



POLITECNICO DI MILANO
DIPARTIMENTO DI INGEGNERIA STRUTTURALE

I COLLEGAMENTI DELLE
MEMBRATURE IN ACCIAIO

APPUNTI DEL CORSO DI TECNICA DELLE COSTRUZIONI
(ALLIEVI MECCANICI)

A CURA DELL'ING. SERGIO TATTONI

ESEMPI COSTRUTTIVIESEMPI DI UNIONI BULLONATE

Si riportano in questa III parte alcune tavole esemplificative dei tipi di giunzioni bullonate più comunemente adottati. In esse l'Allievo potrà riconoscere, variamente combinati fra loro, gli schemi elementari di calcolo illustrati precedentemente. Alcuni dei particolari illustrati saranno svolti dettagliatamente durante le Esercitazioni; per gli altri si rimanda alla diligenza dell'Allievo.

TAVOLA 1

Unione trave - trave: nodo cerniera

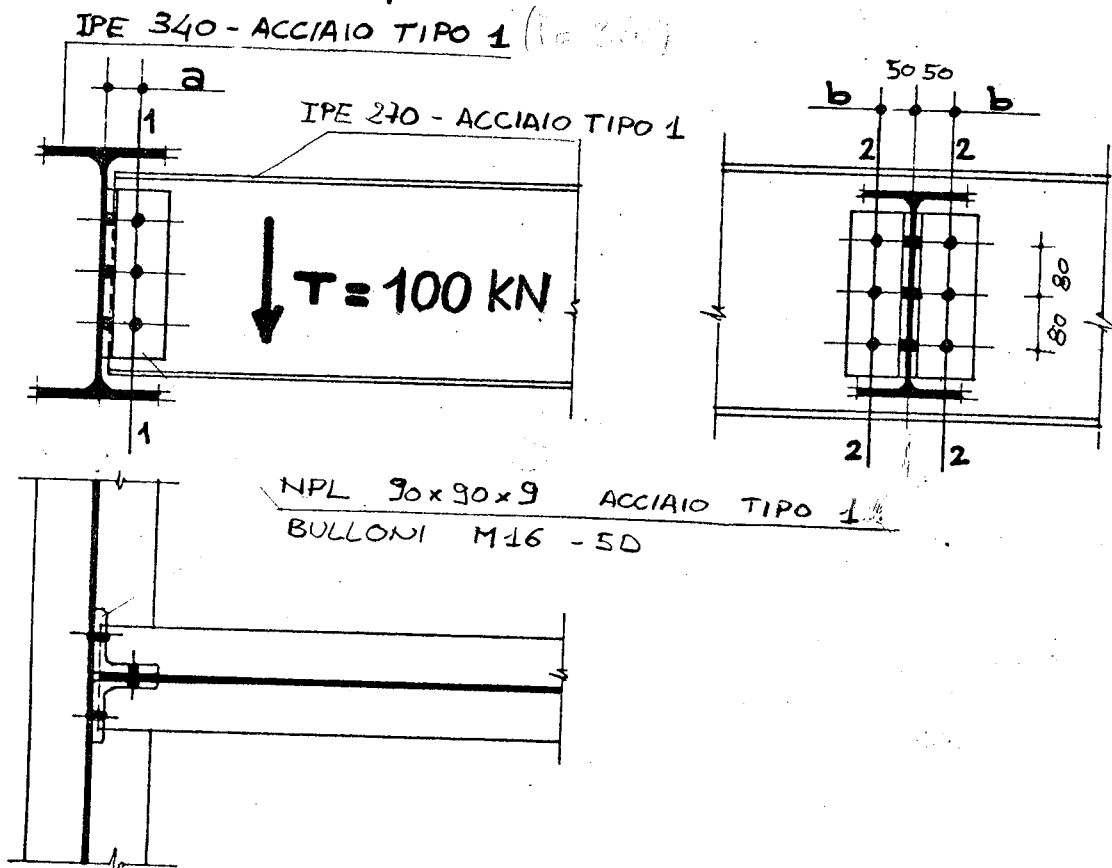
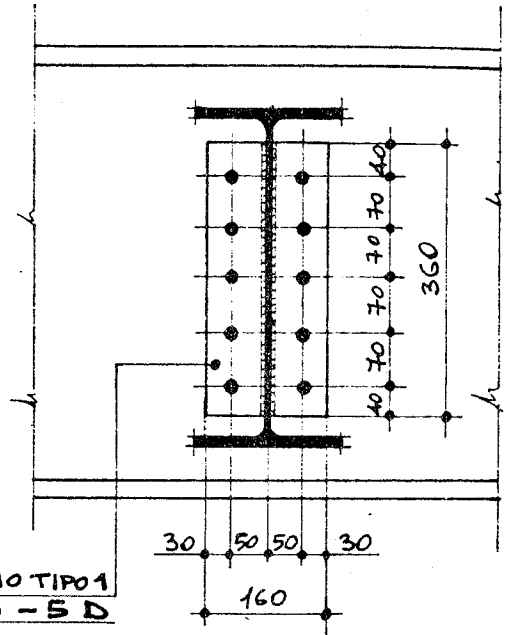
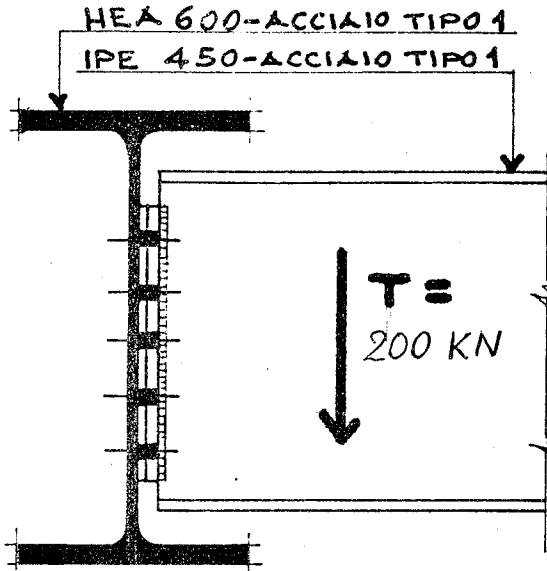


