz=0 Pf=0.01 Pt_{N2}=82.17	Pt_{N1}=82.16 Pv=0.01 Pn=82.15
104	90 89	Q=-117.4 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.79	Pt_{N1}=82.17 Pz=0 Pf=0.02 Pt_{N2}=82.17	Pt_{N1}=82.17 Pv=0.02 Pn=82.14
105	89 98	Q=-108.6 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.69	Pt_{N1}=82.17 Pz=0 Pf=0.02 Pt_{N2}=82.2	Pt_{N1}=82.17 Pv=0.02 Pn=82.15
106	98 107	Q=-100.5 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.59	Pt_{N1}=82.2 Pz=0 Pf=0.02 Pt_{N2}=82.21	Pt_{N1}=82.2 Pv=0.02 Pn=82.18
107	107 106	Q=-92.9 V=0.2	K_e=0 F=A DN=DN 100	L=3.2 LE=0 LT=3.2	C=120 DP=0.51	Pt_{N1}=82.21 Pz=0 Pf=0.02	Pt_{N1}=82.21 Pv=0.02 Pn=82.19

			Dint=0.11			Pt_{N2}=82.22	
108	106 178	Q=-7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=2.94	Pt_{N1}=82.22 Pz=0 Pf=0.03 Pt_{N2}=82.28	Pt_{N1}=82.22 Pv=0.02 Pn=82.21
109	178 177	Q=-7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=2.94	Pt_{N1}=82.28 Pz=0 Pf=0.09 Pt_{N2}=82.37	Pt_{N1}=82.28 Pv=0.02 Pn=82.26
110	177 176	Q=-7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=2.94	Pt_{N1}=82.37 Pz=0 Pf=0.09 Pt_{N2}=82.46	Pt_{N1}=82.37 Pv=0.02 Pn=82.35
111	176 100	Q=-7.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=2.94	Pt_{N1}=82.46 Pz=0 Pf=0.03 Pt_{N2}=82.49	Pt_{N1}=82.46 Pv=0.02 Pn=82.44
112	100 101	Q=-85.8 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.44	Pt_{N1}=82.49 Pz=0 Pf=0.01 Pt_{N2}=82.47	Pt_{N1}=82.49 Pv=0.01 Pn=82.47
113	101 102	Q=-6.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=2.6	Pt_{N1}=82.47 Pz=0 Pf=0.02 Pt_{N2}=82.45	Pt_{N1}=82.47 Pv=0.02 Pn=82.46
114	102 103	Q=-6.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=2.6	Pt_{N1}=82.45 Pz=0 Pf=0.08 Pt_{N2}=82.37	Pt_{N1}=82.45 Pv=0.02 Pn=82.43
115	103 104	Q=-6.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=2.6	Pt_{N1}=82.37 Pz=0 Pf=0.08 Pt_{N2}=82.29	Pt_{N1}=82.37 Pv=0.02 Pn=82.35
116	104 105	Q=-6.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=2.6	Pt_{N1}=82.29 Pz=0 Pf=0.02 Pt_{N2}=82.26	Pt_{N1}=82.29 Pv=0.02 Pn=82.27
	105 119	Q=-79.2 V=0.1	K_e=0 F=A	L=2.24 LE=0	C=120 DP=0.38	Pt_{N1}=82.26 Pz=0	Pt_{N1}=82.26 Pv=0.01

117			DN=DN 100 Dint=0.11	LT=2.24		Pf=0.01 Pt_{N2}=82.26	Pn=82.24
118	119 128	Q=-70.4 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=0.3	Pt_{N1}=82.26 Pz=0 Pf=0.01 Pt_{N2}=82.27	Pt_{N1}=82.26 Pv=0.01 Pn=82.25
119	128 136	Q=-62.1 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=0.24	Pt_{N1}=82.27 Pz=0 Pf=0.01 Pt_{N2}=82.28	Pt_{N1}=82.27 Pv=0.01 Pn=82.27
120	136 144	Q=-54.4 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.4 LE=0 LT=3.4	C=120 DP=0.19	Pt_{N1}=82.28 Pz=0 Pf=0.01 Pt_{N2}=82.29	Pt_{N1}=82.28 Pv=0.01 Pn=82.28
121	144 143	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=0.41	Pt_{N1}=82.29 Pz=0 Pf=0 Pt_{N2}=82.3	Pt_{N1}=82.29 Pv=0 Pn=82.29
122	143 142	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.41	Pt_{N1}=82.3 Pz=0 Pf=0.01 Pt_{N2}=82.31	Pt_{N1}=82.3 Pv=0 Pn=82.3
123	142 141	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.41	Pt_{N1}=82.31 Pz=0 Pf=0.01 Pt_{N2}=82.33	Pt_{N1}=82.31 Pv=0 Pn=82.31
124	141 140	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.41	Pt_{N1}=82.33 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.33 Pv=0 Pn=82.32
125	140 139	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.41	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.35	Pt_{N1}=82.34 Pv=0 Pn=82.33
126	139 138	Q=-7.4 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=2.2 LE=0 LT=2.2	C=120 DP=0.41	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.36	Pt_{N1}=82.35 Pv=0 Pn=82.35
	138	Q=-7.4	K_e=0	L=0.79	C=120	Pt_{N1}=82.36	Pt_{N1}=82.36

127	137	V=0.1	F=A DN=DN 40 Dint=0.04	LE=0 LT=0.79	DP=0.41	Pz=0 Pf=0 Pt_{N2}=82.36	Pv=0 Pn=82.36
128	137 145	Q=-47 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.51 LE=0 LT=2.51	C=120 DP=0.15	Pt_{N1}=82.36 Pz=0 Pf=0 Pt_{N2}=82.36	Pt_{N1}=82.36 Pv=0 Pn=82.36
129	145 146	Q=-2.4 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.96 LE=0 LT=0.96	C=120 DP=0.41	Pt_{N1}=82.36 Pz=0 Pf=0 Pt_{N2}=82.36	Pt_{N1}=82.36 Pv=0 Pn=82.36
130	146 147	Q=-2.4 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.98 LE=0 LT=2.98	C=120 DP=0.41	Pt_{N1}=82.36 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.36 Pv=0 Pn=82.35
131	147 148	Q=-2.4 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.01 LE=0 LT=3.01	C=120 DP=0.41	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.33	Pt_{N1}=82.34 Pv=0 Pn=82.34
132	148 149	Q=-2.4 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=0.41	Pt_{N1}=82.33 Pz=0 Pf=0.01 Pt_{N2}=82.32	Pt_{N1}=82.33 Pv=0 Pn=82.33
133	149 150	Q=-2.4 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.3 LE=0 LT=1.3	C=120 DP=0.41	Pt_{N1}=82.32 Pz=0 Pf=0.01 Pt_{N2}=82.31	Pt_{N1}=82.32 Pv=0 Pn=82.32
134	150 158	Q=-44.6 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.6 LE=0 LT=3.6	C=120 DP=0.13	Pt_{N1}=82.31 Pz=0 Pf=0 Pt_{N2}=82.32	Pt_{N1}=82.31 Pv=0 Pn=82.31
135	158 163	Q=-42.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.6 LE=0 LT=3.6	C=120 DP=0.12	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.32	Pt_{N1}=82.32 Pv=0 Pn=82.31
136	163 168	Q=-40 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.6 LE=0 LT=3.6	C=120 DP=0.11	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.32	Pt_{N1}=82.32 Pv=0 Pn=82.32

137	168 173	Q=-38 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=0.1	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.33	Pt_{N1}=82.32 Pv=0 Pn=82.32
138	173 172	Q=-1.8 V=0	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.3 LE=0 LT=1.3	C=120 DP=0.23	Pt_{N1}=82.33 Pz=0 Pf=0 Pt_{N2}=82.33	Pt_{N1}=82.33 Pv=0 Pn=82.33
139	172 171	Q=-1.8 V=0	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.5 LE=0 LT=1.5	C=120 DP=0.23	Pt_{N1}=82.33 Pz=0 Pf=0 Pt_{N2}=82.34	Pt_{N1}=82.33 Pv=0 Pn=82.33
140	171 170	Q=-1.8 V=0	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.5 LE=0 LT=1.5	C=120 DP=0.23	Pt_{N1}=82.34 Pz=0 Pf=0 Pt_{N2}=82.34	Pt_{N1}=82.34 Pv=0 Pn=82.34
141	170 169	Q=-1.8 V=0	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.51 LE=0 LT=0.51	C=120 DP=0.23	Pt_{N1}=82.34 Pz=0 Pf=0 Pt_{N2}=82.34	Pt_{N1}=82.34 Pv=0 Pn=82.34
142	169 174	Q=-36.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.38 LE=0 LT=2.38	C=120 DP=0.09	Pt_{N1}=82.34 Pz=0 Pf=0 Pt_{N2}=82.34	Pt_{N1}=82.34 Pv=0 Pn=82.34
143	174 175	Q=-36.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.21 LE=3 LT=7.21	C=120 DP=0.09	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.33	Pt_{N1}=82.34 Pv=0 Pn=82.34
144	169 164	Q=-38 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.15 LE=0 LT=4.15	C=120 DP=0.1	Pt_{N1}=82.34 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.34 Pv=0 Pn=82.34
145	164 165	Q=-2 V=0	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.21 LE=0 LT=0.21	C=120 DP=0.08	Pt_{N1}=82.35 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.35
146	165 166	Q=-2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.98 LE=0 LT=1.98	C=120 DP=0.29	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.35 Pv=0 Pn=82.34

147	166 167	Q=-2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=0.29	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.33	Pt_{N1}=82.34 Pv=0 Pn=82.34
148	164 159	Q=-40 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.94 LE=0 LT=3.94	C=120 DP=0.11	Pt_{N1}=82.35 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.34
149	159 160	Q=-2.2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.77 LE=0 LT=0.77	C=120 DP=0.33	Pt_{N1}=82.35 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.35
150	160 161	Q=-2.2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.01 LE=0 LT=3.01	C=120 DP=0.33	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.35 Pv=0 Pn=82.35
151	161 162	Q=-2.2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3 LE=0 LT=3	C=120 DP=0.33	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.33	Pt_{N1}=82.34 Pv=0 Pn=82.34
152	159 153	Q=-42.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.94 LE=0 LT=3.94	C=120 DP=0.12	Pt_{N1}=82.35 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.35
153	153 154	Q=-2.3 V=0	K_e=0 F=A DN=DN 32 Dint=0.04	L=0.35 LE=0 LT=0.35	C=120 DP=0.1	Pt_{N1}=82.35 Pz=0 Pf=0 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.35
154	154 155	Q=-2.3 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=2.01 LE=0 LT=2.01	C=120 DP=0.38	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.35	Pt_{N1}=82.35 Pv=0 Pn=82.35
155	155 156	Q=-2.3 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.01 LE=0 LT=3.01	C=120 DP=0.38	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.35 Pv=0 Pn=82.34
156	156 157	Q=-2.3 V=0.1	K_e=0 F=A DN=DN 25	L=3 LE=0 LT=3	C=120 DP=0.38	Pt_{N1}=82.34 Pz=0 Pf=0.01	Pt_{N1}=82.34 Pv=0 Pn=82.33

			Dint=0.03			Pt_{N2}=82.32	
157	173 175	Q=-36.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.47 LE=2.28 LT=2.76	C=120 DP=0.09	Pt_{N1}=82.33 Pz=0 Pf=0 Pt_{N2}=82.33	Pt_{N1}=82.33 Pv=0 Pn=82.33
158	168 167	Q=-2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.3 LE=0 LT=1.3	C=120 DP=0.29	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.33	Pt_{N1}=82.32 Pv=0 Pn=82.32
159	163 162	Q=-2.2 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.3 LE=0 LT=1.3	C=120 DP=0.33	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.33	Pt_{N1}=82.32 Pv=0 Pn=82.32
160	158 157	Q=-2.3 V=0.1	K_e=0 F=A DN=DN 25 Dint=0.03	L=1.3 LE=0 LT=1.3	C=120 DP=0.38	Pt_{N1}=82.32 Pz=0 Pf=0 Pt_{N2}=82.32	Pt_{N1}=82.32 Pv=0 Pn=82.31
161	150 151	Q=-47 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.3 LE=0 LT=1.3	C=120 DP=0.15	Pt_{N1}=82.31 Pz=0 Pf=0 Pt_{N2}=82.31	Pt_{N1}=82.31 Pv=0 Pn=82.31
162	151 152	Q=-47 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.4 LE=3 LT=7.4	C=120 DP=0.15	Pt_{N1}=82.31 Pz=0 Pf=0.01 Pt_{N2}=82.3	Pt_{N1}=82.31 Pv=0 Pn=82.31
163	145 153	Q=-44.6 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.94 LE=0 LT=3.94	C=120 DP=0.13	Pt_{N1}=82.36 Pz=0 Pf=0.01 Pt_{N2}=82.35	Pt_{N1}=82.36 Pv=0 Pn=82.36
164	137 129	Q=-54.4 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.72 LE=0 LT=3.72	C=120 DP=0.19	Pt_{N1}=82.36 Pz=0 Pf=0.01 Pt_{N2}=82.37	Pt_{N1}=82.36 Pv=0.01 Pn=82.36
165	129 130	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=1.29 LE=0 LT=1.29	C=120 DP=0.45	Pt_{N1}=82.37 Pz=0 Pf=0.01 Pt_{N2}=82.36	Pt_{N1}=82.37 Pv=0 Pn=82.37
166	130 131	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40	L=3.2 LE=0 LT=3.2	C=120 DP=0.45	Pt_{N1}=82.36 Pz=0 Pf=0.01	Pt_{N1}=82.36 Pv=0 Pn=82.36