TAVOLA 2

Unione trave - trave: nodo cerniera



+160x12-ACCIAIO TIPO 1
BULLONI Ø16-5 D

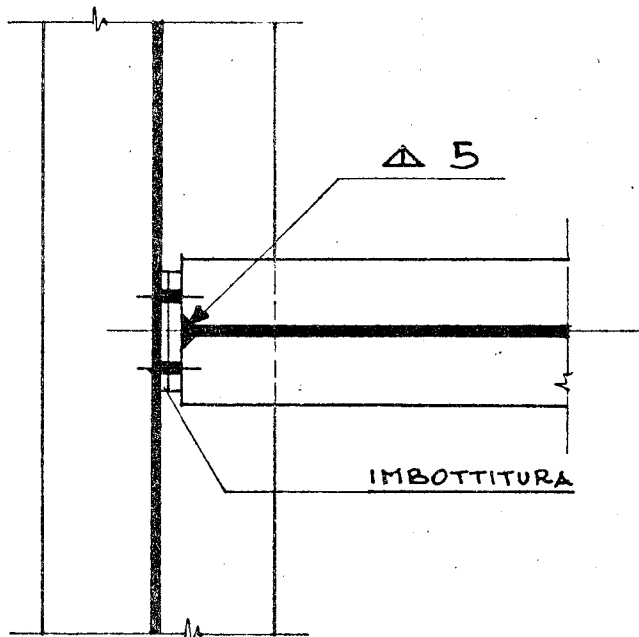


TAVOLA 3