			Dint=0.04			Pt_{N2}=82.35	
167	131 132	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.45	Pt_{N1}=82.35 Pz=0 Pf=0.01 Pt_{N2}=82.34	Pt_{N1}=82.35 Pv=0 Pn=82.35
168	132 133	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.45	Pt_{N1}=82.34 Pz=0 Pf=0.01 Pt_{N2}=82.32	Pt_{N1}=82.34 Pv=0 Pn=82.33
169	133 134	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.45	Pt_{N1}=82.32 Pz=0 Pf=0.01 Pt_{N2}=82.31	Pt_{N1}=82.32 Pv=0 Pn=82.32
170	134 135	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.45	Pt_{N1}=82.31 Pz=0 Pf=0.01 Pt_{N2}=82.29	Pt_{N1}=82.31 Pv=0 Pn=82.3
171	129 120	Q=-62.1 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.72 LE=0 LT=3.72	C=120 DP=0.24	Pt_{N1}=82.37 Pz=0 Pf=0.01 Pt_{N2}=82.38	Pt_{N1}=82.37 Pv=0.01 Pn=82.36
172	120 121	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.8 LE=0 LT=0.8	C=120 DP=0.5	Pt_{N1}=82.38 Pz=0 Pf=0 Pt_{N2}=82.37	Pt_{N1}=82.38 Pv=0 Pn=82.37
173	121 122	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=2 LE=0 LT=2	C=120 DP=0.5	Pt_{N1}=82.37 Pz=0 Pf=0.01 Pt_{N2}=82.37	Pt_{N1}=82.37 Pv=0 Pn=82.37
174	122 123	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.5	Pt_{N1}=82.37 Pz=0 Pf=0.02 Pt_{N2}=82.35	Pt_{N1}=82.37 Pv=0 Pn=82.36
175	123 124	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.5	Pt_{N1}=82.35 Pz=0 Pf=0.02 Pt_{N2}=82.33	Pt_{N1}=82.35 Pv=0 Pn=82.34
176	124 125	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40	L=3.2 LE=0 LT=3.2	C=120 DP=0.5	Pt_{N1}=82.33 Pz=0 Pf=0.02	Pt_{N1}=82.33 Pv=0 Pn=82.33

			Dint=0.04			Pt_{N2}=82.32	
177	125 126	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.5	Pt_{N1}=82.32 Pz=0 Pf=0.02 Pt_{N2}=82.3	Pt_{N1}=82.32 Pv=0 Pn=82.31
178	126 127	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.5	Pt_{N1}=82.3 Pz=0 Pf=0.02 Pt_{N2}=82.29	Pt_{N1}=82.3 Pv=0 Pn=82.3
179	120 111	Q=-70.4 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.72 LE=0 LT=3.72	C=120 DP=0.3	Pt_{N1}=82.38 Pz=0 Pf=0.01 Pt_{N2}=82.39	Pt_{N1}=82.38 Pv=0.01 Pn=82.37
180	111 112	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=1.1 LE=0 LT=1.1	C=120 DP=0.57	Pt_{N1}=82.39 Pz=0 Pf=0.01 Pt_{N2}=82.38	Pt_{N1}=82.39 Pv=0.01 Pn=82.38
181	112 113	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.19 LE=0 LT=3.19	C=120 DP=0.57	Pt_{N1}=82.38 Pz=0 Pf=0.02 Pt_{N2}=82.37	Pt_{N1}=82.38 Pv=0.01 Pn=82.38
182	113 114	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.57	Pt_{N1}=82.37 Pz=0 Pf=0.02 Pt_{N2}=82.35	Pt_{N1}=82.37 Pv=0.01 Pn=82.36
183	114 115	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.57	Pt_{N1}=82.35 Pz=0 Pf=0.02 Pt_{N2}=82.33	Pt_{N1}=82.35 Pv=0.01 Pn=82.34
184	115 116	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.57	Pt_{N1}=82.33 Pz=0 Pf=0.02 Pt_{N2}=82.31	Pt_{N1}=82.33 Pv=0.01 Pn=82.33
185	116 117	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=3.2 LE=0 LT=3.2	C=120 DP=0.57	Pt_{N1}=82.31 Pz=0 Pf=0.02 Pt_{N2}=82.29	Pt_{N1}=82.31 Pv=0.01 Pn=82.31
	117 118	Q=-8.8 V=0.1	K_e=0 F=A	L=3.2 LE=0	C=120 DP=0.57	Pt_{N1}=82.29 Pz=0	Pt_{N1}=82.29 Pv=0.01

186			DN=DN 40 Dint=0.04	LT=3.2		Pf=0.02 Pt_{N2}=82.28	Pn=82.29
187	111 110	Q=-79.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.74 LE=3 LT=3.74	C=120 DP=0.38	Pt_{N1}=82.39 Pz=0 Pf=0.01 Pt_{N2}=82.4	Pt_{N1}=82.39 Pv=0.01 Pn=82.38
188	110 109	Q=79.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.91 LE=0.87 LT=1.79	C=120 DP=0.38	Pt_{N1}=82.4 Pz=0 Pf=0.01 Pt_{N2}=82.41	Pt_{N1}=82.4 Pv=0.01 Pn=82.39
189	109 108	Q=79.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=12.48 LE=3 LT=15.48	C=120 DP=0.38	Pt_{N1}=82.41 Pz=0 Pf=0.06 Pt_{N2}=82.47	Pt_{N1}=82.41 Pv=0.01 Pn=82.4
190	144 152	Q=-47 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.99 LE=3 LT=3.99	C=120 DP=0.15	Pt_{N1}=82.29 Pz=0 Pf=0.01 Pt_{N2}=82.3	Pt_{N1}=82.29 Pv=0 Pn=82.29
191	136 135	Q=-7.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=0.45	Pt_{N1}=82.28 Pz=0 Pf=0 Pt_{N2}=82.29	Pt_{N1}=82.28 Pv=0 Pn=82.28
192	128 127	Q=-8.2 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=0.5	Pt_{N1}=82.27 Pz=0 Pf=0 Pt_{N2}=82.29	Pt_{N1}=82.27 Pv=0 Pn=82.27
193	119 118	Q=-8.8 V=0.1	K_e=0 F=A DN=DN 40 Dint=0.04	L=0.88 LE=0 LT=0.88	C=120 DP=0.57	Pt_{N1}=82.26 Pz=0 Pf=0 Pt_{N2}=82.28	Pt_{N1}=82.26 Pv=0.01 Pn=82.26
194	101 108	Q=-79.2 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.19 LE=0 LT=1.19	C=120 DP=0.38	Pt_{N1}=82.47 Pz=0 Pf=0 Pt_{N2}=82.47	Pt_{N1}=82.47 Pv=0.01 Pn=82.46
195	100 99	Q=-92.9 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.51	Pt_{N1}=82.49 Pz=0 Pf=0.02 Pt_{N2}=82.5	Pt_{N1}=82.49 Pv=0.02 Pn=82.47
	99	Q=-7.6	K_e=0	L=0.88	C=120	Pt_{N1}=82.5	Pt_{N1}=82.5

196	179	V=0.2	F=A DN=DN 25 Dint=0.03	LE=0 LT=0.88	DP=3.34	Pz=0 Pf=0.03 Pt_{N2}=82.47	Pv=0.02 Pn=82.48
197	179 180	Q=-7.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=3.34	Pt_{N1}=82.47 Pz=0 Pf=0.1 Pt_{N2}=82.37	Pt_{N1}=82.47 Pv=0.02 Pn=82.45
198	180 181	Q=-7.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=3.34	Pt_{N1}=82.37 Pz=0 Pf=0.1 Pt_{N2}=82.26	Pt_{N1}=82.37 Pv=0.02 Pn=82.35
199	99 94	Q=-100.5 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.59	Pt_{N1}=82.5 Pz=0 Pf=0.02 Pt_{N2}=82.52	Pt_{N1}=82.5 Pv=0.02 Pn=82.48
200	94 95	Q=-8.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=3.81	Pt_{N1}=82.52 Pz=0 Pf=0.03 Pt_{N2}=82.49	Pt_{N1}=82.52 Pv=0.02 Pn=82.5
201	95 96	Q=-8.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=3.81	Pt_{N1}=82.49 Pz=0 Pf=0.12 Pt_{N2}=82.37	Pt_{N1}=82.49 Pv=0.02 Pn=82.46
202	96 97	Q=-8.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=3.81	Pt_{N1}=82.37 Pz=0 Pf=0.12 Pt_{N2}=82.25	Pt_{N1}=82.37 Pv=0.02 Pn=82.34
203	94 85	Q=-108.6 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.69	Pt_{N1}=82.52 Pz=0 Pf=0.02 Pt_{N2}=82.54	Pt_{N1}=82.52 Pv=0.02 Pn=82.5
204	85 86	Q=-8.7 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=4.35	Pt_{N1}=82.54 Pz=0 Pf=0.04 Pt_{N2}=82.5	Pt_{N1}=82.54 Pv=0.03 Pn=82.51
205	86 87	Q=-8.7 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=4.35	Pt_{N1}=82.5 Pz=0 Pf=0.14 Pt_{N2}=82.37	Pt_{N1}=82.5 Pv=0.03 Pn=82.48
	87	Q=-8.7	K_e=0	L=3.2	C=120	Pt_{N1}=82.37	Pt_{N1}=82.37

206	88	V=0.2	F=A DN=DN 25 Dint=0.03	LE=0 LT=3.2	DP=4.35	Pz=0 Pf=0.14 Pt_{N2}=82.23	Pv=0.03 Pn=82.34
207	85 80	Q=-117.4 V=0.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.79	Pt_{N1}=82.54 Pz=0 Pf=0.02 Pt_{N2}=82.57	Pt_{N1}=82.54 Pv=0.02 Pn=82.52
208	80 81	Q=-25.5 V=0.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=31.6	Pt_{N1}=82.57 Pz=0 Pf=0.74 Pt_{N2}=81.83	Pt_{N1}=82.57 Pv=0.24 Pn=82.32
209	81 82	Q=-25.5 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=31.6	Pt_{N1}=81.83 Pz=0 Pf=0.99 Pt_{N2}=80.84	Pt_{N1}=81.83 Pv=0.24 Pn=81.59
210	82 83	Q=-25.5 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=31.6	Pt_{N1}=80.84 Pz=0 Pf=1.46 Pt_{N2}=76.59	Pt_{N1}=80.84 Pv=0.24 Pn=80.6
Tratto tubazione + terminale							
211	83 84	Q=70.4 V=1.9	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1203.72	Pt_{N1}=76.59 Pz=1.67 Pf=2.01 Pt_{N2}=74.58	Pt_{N1}=76.59 Pv=1.84 Pn=74.75
212	80 75	Q=-142.9 V=0.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=1.12	Pt_{N1}=82.57 Pz=0 Pf=0.04 Pt_{N2}=82.6	Pt_{N1}=82.57 Pv=0.04 Pn=82.53
213	75 76	Q=-96 V=2.6	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=368.26	Pt_{N1}=82.6 Pz=0 Pf=8.59 Pt_{N2}=74.01	Pt_{N1}=82.6 Pv=3.42 Pn=79.18
214	76 77	Q=-29.3 V=0.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=40.59	Pt_{N1}=74.01 Pz=0 Pf=1.87 Pt_{N2}=69.17	Pt_{N1}=74.01 Pv=0.32 Pn=73.69
Tratto tubazione + terminale							
215	77 78	Q=67.1 V=1.8	K_e=80 F=D DN=DN 25	L=0.17 LE=0 LT=0.17	C=120 DP=1186.25	Pt_{N1}=69.17 Pz=1.67 Pf=1.98	Pt_{N1}=69.17 Pv=1.67 Pn=67.5