Unione trave - trave: nodo incastro

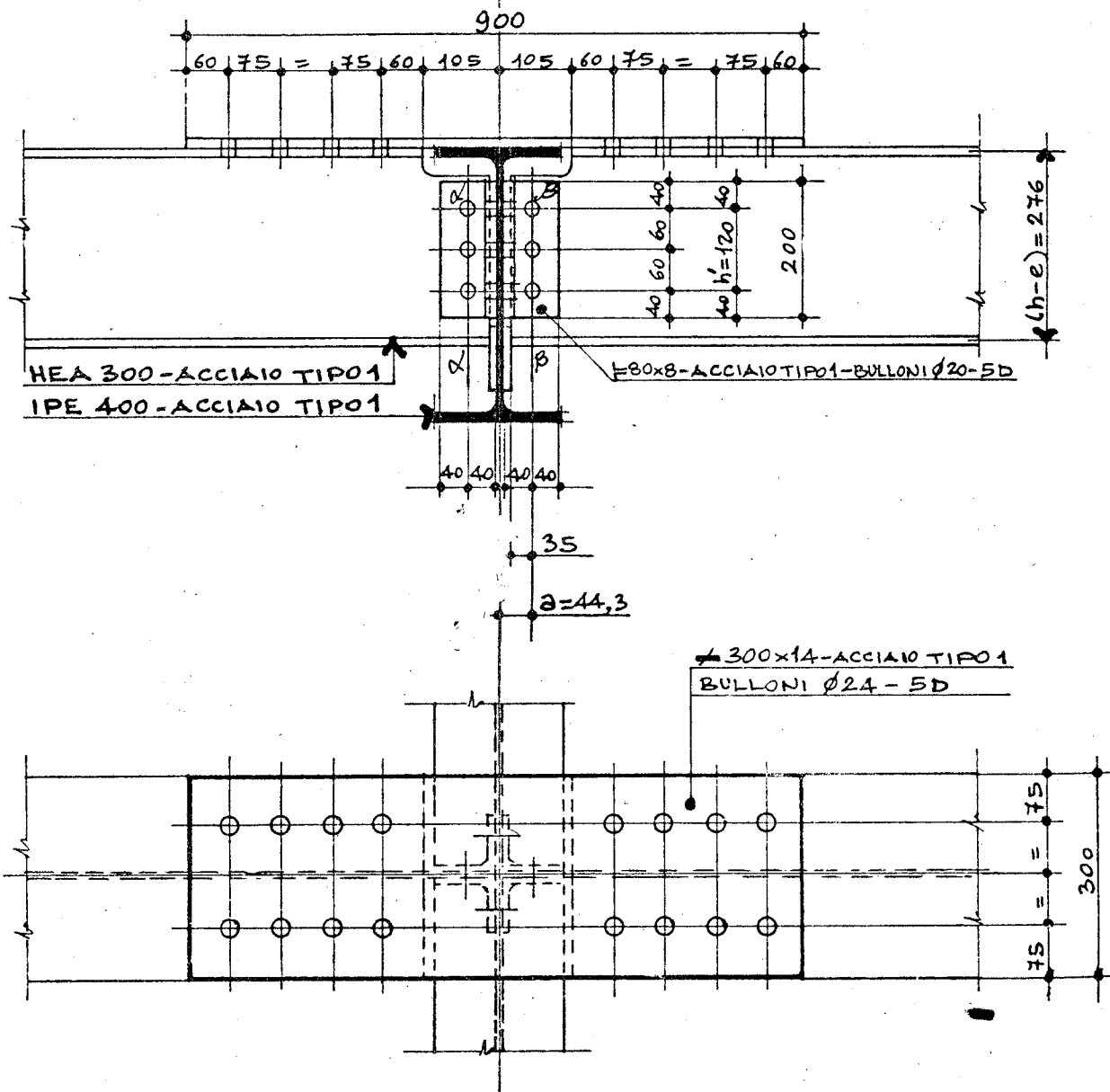
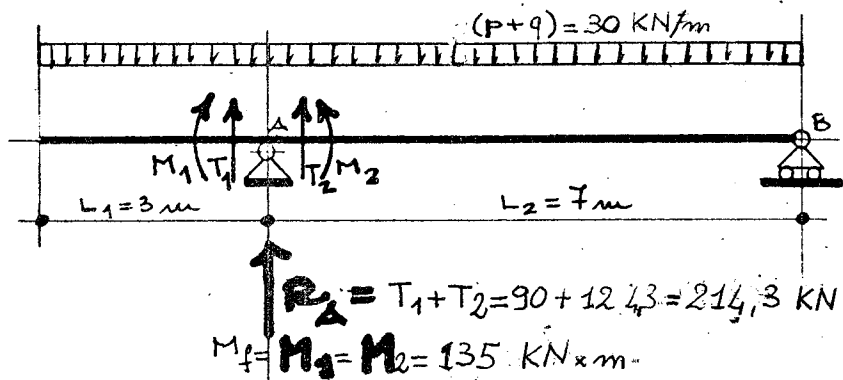
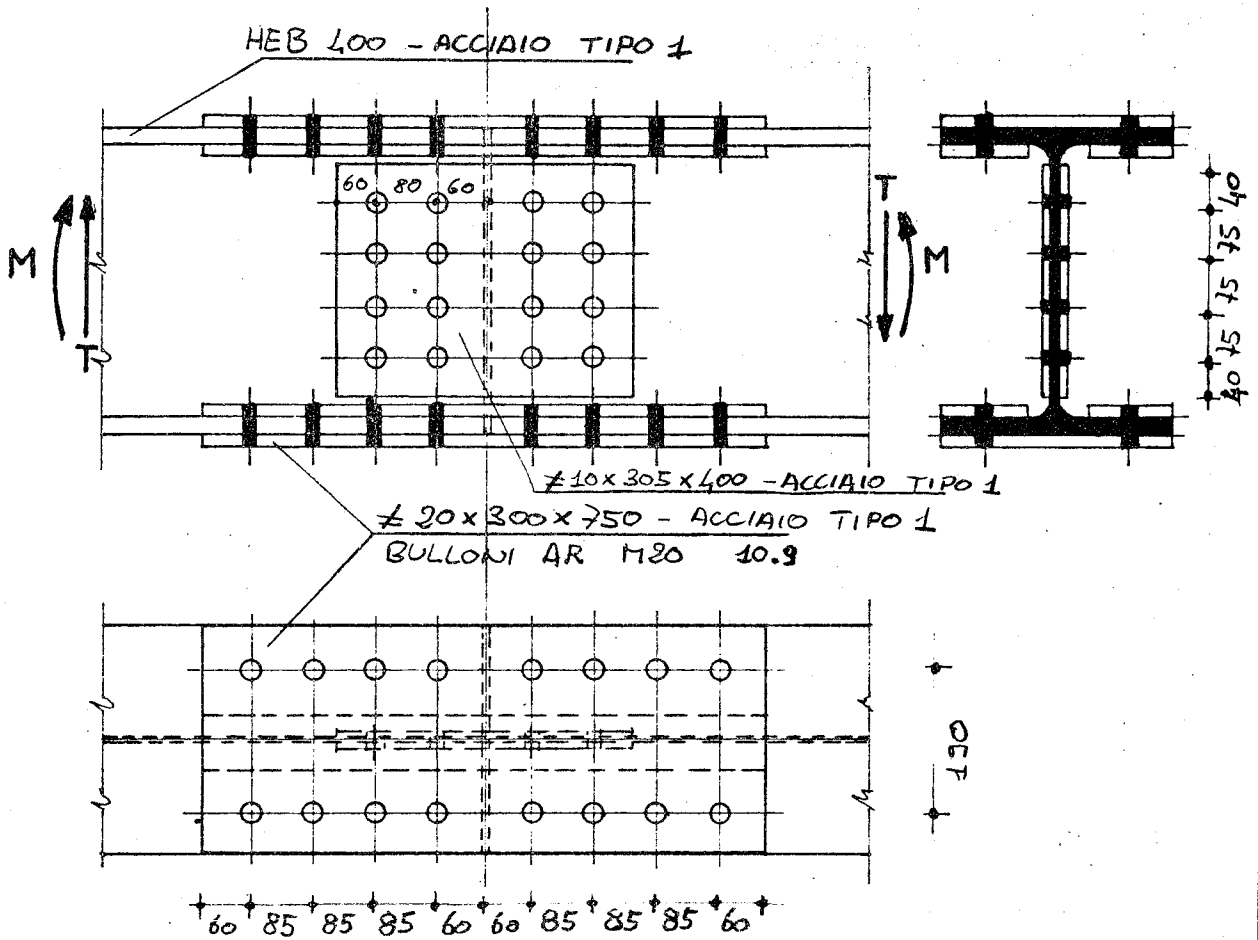