			Dint=0.03			Pt_{N2}=67.19	
216	77 92	Q=37.7 V=1	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=64.51	Pt_{N1}=69.17 Pz=0 Pf=2.97 Pt_{N2}=75.12	Pt_{N1}=69.17 Pv=0.53 Pn=68.64
Tratto tubazione + terminale							
217	92 93	Q=67.2 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=288.79	Pt_{N1}=75.12 Pz=1.67 Pf=4.73 Pt_{N2}=70.39	Pt_{N1}=75.12 Pv=1.68 Pn=73.44
Tratto tubazione + terminale							
218	76 79	Q=66.7 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=286.23	Pt_{N1}=74.01 Pz=1.67 Pf=4.69 Pt_{N2}=69.32	Pt_{N1}=74.01 Pv=1.65 Pn=72.36
219	75 70	Q=-238.9 V=0.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=2.94	Pt_{N1}=82.6 Pz=0 Pf=0.09 Pt_{N2}=82.69	Pt_{N1}=82.6 Pv=0.1 Pn=82.5
220	70 71	Q=-100.5 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=401.14	Pt_{N1}=82.69 Pz=0 Pf=9.35 Pt_{N2}=73.34	Pt_{N1}=82.69 Pv=3.75 Pn=78.95
221	71 72	Q=-34.1 V=0.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=53.36	Pt_{N1}=73.34 Pz=0 Pf=2.46 Pt_{N2}=68.65	Pt_{N1}=73.34 Pv=0.43 Pn=72.91
Tratto tubazione + terminale							
222	72 73	Q=66.5 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1183.21	Pt_{N1}=68.65 Pz=1.67 Pf=1.97 Pt_{N2}=66.68	Pt_{N1}=68.65 Pv=1.64 Pn=67.01
223	72 192	Q=32.4 V=0.9	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=48.41	Pt_{N1}=68.65 Pz=0 Pf=2.23 Pt_{N2}=73.11	Pt_{N1}=68.65 Pv=0.39 Pn=68.26
Tratto tubazione + terminale							
224	192 193	Q=66.2 V=1.8	K_e=80 F=B DN=DN 25	L=0.17 LE=1.5 LT=1.67	C=120 DP=284.13	Pt_{N1}=73.11 Pz=1.67 Pf=4.65	Pt_{N1}=73.11 Pv=1.63 Pn=71.48

			Dint=0.03			Pt_{N2}=68.46	
Tratto tubazione + terminale							
225	71 74	Q=66.4 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=284.66	Pt_{N1}=73.34 Pz=1.67 Pf=4.66 Pt_{N2}=68.68	Pt_{N1}=73.34 Pv=1.63 Pn=71.7
226	70 65	Q=-339.4 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=5.57	Pt_{N1}=82.69 Pz=0 Pf=0.17 Pt_{N2}=82.87	Pt_{N1}=82.69 Pv=0.2 Pn=82.49
227	65 66	Q=-100.8 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=403.44	Pt_{N1}=82.87 Pz=0 Pf=9.41 Pt_{N2}=73.46	Pt_{N1}=82.87 Pv=3.77 Pn=79.1
228	66 67	Q=-34.4 V=0.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=54.09	Pt_{N1}=73.46 Pz=0 Pf=2.49 Pt_{N2}=68.76	Pt_{N1}=73.46 Pv=0.44 Pn=73.02
Tratto tubazione + terminale							
229	67 68	Q=66.5 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1183.42	Pt_{N1}=68.76 Pz=1.67 Pf=1.97 Pt_{N2}=66.79	Pt_{N1}=68.76 Pv=1.64 Pn=67.12
230	67 194	Q=32.1 V=0.9	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=47.84	Pt_{N1}=68.76 Pz=0 Pf=2.21 Pt_{N2}=73.17	Pt_{N1}=68.76 Pv=0.38 Pn=68.38
Tratto tubazione + terminale							
231	194 195	Q=66.3 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=284.27	Pt_{N1}=73.17 Pz=1.67 Pf=4.66 Pt_{N2}=68.51	Pt_{N1}=73.17 Pv=1.63 Pn=71.54
Tratto tubazione + terminale							
232	66 69	Q=66.4 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=284.94	Pt_{N1}=73.46 Pz=1.67 Pf=4.67 Pt_{N2}=68.79	Pt_{N1}=73.46 Pv=1.64 Pn=71.82
233	65 60	Q=-440.1 V=0.8	K_e=0 F=B DN=DN 100	L=3.2 LE=0 LT=3.2	C=120 DP=9.08	Pt_{N1}=82.87 Pz=0 Pf=0.28	Pt_{N1}=82.87 Pv=0.34 Pn=82.53

			Dint=0.11			Pt_{N2}=83.15	
234	60 61	Q=-101.2 V=2.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=406.79	Pt_{N1}=83.15 Pz=0 Pf=9.49 Pt_{N2}=73.67	Pt_{N1}=83.15 Pv=3.8 Pn=79.35
235	61 62	Q=-34.7 V=0.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=55.14	Pt_{N1}=73.67 Pz=0 Pf=2.54 Pt_{N2}=68.96	Pt_{N1}=73.67 Pv=0.45 Pn=73.22
Tratto tubazione + terminale							
236	62 63	Q=66.6 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1183.8	Pt_{N1}=68.96 Pz=1.67 Pf=1.97 Pt_{N2}=66.99	Pt_{N1}=68.96 Pv=1.65 Pn=67.31
237	62 196	Q=31.9 V=0.9	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=47.09	Pt_{N1}=68.96 Pz=0 Pf=2.17 Pt_{N2}=73.3	Pt_{N1}=68.96 Pv=0.38 Pn=68.58
Tratto tubazione + terminale							
238	196 197	Q=66.3 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=284.56	Pt_{N1}=73.3 Pz=1.67 Pf=4.66 Pt_{N2}=68.64	Pt_{N1}=73.3 Pv=1.63 Pn=71.66
Tratto tubazione + terminale							
239	61 64	Q=66.5 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=285.42	Pt_{N1}=73.67 Pz=1.67 Pf=4.67 Pt_{N2}=69	Pt_{N1}=73.67 Pv=1.64 Pn=72.02
240	60 55	Q=-541.4 V=1	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=13.29	Pt_{N1}=83.15 Pz=0 Pf=0.42 Pt_{N2}=83.57	Pt_{N1}=83.15 Pv=0.52 Pn=82.64
241	55 56	Q=-101.8 V=2.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=411.32	Pt_{N1}=83.57 Pz=0 Pf=9.59 Pt_{N2}=73.98	Pt_{N1}=83.57 Pv=3.85 Pn=79.72
242	56 57	Q=-35.2 V=1	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=56.51	Pt_{N1}=73.98 Pz=0 Pf=2.6 Pt_{N2}=69.25	Pt_{N1}=73.98 Pv=0.46 Pn=73.52

Tratto tubazione + terminale							
243	57 58	Q=66.7 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1184.4	Pt_{N1}=69.25 Pz=1.67 Pf=1.97 Pt_{N2}=67.28	Pt_{N1}=69.25 Pv=1.65 Pn=67.59
244	57 198	Q=31.5 V=0.9	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=46.18	Pt_{N1}=69.25 Pz=0 Pf=2.13 Pt_{N2}=73.5	Pt_{N1}=69.25 Pv=0.37 Pn=68.88
Tratto tubazione + terminale							
245	198 199	Q=66.4 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=285.04	Pt_{N1}=73.5 Pz=1.67 Pf=4.67 Pt_{N2}=68.83	Pt_{N1}=73.5 Pv=1.64 Pn=71.86
Tratto tubazione + terminale							
246	56 59	Q=66.6 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=286.14	Pt_{N1}=73.98 Pz=1.67 Pf=4.69 Pt_{N2}=69.29	Pt_{N1}=73.98 Pv=1.65 Pn=72.33
247	55 50	Q=-643.2 V=1.2	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=18.24	Pt_{N1}=83.57 Pz=0 Pf=0.57 Pt_{N2}=84.14	Pt_{N1}=83.57 Pv=0.73 Pn=82.84
248	50 51	Q=-102.6 V=2.8	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=417.09	Pt_{N1}=84.14 Pz=0 Pf=9.73 Pt_{N2}=74.42	Pt_{N1}=84.14 Pv=3.91 Pn=80.24
249	51 52	Q=-35.7 V=1	K_e=0 F=B DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=58.23	Pt_{N1}=74.42 Pz=0 Pf=2.68 Pt_{N2}=69.65	Pt_{N1}=74.42 Pv=0.47 Pn=73.94
Tratto tubazione + terminale							
250	52 53	Q=66.9 V=1.8	K_e=80 F=D DN=DN 25 Dint=0.03	L=0.17 LE=0 LT=0.17	C=120 DP=1185.26	Pt_{N1}=69.65 Pz=1.67 Pf=1.98 Pt_{N2}=67.67	Pt_{N1}=69.65 Pv=1.66 Pn=67.99
251	52 200	Q=31.1 V=0.8	K_e=0 F=D DN=DN 25 Dint=0.03	L=3.2 LE=1.5 LT=4.7	C=120 DP=45.14	Pt_{N1}=69.65 Pz=0 Pf=2.08 Pt_{N2}=73.81	Pt_{N1}=69.65 Pv=0.36 Pn=69.29

Tratto tubazione + terminale							
252	200 201	Q=66.6 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=285.76	Pt_{N1}=73.81 Pz=1.67 Pf=4.68 Pt_{N2}=69.13	Pt_{N1}=73.81 Pv=1.65 Pn=72.17
Tratto tubazione + terminale							
253	51 54	Q=66.8 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=287.16	Pt_{N1}=74.42 Pz=1.67 Pf=4.7 Pt_{N2}=69.72	Pt_{N1}=74.42 Pv=1.66 Pn=72.76
254	106 105	Q=-85.8 V=0.2	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=0.44	Pt_{N1}=82.22 Pz=0 Pf=0.01 Pt_{N2}=82.26	Pt_{N1}=82.22 Pv=0.01 Pn=82.21
255	107 181	Q=-7.6 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=3.34	Pt_{N1}=82.21 Pz=0 Pf=0.03 Pt_{N2}=82.26	Pt_{N1}=82.21 Pv=0.02 Pn=82.18
256	98 97	Q=-8.1 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=3.81	Pt_{N1}=82.2 Pz=0 Pf=0.03 Pt_{N2}=82.25	Pt_{N1}=82.2 Pv=0.02 Pn=82.17
257	89 88	Q=-8.7 V=0.2	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=4.35	Pt_{N1}=82.17 Pz=0 Pf=0.04 Pt_{N2}=82.23	Pt_{N1}=82.17 Pv=0.03 Pn=82.14
258	90 83	Q=44.9 V=1.2	K_e=0 F=D DN=DN 25 Dint=0.03	L=0.88 LE=2.27 LT=3.15	C=120 DP=90.17	Pt_{N1}=82.17 Pz=0 Pf=2.79 Pt_{N2}=76.59	Pt_{N1}=82.17 Pv=0.75 Pn=81.42
259	91 92	Q=104.9 V=2.9	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=0.77 LT=1.65	C=120 DP=434.55	Pt_{N1}=82.16 Pz=0 Pf=7.04 Pt_{N2}=75.12	Pt_{N1}=82.16 Pv=4.09 Pn=78.07
260	191 192	Q=98.6 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=387.33	Pt_{N1}=82.16 Pz=0 Pf=9.05 Pt_{N2}=73.11	Pt_{N1}=82.16 Pv=3.61 Pn=78.55
	190	Q=98.4	K_e=0	L=0.88	C=120	Pt_{N1}=82.19	Pt_{N1}=82.19

261	194	V=2.7	F=B DN=DN 25 Dint=0.03	LE=1.5 LT=2.38	DP=386	Pz=0 Pf=9.02 Pt_{N2}=73.17	Pv=3.6 Pn=78.6
262	189 196	Q=98.2 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=384.37	Pt_{N1}=82.28 Pz=0 Pf=8.98 Pt_{N2}=73.3	Pt_{N1}=82.28 Pv=3.58 Pn=78.7
263	188 198	Q=98 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=382.55	Pt_{N1}=82.44 Pz=0 Pf=8.94 Pt_{N2}=73.5	Pt_{N1}=82.44 Pv=3.56 Pn=78.88
264	187 200	Q=97.7 V=2.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=380.7	Pt_{N1}=82.71 Pz=0 Pf=8.9 Pt_{N2}=73.81	Pt_{N1}=82.71 Pv=3.54 Pn=79.16
265	186 185	Q=620.7 V=1.2	K_e=0 F=E DN=DN 100 Dint=0.11	L=2.14 LE=0 LT=2.14	C=120 DP=17.09	Pt_{N1}=83.1 Pz=0 Pf=0.36 Pt_{N2}=82.95	Pt_{N1}=83.1 Pv=0.68 Pn=82.42
266	185 207	Q=601.3 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=16.12	Pt_{N1}=82.95 Pz=0 Pf=0.51 Pt_{N2}=83.49	Pt_{N1}=82.95 Pv=0.64 Pn=82.32
267	207 211	Q=579.6 V=1.1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=15.07	Pt_{N1}=83.49 Pz=0 Pf=0.47 Pt_{N2}=84	Pt_{N1}=83.49 Pv=0.59 Pn=82.9
268	211 216	Q=555.4 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=13.93	Pt_{N1}=84 Pz=0 Pf=0.44 Pt_{N2}=84.51	Pt_{N1}=84 Pv=0.54 Pn=83.46
269	216 222	Q=528.3 V=1	K_e=0 F=E DN=DN 100 Dint=0.11	L=2.89 LE=0 LT=2.89	C=120 DP=12.71	Pt_{N1}=84.51 Pz=0 Pf=0.36 Pt_{N2}=85	Pt_{N1}=84.51 Pv=0.49 Pn=84.02
270	222 231	Q=404.9 V=0.8	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=7.76	Pt_{N1}=85 Pz=0 Pf=0.24 Pt_{N2}=70.68	Pt_{N1}=85 Pv=0.29 Pn=84.71
	231	Q=275.4	K_e=0	L=3.2	C=120	Pt_{N1}=70.68	Pt_{N1}=70.68

271	230	V=0.5	F=E DN=DN 100 Dint=0.11	LE=0 LT=3.2	DP=3.79	Pz=0 Pf=0.12 Pt_{N2}=70.85	Pv=0.13 Pn=70.55
272	230 229	Q=146.1 V=0.3	K_e=0 F=E DN=DN 100 Dint=0.11	L=3.2 LE=0.77 LT=3.97	C=120 DP=1.17	Pt_{N1}=70.85 Pz=0 Pf=0.05 Pt_{N2}=85.65	Pt_{N1}=70.85 Pv=0.04 Pn=70.81
273	229 228	Q=-146.1 V=4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0 LT=0.88	C=120 DP=787.83	Pt_{N1}=85.65 Pz=0 Pf=6.82 Pt_{N2}=92.47	Pt_{N1}=85.65 Pv=7.92 Pn=77.72
274	228 227	Q=-146.1 V=4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=787.83	Pt_{N1}=92.47 Pz=0 Pf=24.72 Pt_{N2}=117.19	Pt_{N1}=92.47 Pv=7.92 Pn=84.54
275	227 226	Q=-146.1 V=4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=787.83	Pt_{N1}=117.19 Pz=0 Pf=24.72 Pt_{N2}=141.91	Pt_{N1}=117.19 Pv=7.92 Pn=109.27
276	226 225	Q=-146.1 V=4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0.77 LT=1.65	C=120 DP=787.83	Pt_{N1}=141.91 Pz=0 Pf=12.77 Pt_{N2}=154.68	Pt_{N1}=141.91 Pv=7.92 Pn=133.99
277	225 224	Q=146.1 V=0.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=1.17	Pt_{N1}=154.68 Pz=0 Pf=0.04 Pt_{N2}=154.71	Pt_{N1}=154.68 Pv=0.04 Pn=154.64
278	224 223	Q=275.4 V=0.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=3.79	Pt_{N1}=154.71 Pz=0 Pf=0.12 Pt_{N2}=154.83	Pt_{N1}=154.71 Pv=0.13 Pn=154.58
279	223 217	Q=404.9 V=0.8	K_e=0 F=C DN=DN 100 Dint=0.11	L=2.86 LE=1.5 LT=4.36	C=120 DP=7.76	Pt_{N1}=154.83 Pz=0 Pf=0.33 Pt_{N2}=155.16	Pt_{N1}=154.83 Pv=0.29 Pn=154.54
280	217 218	Q=-123.4 V=3.4	K_e=0 F=C DN=DN 25 Dint=0.03	L=0.34 LE=1.5 LT=1.84	C=120 DP=580.84	Pt_{N1}=155.16 Pz=0 Pf=10.5 Pt_{N2}=144.66	Pt_{N1}=155.16 Pv=5.66 Pn=149.51
	218	Q=-123.4	K_e=0	L=0.88	C=120	Pt_{N1}=144.66	Pt_{N1}=144.66

281	219	V=3.4	F=A DN=DN 25 Dint=0.03	LE=0.77 LT=1.65	DP=580.84	Pz=0 Pf=9.4 Pt_{N2}=135.27	Pv=5.66 Pn=139.01
282	219 220	Q=-123.4 V=3.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=580.84	Pt_{N1}=135.27 Pz=0 Pf=18.23 Pt_{N2}=117.04	Pt_{N1}=135.27 Pv=5.66 Pn=129.61
283	220 221	Q=-123.4 V=3.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=580.84	Pt_{N1}=117.04 Pz=0 Pf=18.23 Pt_{N2}=98.81	Pt_{N1}=117.04 Pv=5.66 Pn=111.38
284	223 235	Q=-129.6 V=3.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=633.48	Pt_{N1}=154.83 Pz=0 Pf=14.79 Pt_{N2}=140.04	Pt_{N1}=154.83 Pv=6.23 Pn=148.6
285	235 236	Q=-129.6 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=633.48	Pt_{N1}=140.04 Pz=0 Pf=19.88 Pt_{N2}=120.16	Pt_{N1}=140.04 Pv=6.23 Pn=133.81
286	236 237	Q=-129.6 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=633.48	Pt_{N1}=120.16 Pz=0 Pf=19.88 Pt_{N2}=100.28	Pt_{N1}=120.16 Pv=6.23 Pn=113.93
287	224 232	Q=-129.3 V=3.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=631.27	Pt_{N1}=154.71 Pz=0 Pf=14.74 Pt_{N2}=139.97	Pt_{N1}=154.71 Pv=6.21 Pn=148.51
288	232 233	Q=-129.3 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=631.27	Pt_{N1}=139.97 Pz=0 Pf=19.81 Pt_{N2}=120.16	Pt_{N1}=139.97 Pv=6.21 Pn=133.76
289	233 234	Q=-129.3 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=631.27	Pt_{N1}=120.16 Pz=0 Pf=19.81 Pt_{N2}=100.35	Pt_{N1}=120.16 Pv=6.21 Pn=113.95
290	230 234	Q=-129.3 V=3.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=631.27	Pt_{N1}=70.85 Pz=0 Pf=14.75 Pt_{N2}=100.35	Pt_{N1}=70.85 Pv=6.21 Pn=64.64
	231	Q=-129.6	K_e=0	L=0.88	C=120	Pt_{N1}=70.68	Pt_{N1}=70.68

291	237	V=3.5	F=A DN=DN 25 Dint=0.03	LE=1.5 LT=2.38	DP=633.48	Pz=0 Pf=14.8 Pt_{N2}=100.28	Pv=6.23 Pn=64.45
292	222 221	Q=-123.4 V=3.4	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=580.84	Pt_{N1}=85 Pz=0 Pf=13.57 Pt_{N2}=98.81	Pt_{N1}=85 Pv=5.66 Pn=79.34
293	216 215	Q=-27.1 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=35.12	Pt_{N1}=84.51 Pz=0 Pf=0.82 Pt_{N2}=85.7	Pt_{N1}=84.51 Pv=0.27 Pn=84.24
294	215 214	Q=-27.1 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=35.12	Pt_{N1}=85.7 Pz=0 Pf=1.1 Pt_{N2}=86.8	Pt_{N1}=85.7 Pv=0.27 Pn=85.42
295	214 213	Q=-27.1 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=35.12	Pt_{N1}=86.8 Pz=0 Pf=1.1 Pt_{N2}=87.9	Pt_{N1}=86.8 Pv=0.27 Pn=86.53
296	213 212	Q=-27.1 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=0.77 LT=1.65	C=120 DP=35.12	Pt_{N1}=87.9 Pz=0 Pf=0.57 Pt_{N2}=88.47	Pt_{N1}=87.9 Pv=0.27 Pn=87.63
297	211 210	Q=-24.2 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=28.71	Pt_{N1}=84 Pz=0 Pf=0.67 Pt_{N2}=85.11	Pt_{N1}=84 Pv=0.22 Pn=83.78
298	210 209	Q=-24.2 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=28.71	Pt_{N1}=85.11 Pz=0 Pf=0.9 Pt_{N2}=86.01	Pt_{N1}=85.11 Pv=0.22 Pn=84.89
299	209 208	Q=-24.2 V=0.7	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=28.71	Pt_{N1}=86.01 Pz=0 Pf=0.9 Pt_{N2}=86.91	Pt_{N1}=86.01 Pv=0.22 Pn=85.79
300	207 206	Q=-21.7 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=23.48	Pt_{N1}=83.49 Pz=0 Pf=0.55 Pt_{N2}=84.51	Pt_{N1}=83.49 Pv=0.18 Pn=83.32
	206	Q=-21.7	K_e=0	L=3.2	C=120	Pt_{N1}=84.51	Pt_{N1}=84.51

301	205	V=0.6	F=A DN=DN 25 Dint=0.03	LE=0 LT=3.2	DP=23.48	Pz=0 Pf=0.74 Pt_{N2}=85.25	Pv=0.18 Pn=84.34
302	205 204	Q=-21.7 V=0.6	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=23.48	Pt_{N1}=85.25 Pz=0 Pf=0.74 Pt_{N2}=85.99	Pt_{N1}=85.25 Pv=0.18 Pn=85.08
303	185 184	Q=-19.4 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=18.98	Pt_{N1}=82.95 Pz=0 Pf=0.44 Pt_{N2}=83.9	Pt_{N1}=82.95 Pv=0.14 Pn=82.81
304	184 183	Q=-19.4 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=18.98	Pt_{N1}=83.9 Pz=0 Pf=0.6 Pt_{N2}=84.5	Pt_{N1}=83.9 Pv=0.14 Pn=83.76
305	183 182	Q=-19.4 V=0.5	K_e=0 F=A DN=DN 25 Dint=0.03	L=3.2 LE=0 LT=3.2	C=120 DP=18.98	Pt_{N1}=84.5 Pz=0 Pf=0.6 Pt_{N2}=85.09	Pt_{N1}=84.5 Pv=0.14 Pn=84.36
Tratto tubazione + terminale							
306	202 203	Q=66.8 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=286.77	Pt_{N1}=74.25 Pz=1.67 Pf=4.7 Pt_{N2}=69.55	Pt_{N1}=74.25 Pv=1.66 Pn=72.59
Tratto tubazione + terminale							
307	46 49	Q=67.1 V=1.8	K_e=80 F=B DN=DN 25 Dint=0.03	L=0.17 LE=1.5 LT=1.67	C=120 DP=288.52	Pt_{N1}=75 Pz=1.67 Pf=4.73 Pt_{N2}=70.27	Pt_{N1}=75 Pv=1.67 Pn=73.33
308	45 50	Q=-745.8 V=1.4	K_e=0 F=B DN=DN 100 Dint=0.11	L=3.2 LE=0 LT=3.2	C=120 DP=23.99	Pt_{N1}=84.9 Pz=0 Pf=0.75 Pt_{N2}=84.14	Pt_{N1}=84.9 Pv=0.98 Pn=83.92
309	44 182	Q=-19.4 V=0.5	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=18.98	Pt_{N1}=85.54 Pz=0 Pf=0.44 Pt_{N2}=85.09	Pt_{N1}=85.54 Pv=0.14 Pn=85.4
310	43 204	Q=-21.7 V=0.6	K_e=0 F=B DN=DN 25	L=0.88 LE=1.5 LT=2.38	C=120 DP=23.48	Pt_{N1}=86.53 Pz=0 Pf=0.55	Pt_{N1}=86.53 Pv=0.18 Pn=86.36