TAVOLA 4

Unione trave - trave: giunto completo di testa coprigiuntato



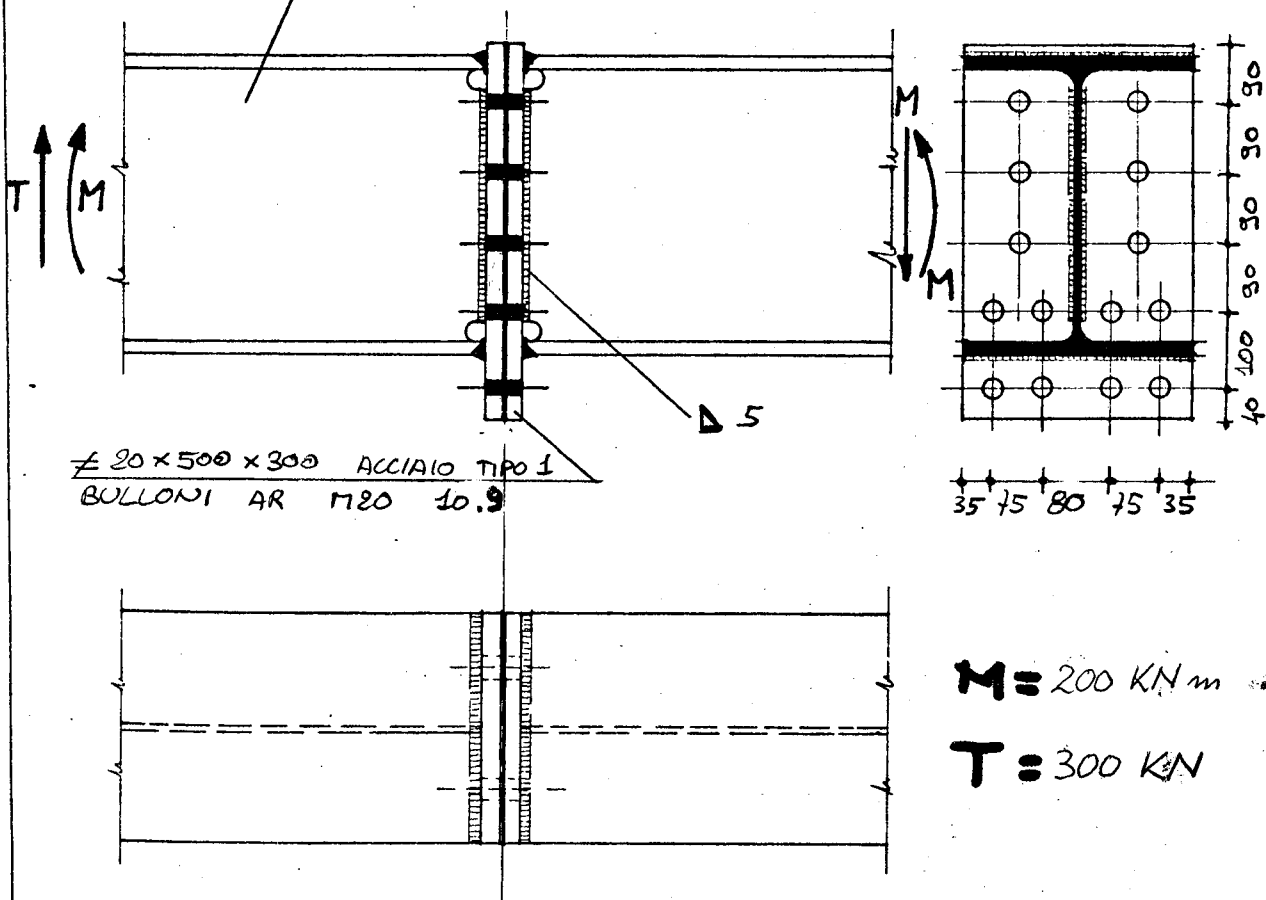
$M = 200 \text{ KN}\cdot\text{m}$

$T = 300 \text{ KN}$

TAVOLA 5