			Dint=0.03			Pt_{N2}=85.99	
311	42 208	Q=-24.2 V=0.7	K_e=0 F=B DN=DN 25 Dint=0.03	L=0.88 LE=1.5 LT=2.38	C=120 DP=28.71	Pt_{N1}=87.58 Pz=0 Pf=0.67 Pt_{N2}=86.91	Pt_{N1}=87.58 Pv=0.22 Pn=87.36
312	41 212	Q=27.1 V=0.7	K_e=0 F=C DN=DN 25 Dint=0.03	L=0.3 LE=1.5 LT=1.8	C=120 DP=35.12	Pt_{N1}=89.09 Pz=0 Pf=0.62 Pt_{N2}=88.47	Pt_{N1}=89.09 Pv=0.27 Pn=88.82
313	248 253	Q=-669.5 V=1.3	K_e=0 F=B DN=DN 100 Dint=0.11	L=1.71 LE=0 LT=1.71	C=120 DP=19.65	Pt_{N1}=390.48 Pz=0 Pf=0.33 Pt_{N2}=390.15	Pt_{N1}=390.48 Pv=0.79 Pn=389.69
314	247 246	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.16 LE=0 LT=1.16	C=120 DP=24.95	Pt_{N1}=392.48 Pz=0 Pf=0.28 Pt_{N2}=392.76	Pt_{N1}=392.48 Pv=1.02 Pn=391.46
315	246 245	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.9 LE=0 LT=1.9	C=120 DP=24.95	Pt_{N1}=392.76 Pz=0 Pf=0.46 Pt_{N2}=393.23	Pt_{N1}=392.76 Pv=1.02 Pn=391.74
316	245 244	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.9 LE=0 LT=1.9	C=120 DP=24.95	Pt_{N1}=393.23 Pz=0 Pf=0.47 Pt_{N2}=393.69	Pt_{N1}=393.23 Pv=1.02 Pn=392.21
317	244 243	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=24.95	Pt_{N1}=393.69 Pz=0 Pf=0.93 Pt_{N2}=394.62	Pt_{N1}=393.69 Pv=1.02 Pn=392.67
318	243 242	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=24.95	Pt_{N1}=394.62 Pz=0 Pf=0.93 Pt_{N2}=395.55	Pt_{N1}=394.62 Pv=1.02 Pn=393.6
319	242 241	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.8 LE=0 LT=3.8	C=120 DP=24.95	Pt_{N1}=395.55 Pz=0 Pf=0.93 Pt_{N2}=396.48	Pt_{N1}=395.55 Pv=1.02 Pn=394.53
320	241 240	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100	L=3.8 LE=0 LT=3.8	C=120 DP=24.95	Pt_{N1}=396.48 Pz=0 Pf=0.93	Pt_{N1}=396.48 Pv=1.02 Pn=395.46

			Dint=0.11			Pt_{N2}=397.41	
321	240 239	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.33 LE=0 LT=2.33	C=120 DP=24.95	Pt_{N1}=397.41 Pz=0 Pf=0.57 Pt_{N2}=397.98	Pt_{N1}=397.41 Pv=1.02 Pn=396.39
322	239 238	Q=761.6 V=1.4	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.07 LE=3 LT=4.07	C=120 DP=24.95	Pt_{N1}=397.98 Pz=0 Pf=1 Pt_{N2}=398.98	Pt_{N1}=397.98 Pv=1.02 Pn=396.96
323	39 40	Q=-230.9 V=0.4	K_e=0 F=E DN=DN 100 Dint=0.11	L=1.74 LE=1.5 LT=3.24	C=120 DP=2.76	Pt_{N1}=380.24 Pz=0 Pf=0.09 Pt_{N2}=381.44	Pt_{N1}=380.24 Pv=0.09 Pn=380.15
324	38 217	Q=-528.3 V=14.4	K_e=0 F=B DN=DN 25 Dint=0.03	L=1.2 LE=1.5 LT=2.7	C=120 DP=8578.77	Pt_{N1}=382.39 Pz=0 Pf=227.23 Pt_{N2}=155.16	Pt_{N1}=382.39 Pv=103.65 Pn=278.74
325	11 238	Q=-761.6 V=1.4	K_e=0 F=C DN=DN 100 Dint=0.11	L=0.99 LE=6.1 LT=7.09	C=120 DP=24.95	Pt_{N1}=400.71 Pz=0 Pf=1.73 Pt_{N2}=398.98	Pt_{N1}=400.71 Pv=1.02 Pn=399.69

LEGENDA	
N1	Nodo iniziale
N2	Nodo finale
C	Coefficiente di Hazen-Williams per le tubazioni
Pt_{N1}	Pressione totale nel Nodo 1
Pt_{N2}	Pressione totale nel Nodo 2
Pz	Pressione piezometrica
Pf	Perdita di pressione totale lungo il tronco
Pv	Pressione dinamica
Pn	Pressione nominale del tronco
A	Curva
B	T divergente asimmetrica
C	T divergente simmetrica
D	T convergente simmetrica
E	T convergente asimmetrica
F	Croce mista
G	Croce divergente
H	Croce convergente
V	Valvola

RTB05 - Idranti sfavoriti/favoriti							
N° Tratto	**N1** **N2**	**Portata [l/min]** **Velocità [m/s]**	**K_e** **Tipo Pz** **DN** **Diam int. [m]**	**L [m]** **L.Eq. [m]** **L.Tot [m]**	**C** **DPM [mm H20/m]**	**Pressioni** **[kPa]**	
1	0 1	Q=1204 V=2.3	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.59 LE=0 LT=1.59	C=120 DP=58.37	Pt_{N1}=450 Pz=0 Pf=0.91 Pt_{N2}=449.09	Pt_{N1}=450 Pv=2.55 Pn=447.45
2	1 2	Q=361.6 V=0.7	K_e=1346.4 F=V DN=DN 100 Dint=0.11	L=0.76 LE=6.1 LT=6.86	C=120 DP=6.27	Pt_{N1}=449.09 Pz=0 Pf=0.42 Pt_{N2}=441.45	Pt_{N1}=449.09 Pv=0.23 Pn=448.86
3	2 3	Q=-361.6 V=0.7	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.08 LE=0 LT=4.08	C=120 DP=6.27	Pt_{N1}=441.45 Pz=0 Pf=0.25 Pt_{N2}=441.2	Pt_{N1}=441.45 Pv=0.23 Pn=441.22
4	3 4	Q=361.6 V=0.7	K_e=0 F=A DN=DN 100 Dint=0.11	L=120.5 LE=3 LT=123.51	C=120 DP=6.27	Pt_{N1}=441.2 Pz=0 Pf=7.6 Pt_{N2}=433.6	Pt_{N1}=441.2 Pv=0.23 Pn=440.97
5	4 5	Q=301.3 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=2.18 LE=6.1 LT=8.28	C=120 DP=268.02	Pt_{N1}=433.6 Pz=21.4 Pf=21.77 Pt_{N2}=411.83	Pt_{N1}=433.6 Pv=0.16 Pn=433.44
6	5 6	Q=301.3 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.07 LE=3 LT=5.07	C=120 DP=4.47	Pt_{N1}=411.83 Pz=0 Pf=0.22 Pt_{N2}=411.61	Pt_{N1}=411.83 Pv=0.16 Pn=411.67
Tratto tubazione + terminale							
7	6 7	Q=301.3 V=0.6	K_e=1170 F=A DN=DN 100 Dint=0.11	L=0.15 LE=3 LT=3.15	C=120 DP=51.6	Pt_{N1}=411.61 Pz=1.45 Pf=1.59 Pt_{N2}=410.02	Pt_{N1}=411.61 Pv=0.16 Pn=411.45
8	4 8	Q=60.3 V=0.1	K_e=1346.4 F=V DN=DN 100 Dint=0.11	L=23.22 LE=0 LT=23.22	C=120 DP=0.23	Pt_{N1}=433.6 Pz=0 Pf=0.05 Pt_{N2}=433.35	Pt_{N1}=433.6 Pv=0.01 Pn=433.6
	8 9	Q=-60.3 V=0.1	K_e=0 F=A	L=0.29 LE=0	C=120 DP=0.23	Pt_{N1}=433.35 Pz=0	Pt_{N1}=433.35 Pv=0.01

9			DN=DN 100 Dint=0.11	LT=0.29		Pf=0 Pt_{N2}=433.35	Pn=433.34
10	9 33	Q=-60.3 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=4.92 LE=3 LT=7.92	C=120 DP=0.23	Pt_{N1}=433.35 Pz=0 Pf=0.02 Pt_{N2}=433.33	Pt_{N1}=433.35 Pv=0.01 Pn=433.34
11	33 34	Q=-14 V=0	K_e=1346.4 F=V DN=DN 100 Dint=0.11	L=0.19 LE=6.1 LT=6.29	C=120 DP=0.02	Pt_{N1}=433.33 Pz=0 Pf=0 Pt_{N2}=433.32	Pt_{N1}=433.33 Pv=0 Pn=433.33
12	34 35	Q=-14 V=0	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.19 LE=0 LT=3.19	C=120 DP=0.02	Pt_{N1}=433.32 Pz=0 Pf=0 Pt_{N2}=433.32	Pt_{N1}=433.32 Pv=0 Pn=433.32
13	35 36	Q=-14 V=0	K_e=0 F=A DN=DN 100 Dint=0.11	L=18 LE=0 LT=18	C=120 DP=0.02	Pt_{N1}=433.32 Pz=0 Pf=0 Pt_{N2}=433.32	Pt_{N1}=433.32 Pv=0 Pn=433.32
14	36 37	Q=-14 V=0	K_e=0 F=D DN=DN 100 Dint=0.11	L=2.88 LE=6.1 LT=8.98	C=120 DP=0.02	Pt_{N1}=433.32 Pz=0 Pf=0 Pt_{N2}=432.39	Pt_{N1}=433.32 Pv=0 Pn=433.32
15	37 38	Q=300.6 V=0.6	K_e=0 F=D DN=DN 100 Dint=0.11	L=1.51 LE=0 LT=1.51	C=120 DP=4.45	Pt_{N1}=432.39 Pz=0 Pf=0.07 Pt_{N2}=433.25	Pt_{N1}=432.39 Pv=0.16 Pn=432.23
16	38 39	Q=300.6 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.7 LE=3 LT=4.7	C=120 DP=4.45	Pt_{N1}=433.25 Pz=0 Pf=0.21 Pt_{N2}=433.04	Pt_{N1}=433.25 Pv=0.16 Pn=433.09
17	39 40	Q=300.6 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=21.3 LE=3 LT=24.3	C=120 DP=4.45	Pt_{N1}=433.04 Pz=0 Pf=1.06 Pt_{N2}=431.98	Pt_{N1}=433.04 Pv=0.16 Pn=432.89
18	40 41	Q=300.6 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.94 LE=3 LT=9.94	C=120 DP=4.45	Pt_{N1}=431.98 Pz=0 Pf=0.43 Pt_{N2}=431.55	Pt_{N1}=431.98 Pv=0.16 Pn=431.83
	41	Q=300.6	K_e=0	L=2.2	C=120	Pt_{N1}=431.55	Pt_{N1}=431.55

19	42	V=0.6	F=A DN=DN 100 Dint=0.11	LE=3 LT=5.2	DP=426.99	Pz=21.52 Pf=21.76 Pt_{N2}=409.79	Pv=0.16 Pn=431.39
20	42 43	Q=300.6 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=1 LE=3 LT=4	C=120 DP=4.45	Pt_{N1}=409.79 Pz=0 Pf=0.17 Pt_{N2}=409.62	Pt_{N1}=409.79 Pv=0.16 Pn=409.63
Tratto tubazione + terminale							
21	43 44	Q=300.6 V=0.6	K_e=1170 F=A DN=DN 100 Dint=0.11	L=0.15 LE=3 LT=3.15	C=120 DP=51.58	Pt_{N1}=409.62 Pz=1.45 Pf=1.59 Pt_{N2}=408.03	Pt_{N1}=409.62 Pv=0.16 Pn=409.46
22	37 65	Q=286.5 V=0.5	K_e=0 F=A DN=DN 100 Dint=0.11	L=17.14 LE=6.1 LT=23.24	C=120 DP=4.08	Pt_{N1}=432.39 Pz=0 Pf=0.93 Pt_{N2}=434.31	Pt_{N1}=432.39 Pv=0.14 Pn=432.24
23	65 57	Q=286.5 V=0.5	K_e=0 F=B DN=DN 100 Dint=0.11	L=6.87 LE=0 LT=6.87	C=120 DP=4.08	Pt_{N1}=434.31 Pz=0 Pf=0.27 Pt_{N2}=434.58	Pt_{N1}=434.31 Pv=0.14 Pn=434.16
24	57 58	Q=301.1 V=0.6	K_e=0 F=B DN=DN 100 Dint=0.11	L=1.53 LE=6.1 LT=7.63	C=120 DP=4.46	Pt_{N1}=434.58 Pz=0 Pf=0.33 Pt_{N2}=434.25	Pt_{N1}=434.58 Pv=0.16 Pn=434.42
25	58 59	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.6 LE=3 LT=4.6	C=120 DP=4.46	Pt_{N1}=434.25 Pz=0 Pf=0.2 Pt_{N2}=434.05	Pt_{N1}=434.25 Pv=0.16 Pn=434.09
26	59 60	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=14.3 LE=3 LT=17.3	C=120 DP=4.46	Pt_{N1}=434.05 Pz=0 Pf=0.76 Pt_{N2}=433.29	Pt_{N1}=434.05 Pv=0.16 Pn=433.89
27	60 61	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.35 LE=3 LT=9.35	C=120 DP=4.46	Pt_{N1}=433.29 Pz=0 Pf=0.41 Pt_{N2}=432.88	Pt_{N1}=433.29 Pv=0.16 Pn=433.13
28	61 62	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.17 LE=3 LT=5.17	C=120 DP=424.46	Pt_{N1}=432.88 Pz=21.3 Pf=21.53 Pt_{N2}=411.35	Pt_{N1}=432.88 Pv=0.16 Pn=432.72