Unione trave - trave: giunto completo di testa
flangiato

HEB 400 - ACCIAIO TIPO 1

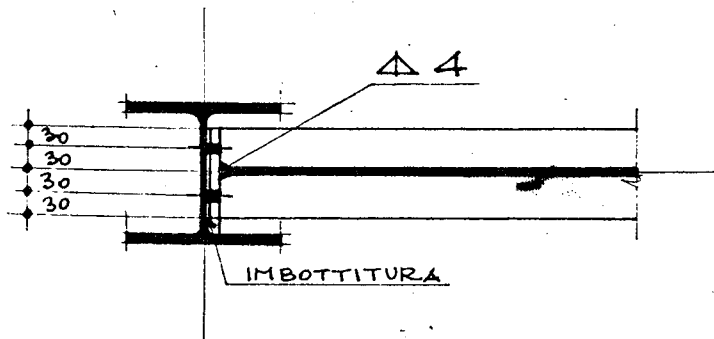
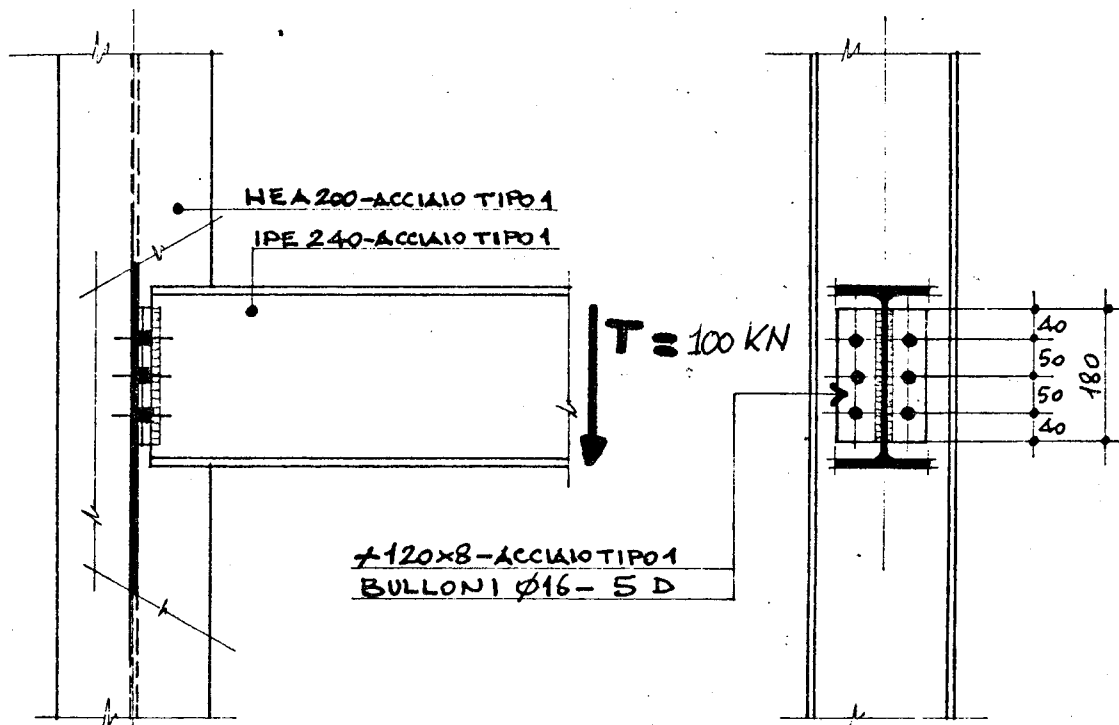
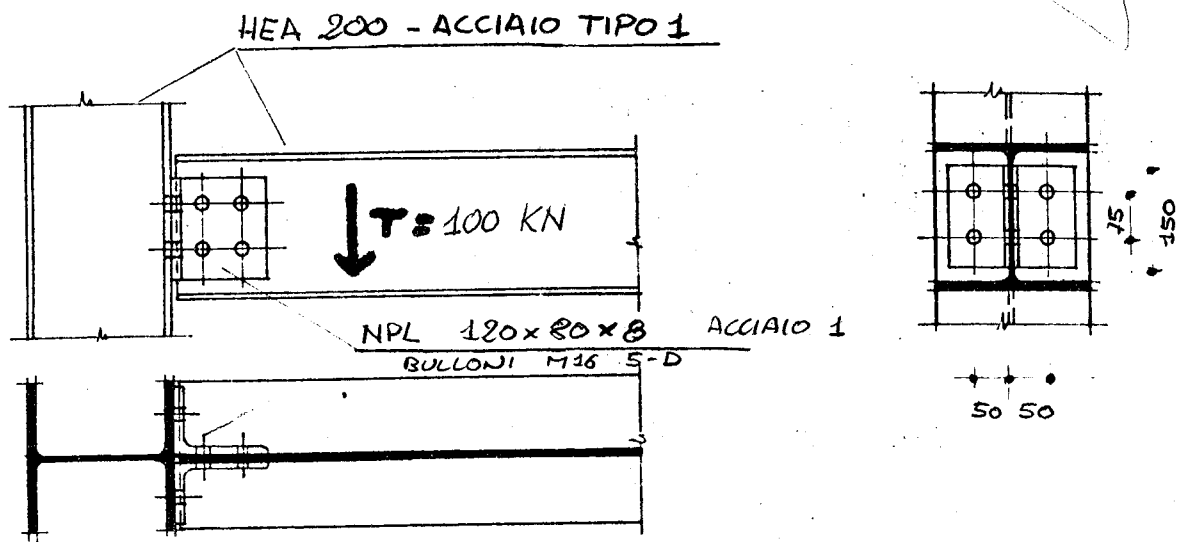