29	62 63	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=0.78 LE=3 LT=3.78	C=120 DP=4.46	Pt_{N1}=411.35 Pz=0 Pf=0.17 Pt_{N2}=411.18	Pt_{N1}=411.35 Pv=0.16 Pn=411.19
Tratto tubazione + terminale							
30	63 64	Q=301.1 V=0.6	K_e=1170 F=A DN=DN 100 Dint=0.11	L=0.15 LE=3 LT=3.15	C=120 DP=51.6	Pt_{N1}=411.18 Pz=1.45 Pf=1.59 Pt_{N2}=409.59	Pt_{N1}=411.18 Pv=0.16 Pn=411.02
31	57 56	Q=587.6 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=13.11 LE=0 LT=13.11	C=120 DP=15.45	Pt_{N1}=434.58 Pz=0 Pf=1.99 Pt_{N2}=436.57	Pt_{N1}=434.58 Pv=0.61 Pn=433.97
32	56 55	Q=587.6 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=20 LE=0 LT=20	C=120 DP=15.45	Pt_{N1}=436.57 Pz=0 Pf=3.03 Pt_{N2}=439.6	Pt_{N1}=436.57 Pv=0.61 Pn=435.96
33	55 54	Q=587.6 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=20 LE=0 LT=20	C=120 DP=15.45	Pt_{N1}=439.6 Pz=0 Pf=3.03 Pt_{N2}=442.63	Pt_{N1}=439.6 Pv=0.61 Pn=438.99
34	54 53	Q=587.6 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=20 LE=0 LT=20	C=120 DP=15.45	Pt_{N1}=442.63 Pz=0 Pf=3.03 Pt_{N2}=445.66	Pt_{N1}=442.63 Pv=0.61 Pn=442.02
35	53 52	Q=587.6 V=1.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=20.06 LE=0 LT=20.06	C=120 DP=15.45	Pt_{N1}=445.66 Pz=0 Pf=3.04 Pt_{N2}=448.7	Pt_{N1}=445.66 Pv=0.61 Pn=445.05
36	33 45	Q=-46.3 V=0.1	K_e=0 F=B DN=DN 100 Dint=0.11	L=1.57 LE=0 LT=1.57	C=120 DP=0.14	Pt_{N1}=433.33 Pz=0 Pf=0 Pt_{N2}=433.33	Pt_{N1}=433.33 Pv=0 Pn=433.33
37	45 46	Q=46.3 V=0.1	K_e=0 F=A DN=DN 100 Dint=0.11	L=3.04 LE=3 LT=6.04	C=120 DP=0.14	Pt_{N1}=433.33 Pz=0 Pf=0.01 Pt_{N2}=433.32	Pt_{N1}=433.33 Pv=0 Pn=433.33
	46 47	Q=46.3 V=0.1	K_e=0 F=A	L=9.94 LE=9.1	C=120 DP=0.14	Pt_{N1}=433.32 Pz=0	Pt_{N1}=433.32 Pv=0

38			DN=DN 100 Dint=0.11	LT=19.04		Pf=0.03 Pt_{N2}=432.9	Pn=433.32
39	47 48	Q=301.1 V=0.6	K_e=0 F=D DN=DN 100 Dint=0.11	L=6.25 LE=0 LT=6.25	C=120 DP=4.46	Pt_{N1}=432.9 Pz=0 Pf=0.27 Pt_{N2}=433.02	Pt_{N1}=432.9 Pv=0.16 Pn=432.74
40	48 49	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=2.2 LE=3 LT=5.2	C=120 DP=426.89	Pt_{N1}=433.02 Pz=21.51 Pf=21.75 Pt_{N2}=411.27	Pt_{N1}=433.02 Pv=0.16 Pn=432.86
41	49 50	Q=301.1 V=0.6	K_e=0 F=A DN=DN 100 Dint=0.11	L=1.4 LE=3 LT=4.4	C=120 DP=4.46	Pt_{N1}=411.27 Pz=0 Pf=0.19 Pt_{N2}=411.08	Pt_{N1}=411.27 Pv=0.16 Pn=411.11
Tratto tubazione + terminale							
42	50 51	Q=301.1 V=0.6	K_e=1170 F=A DN=DN 100 Dint=0.11	L=0.15 LE=3 LT=3.15	C=120 DP=51.6	Pt_{N1}=411.08 Pz=1.45 Pf=1.59 Pt_{N2}=409.49	Pt_{N1}=411.08 Pv=0.16 Pn=410.92
43	47 95	Q=-254.8 V=0.5	K_e=0 F=D DN=DN 100 Dint=0.11	L=3.75 LE=8.5 LT=12.25	C=120 DP=3.3	Pt_{N1}=432.9 Pz=0 Pf=0.4 Pt_{N2}=433.73	Pt_{N1}=432.9 Pv=0.11 Pn=432.78
44	95 94	Q=254.8 V=0.8	K_e=0 F=A DN=DN 80 Dint=0.08	L=5.58 LE=2.4 LT=7.98	C=120 DP=11.88	Pt_{N1}=433.73 Pz=-54.68 Pf=0.93 Pt_{N2}=434.66	Pt_{N1}=433.73 Pv=0.33 Pn=433.4
45	94 93	Q=254.8 V=0.8	K_e=0 F=A DN=DN 80 Dint=0.08	L=0.83 LE=0 LT=0.83	C=120 DP=6698.96	Pt_{N1}=434.66 Pz=0 Pf=54.8 Pt_{N2}=489.46	Pt_{N1}=434.66 Pv=0.33 Pn=434.33
46	93 65535	Q=-127.2 V=0.4	K_e=706.9 F=V DN=DN 80 Dint=0.08	L=0.2 LE=4.8 LT=5	C=120 DP=3.28	Pt_{N1}=489.46 Pz=0 Pf=0.16 Pt_{N2}=-9.81	Pt_{N1}=489.46 Pv=0.08 Pn=489.38
47	65535 80	Q=127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=11.26 LE=0 LT=11.26	C=120 DP=3.28	Pt_{N1}=-9.81 Pz=0 Pf=0.36 Pt_{N2}=493.17	Pt_{N1}=-9.81 Pv=0.08 Pn=-9.89

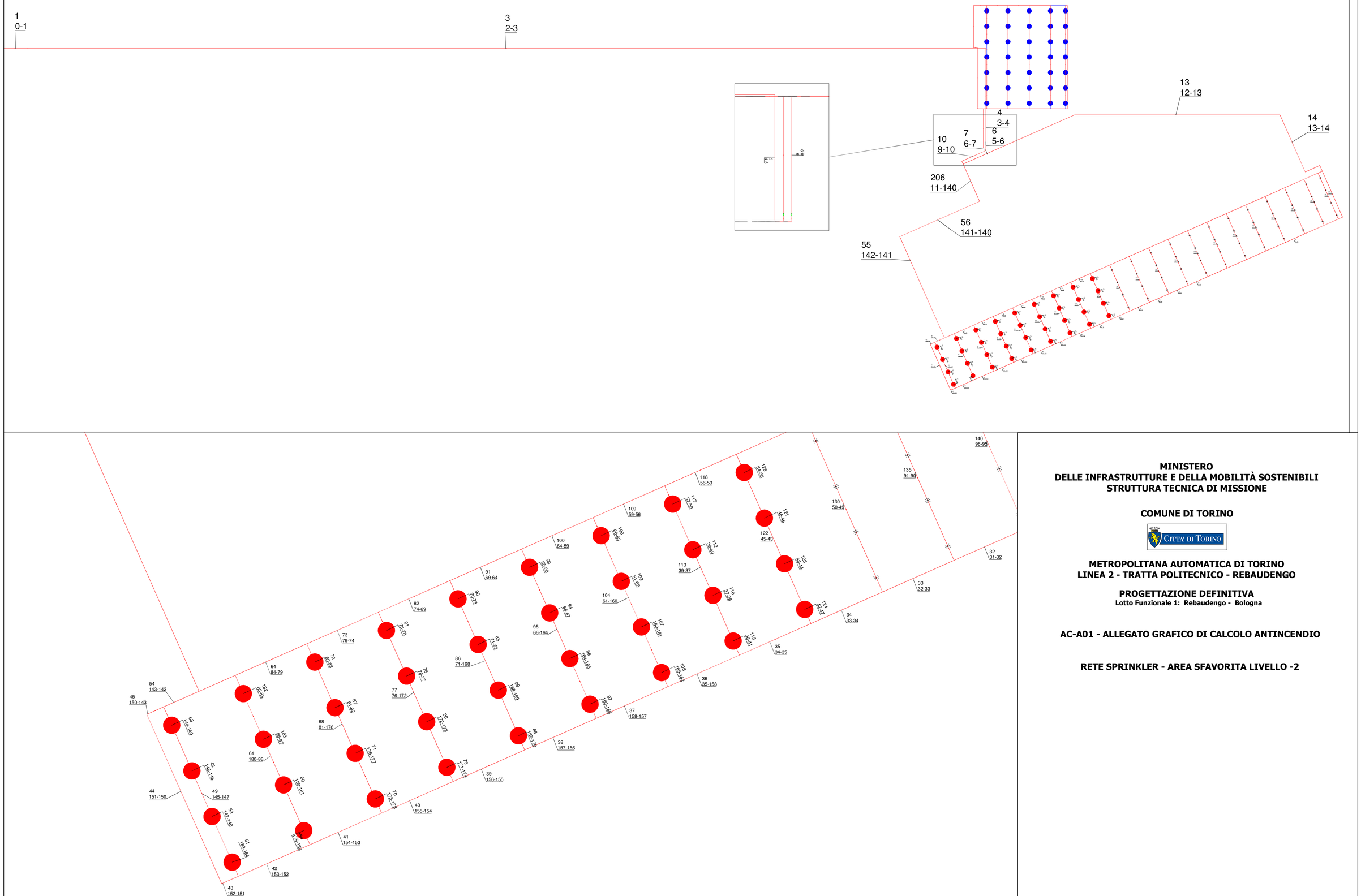
48	80 79	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=25.76 LE=0 LT=25.76	C=120 DP=3.28	Pt_{N1}=493.17 Pz=0 Pf=0.83 Pt_{N2}=493.99	Pt_{N1}=493.17 Pv=0.08 Pn=493.08
49	79 78	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=30.2 LE=0 LT=30.2	C=120 DP=3.28	Pt_{N1}=493.99 Pz=0 Pf=0.97 Pt_{N2}=494.96	Pt_{N1}=493.99 Pv=0.08 Pn=493.91
50	78 77	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=27.9 LE=0 LT=27.9	C=120 DP=3.28	Pt_{N1}=494.96 Pz=0 Pf=0.9 Pt_{N2}=495.86	Pt_{N1}=494.96 Pv=0.08 Pn=494.88
51	77 76	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=20.28 LE=0 LT=20.28	C=120 DP=3.28	Pt_{N1}=495.86 Pz=0 Pf=0.65 Pt_{N2}=496.51	Pt_{N1}=495.86 Pv=0.08 Pn=495.78
52	76 75	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=19.7 LE=0 LT=19.7	C=120 DP=3.28	Pt_{N1}=496.51 Pz=0 Pf=0.63 Pt_{N2}=497.14	Pt_{N1}=496.51 Pv=0.08 Pn=496.43
53	75 74	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=11.86 LE=2.4 LT=14.26	C=120 DP=3.28	Pt_{N1}=497.14 Pz=0 Pf=0.46 Pt_{N2}=497.6	Pt_{N1}=497.14 Pv=0.08 Pn=497.06
54	74 73	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=2.5 LE=0 LT=2.5	C=120 DP=3.28	Pt_{N1}=497.6 Pz=0 Pf=0.08 Pt_{N2}=497.68	Pt_{N1}=497.6 Pv=0.08 Pn=497.52
55	73 72	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=1.3 LE=2.4 LT=3.7	C=120 DP=3.28	Pt_{N1}=497.68 Pz=0 Pf=0.12 Pt_{N2}=497.8	Pt_{N1}=497.68 Pv=0.08 Pn=497.6
56	72 71	Q=-127.2 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=2.9 LE=2.4 LT=5.3	C=120 DP=3.28	Pt_{N1}=497.8 Pz=0 Pf=0.17 Pt_{N2}=497.97	Pt_{N1}=497.8 Pv=0.08 Pn=497.72
57	71 70	Q=-127.2 V=0.4	K_e=706.9 F=V DN=DN 80 Dint=0.08	L=8.82 LE=0 LT=8.82	C=120 DP=3.28	Pt_{N1}=497.97 Pz=0 Pf=0.28 Pt_{N2}=498.26	Pt_{N1}=497.97 Pv=0.08 Pn=497.89

58	65535 69	Q=-127.2 V=0.4	K_e=0 F=B DN=DN 80 Dint=0.08	L=0.04 LE=4.8 LT=4.84	C=120 DP=3.28	Pt_{N1}=-9.81 Pz=0 Pf=0.16 Pt_{N2}=501.65	Pt_{N1}=-9.81 Pv=0.08 Pn=-9.89
59	69 81	Q=127.6 V=0.4	K_e=706.9 F=V DN=DN 80 Dint=0.08	L=0.14 LE=0 LT=0.14	C=120 DP=3.29	Pt_{N1}=501.65 Pz=0 Pf=0 Pt_{N2}=498.39	Pt_{N1}=501.65 Pv=0.08 Pn=501.57
60	81 82	Q=-127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=4.69 LE=0 LT=4.69	C=120 DP=3.29	Pt_{N1}=498.39 Pz=0 Pf=0.15 Pt_{N2}=498.24	Pt_{N1}=498.39 Pv=0.08 Pn=498.31
61	82 83	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=20.08 LE=0 LT=20.08	C=120 DP=3.29	Pt_{N1}=498.24 Pz=0 Pf=0.65 Pt_{N2}=497.59	Pt_{N1}=498.24 Pv=0.08 Pn=498.16
62	83 84	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=19.98 LE=0 LT=19.98	C=120 DP=3.29	Pt_{N1}=497.59 Pz=0 Pf=0.64 Pt_{N2}=496.95	Pt_{N1}=497.59 Pv=0.08 Pn=497.51
63	84 85	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=24.98 LE=0 LT=24.98	C=120 DP=3.29	Pt_{N1}=496.95 Pz=0 Pf=0.81 Pt_{N2}=496.14	Pt_{N1}=496.95 Pv=0.08 Pn=496.86
64	85 86	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=35.04 LE=0 LT=35.04	C=120 DP=3.29	Pt_{N1}=496.14 Pz=0 Pf=1.13 Pt_{N2}=495.01	Pt_{N1}=496.14 Pv=0.08 Pn=496.06
65	86 87	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=30.06 LE=0 LT=30.06	C=120 DP=3.29	Pt_{N1}=495.01 Pz=0 Pf=0.97 Pt_{N2}=494.04	Pt_{N1}=495.01 Pv=0.08 Pn=494.93
66	87 88	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=17.49 LE=0 LT=17.49	C=120 DP=3.29	Pt_{N1}=494.04 Pz=0 Pf=0.56 Pt_{N2}=493.47	Pt_{N1}=494.04 Pv=0.08 Pn=493.96
67	88 89	Q=127.6 V=0.4	K_e=706.9 F=V DN=DN 80 Dint=0.08	L=0.27 LE=0 LT=0.27	C=120 DP=3.29	Pt_{N1}=493.47 Pz=0 Pf=0.01 Pt_{N2}=490.21	Pt_{N1}=493.47 Pv=0.08 Pn=493.39

68	89 90	Q=-127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=0.25 LE=0 LT=0.25	C=120 DP=3.29	Pt_{N1}=490.21 Pz=0 Pf=0.01 Pt_{N2}=490.2	Pt_{N1}=490.21 Pv=0.08 Pn=490.13
69	90 91	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=6.5 LE=2.4 LT=8.9	C=120 DP=3.29	Pt_{N1}=490.2 Pz=0 Pf=0.29 Pt_{N2}=489.91	Pt_{N1}=490.2 Pv=0.08 Pn=490.12
70	91 92	Q=127.6 V=0.4	K_e=0 F=A DN=DN 80 Dint=0.08	L=3 LE=2.4 LT=5.4	C=120 DP=3.29	Pt_{N1}=489.91 Pz=0 Pf=0.17 Pt_{N2}=489.74	Pt_{N1}=489.91 Pv=0.08 Pn=489.83
71	69 68	Q=254.8 V=0.8	K_e=0 F=A DN=DN 80 Dint=0.08	L=3.28 LE=2.4 LT=5.68	C=120 DP=11.88	Pt_{N1}=501.65 Pz=0 Pf=0.66 Pt_{N2}=502.31	Pt_{N1}=501.65 Pv=0.33 Pn=501.32
72	68 67	Q=254.8 V=0.8	K_e=0 F=A DN=DN 80 Dint=0.08	L=5.58 LE=2.4 LT=7.98	C=120 DP=-687.2	Pt_{N1}=502.31 Pz=54.68 Pf=-53.78 Pt_{N2}=448.54	Pt_{N1}=502.31 Pv=0.33 Pn=501.99
73	67 66	Q=-254.8 V=0.5	K_e=0 F=A DN=DN 100 Dint=0.11	L=6.28 LE=3 LT=9.28	C=120 DP=3.3	Pt_{N1}=448.54 Pz=0 Pf=0.3 Pt_{N2}=448.84	Pt_{N1}=448.54 Pv=0.11 Pn=448.42
74	93 92	Q=127.6 V=0.4	K_e=0 F=E DN=DN 80 Dint=0.08	L=6.24 LE=2.4 LT=8.64	C=120 DP=3.29	Pt_{N1}=489.46 Pz=0 Pf=0.28 Pt_{N2}=489.74	Pt_{N1}=489.46 Pv=0.08 Pn=489.38
75	1 52	Q=587.6 V=1.1	K_e=0 F=G DN=DN 100 Dint=0.11	L=2.57 LE=0 LT=2.57	C=120 DP=15.45	Pt_{N1}=449.09 Pz=0 Pf=0.39 Pt_{N2}=448.7	Pt_{N1}=449.09 Pv=0.61 Pn=448.48
76	1 66	Q=-254.8 V=0.5	K_e=0 F=G DN=DN 100 Dint=0.11	L=1.68 LE=6.1 LT=7.78	C=120 DP=3.3	Pt_{N1}=449.09 Pz=0 Pf=0.25 Pt_{N2}=448.84	Pt_{N1}=449.09 Pv=0.11 Pn=448.97

LEGENDA	
N1	Nodo iniziale
N2	Nodo finale

C	Coefficiente di Hazen-Williams per le tubazioni
Pt_{N1}	Pressione totale nel Nodo 1
Pt_{N2}	Pressione totale nel Nodo 2
Pz	Pressione piezometrica
Pf	Perdita di pressione totale lungo il tronco
Pv	Pressione dinamica
Pn	Pressione nominale del tronco
A	Curva
B	T divergente asimmetrica
C	T divergente simmetrica
D	T convergente simmetrica
E	T convergente asimmetrica
F	Croce mista
G	Croce divergente
H	Croce convergente
V	Valvola



MINISTERO
DELLE INFRASTRUTTURE E DELLA MOBILITÀ SOSTENIBILI
STRUTTURA TECNICA DI MISSIONE

COMUNE DI TORINO

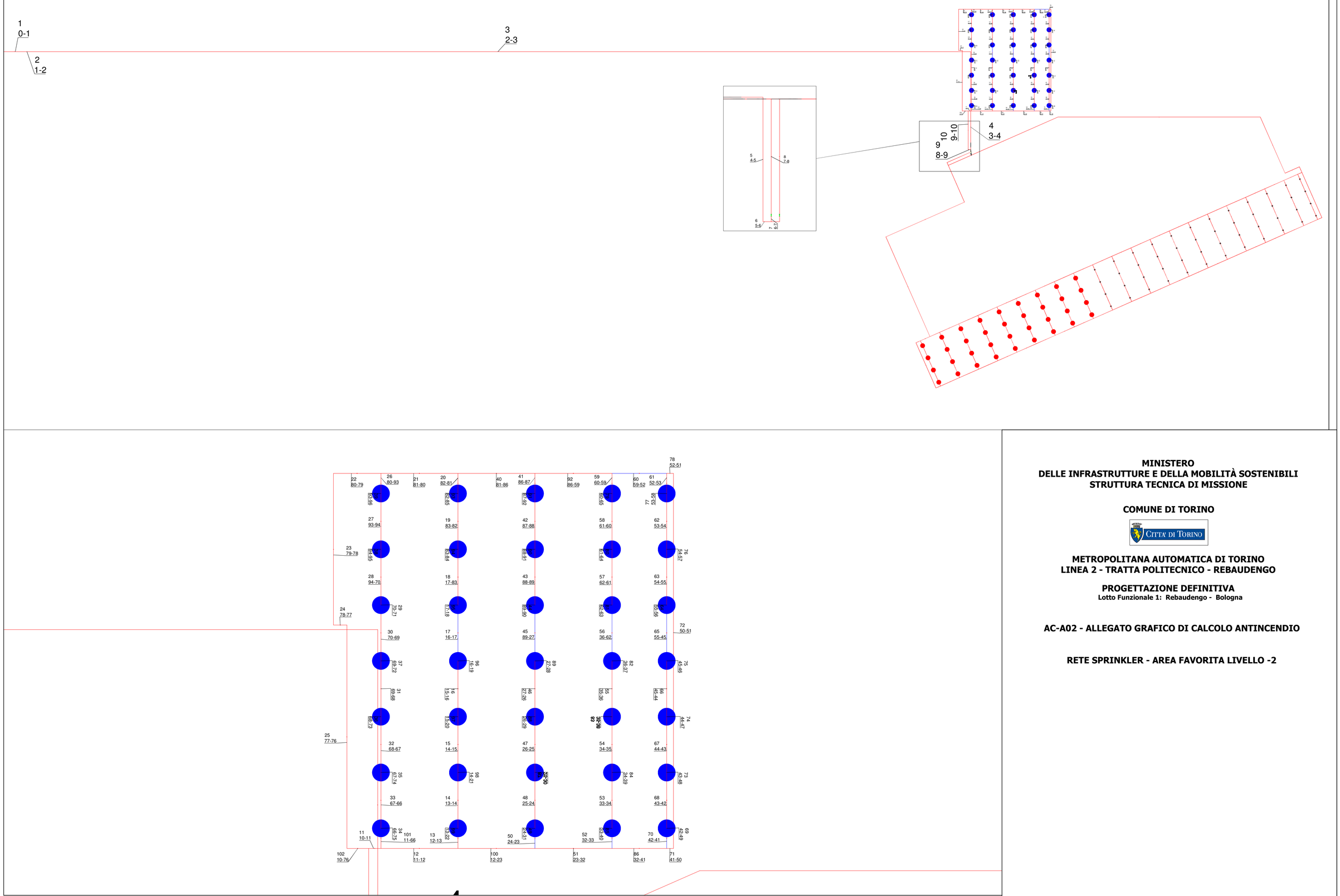
CITTÀ DI TORINO

METROPOLITANA AUTOMATICA DI TORINO
LINEA 2 - TRATTA POLITECNICO - REBAUDENGO

PROGETTAZIONE DEFINITIVA
Lotto Funzionale 1: Rebaudengo - Bologna

AC-A01 - ALLEGATO GRAFICO DI CALCOLO ANTINCENDIO

RETE SPRINKLER - AREA SFAVORITA LIVELLO -2



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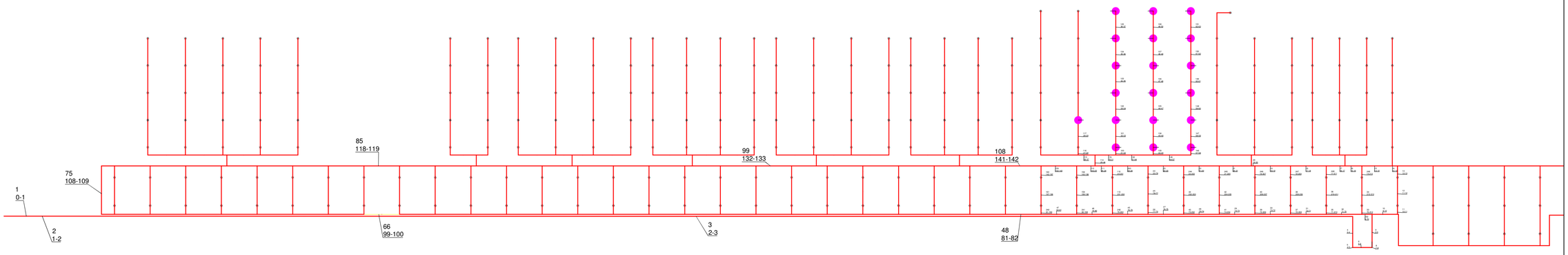
COMUNE DI TORINO

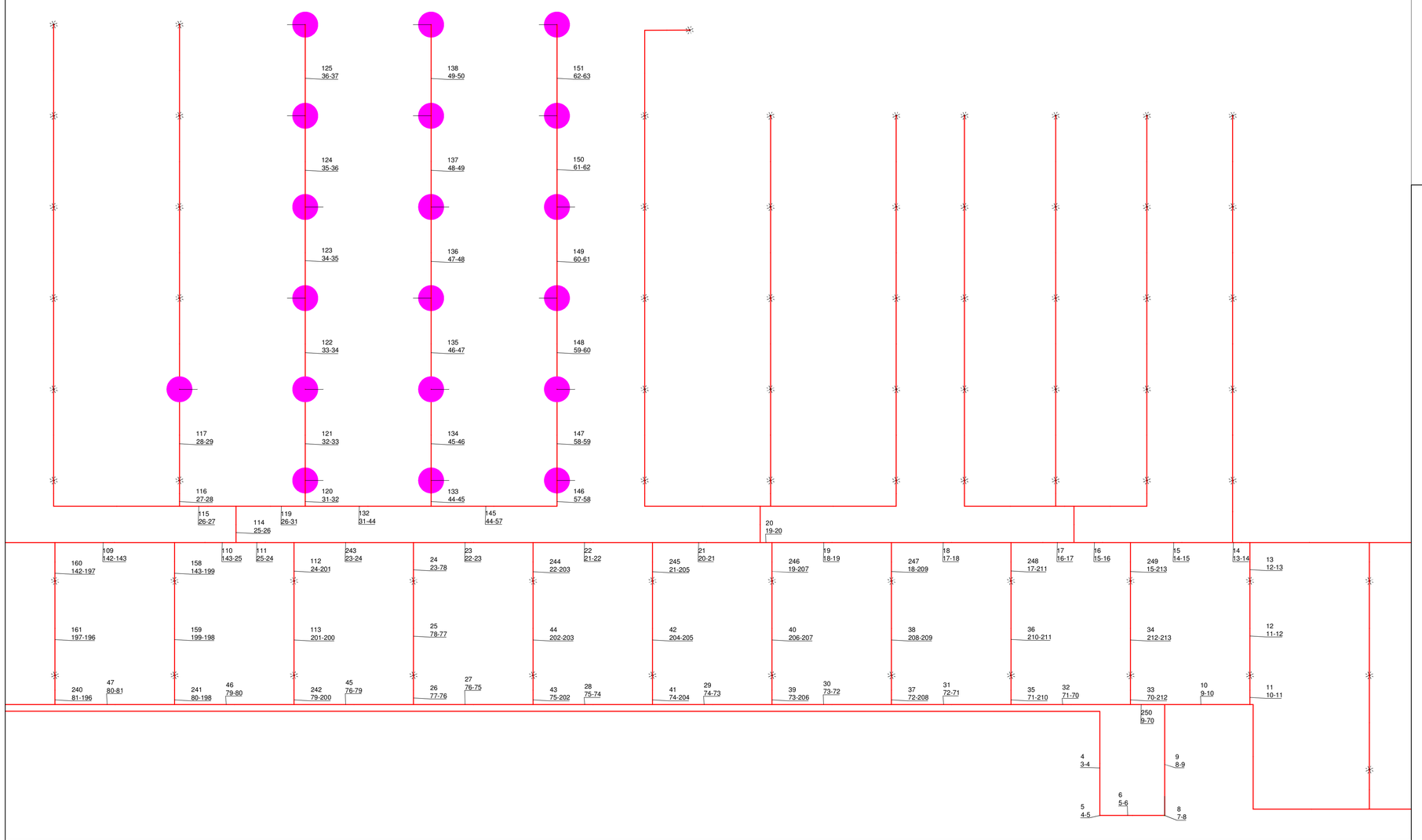
METROPOLITANA AUTOMATICA DI TORINO
LINEA 2 - TRATTA POLITECNICO - REBAUDENGO

PROGETTAZIONE DEFINITIVA
Lotto Funzionale 1: Rebaudengo - Bologna

AC-A02 - ALLEGATO GRAFICO DI CALCOLO ANTINCENDIO

RETE SPRINKLER - AREA FAVORITA LIVELLO -2





MINISTERO
DELLE INFRASTRUTTURE E DELLA MOBILITÀ SOSTENIBILI
STRUTTURA TECNICA DI MISSIONE

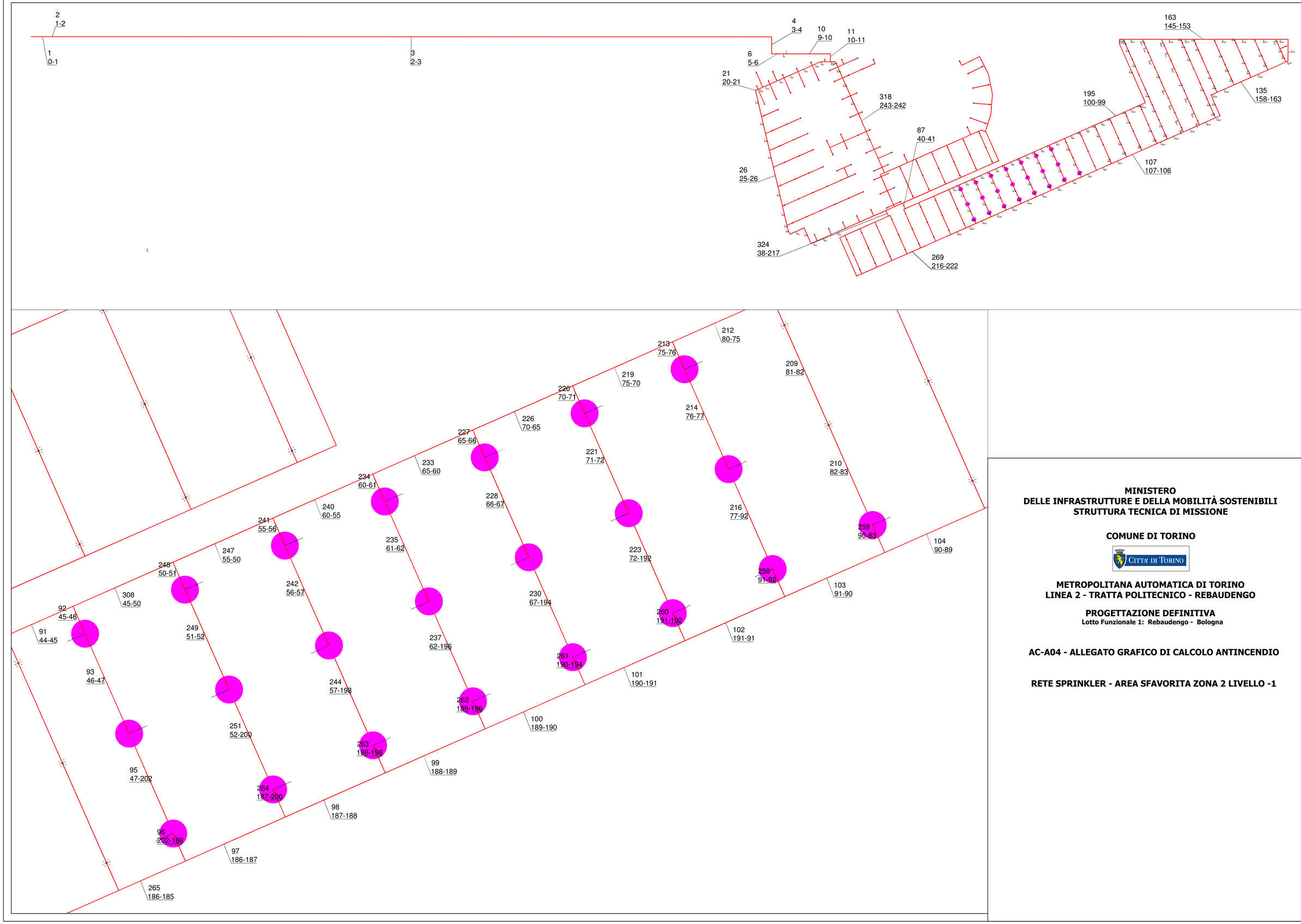
COMUNE DI TORINO

METROPOLITANA AUTOMATICA DI TORINO
LINEA 2 - TRATTA POLITECNICO - REBAUDENGO

PROGETTAZIONE DEFINITIVA
Lotto Funzionale 1: Rebaudengo - Bologna

AC-A03 - ALLEGATO GRAFICO DI CALCOLO ANTINCENDIO

RETE SPRINKLER - AREA SFAVORITA ZONA 1 LIVELLO -1



MINISTERO
DELLE INFRASTRUTTURE E DELLA MOBILITÀ SOSTENIBILI
STRUTTURA TECNICA DI MISSIONE

COMUNE DI TORINO

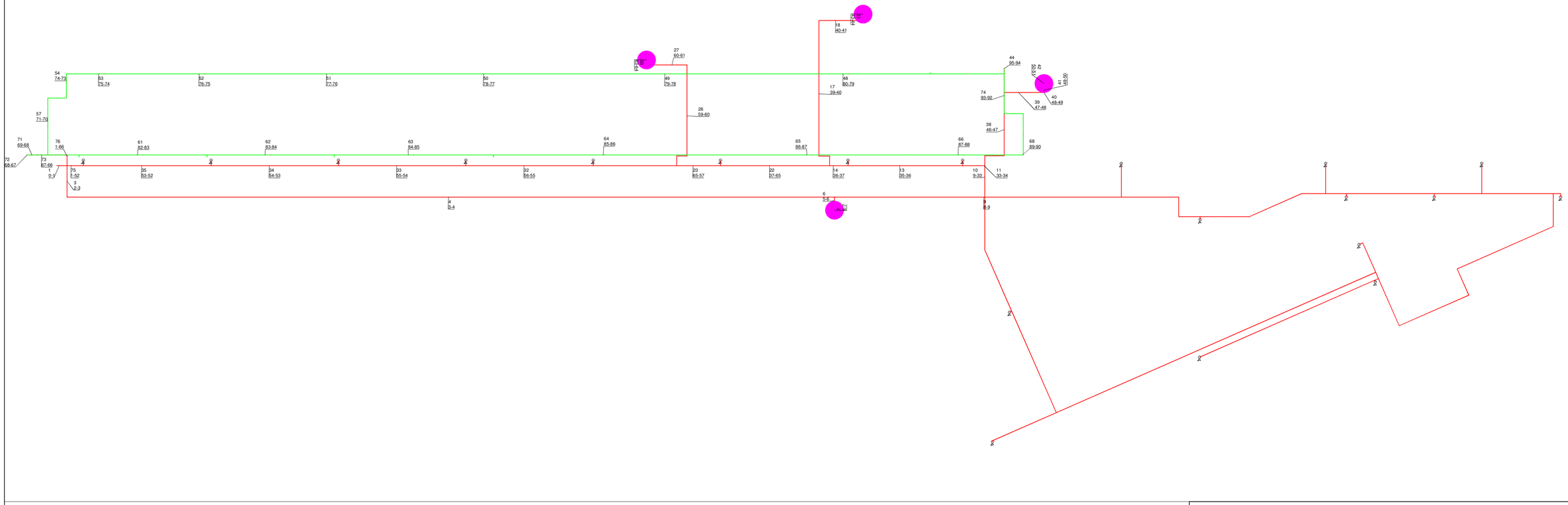
CITTA' DI TORINO

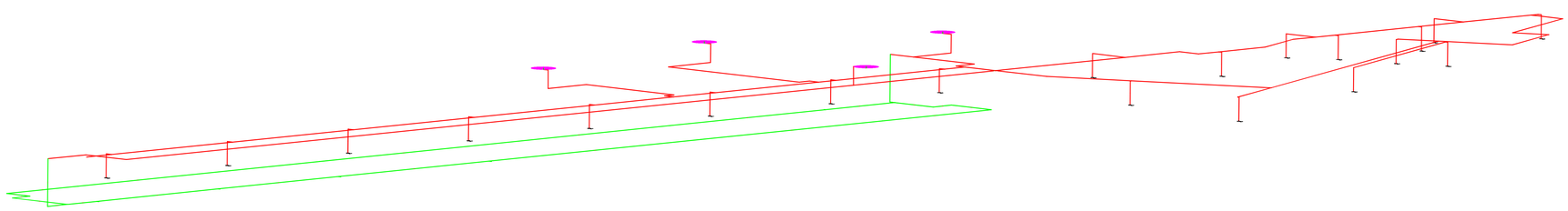
METROPOLITANA AUTOMATICA DI TORINO
LINEA 2 - TRATTA POLITECNICO - REBAUDENGO

PROGETTAZIONE DEFINITIVA
Lotto Funzionale 1: Rebaudengo - Bologna

AC-A04 - ALLEGATO GRAFICO DI CALCOLO ANTINCENDIO

RETE SPRINKLER - AREA SFAVORITA ZONA 2 LIVELLO -1





MINISTERO
DELLE INFRASTRUTTURE E DELLA MOBILITÀ SOSTENIBILI
STRUTTURA TECNICA DI MISSIONE

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PROGETTAZIONE DEFINITIVA
Lotto Funzionale 1: Rebaudengo - Bologna

AC-A05 - ALLEGATO GRAFICO DI CALCOLO ANTINCENDIO

RETE IDRANTI - IDRANTI ESTERNI UNI70