$M = 200 \text{ KN m}$

$T = 300 \text{ KN}$

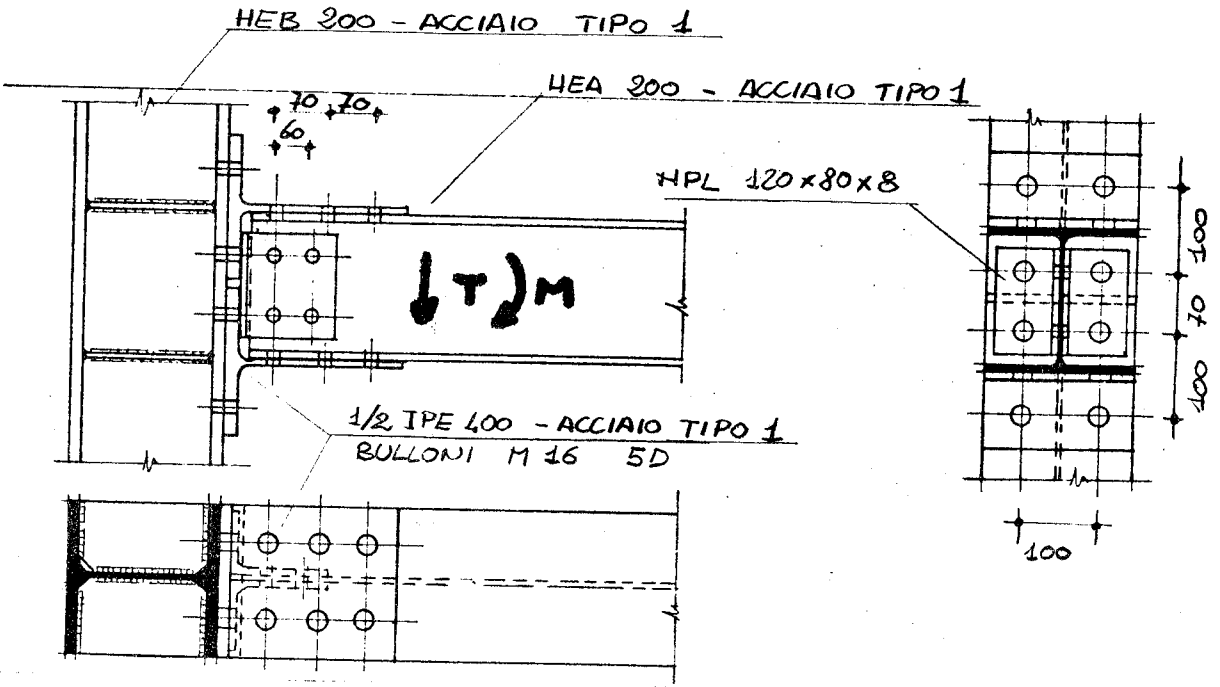
TAVOLE 6 - 6a

Unione trave - pilastro: nodo cerniera



TAVOLE 7 - 7a

Unione trave - pilastro: nodo incastro



$T = 120 \text{ KN}$

$M = 25 \text{ KNm}$

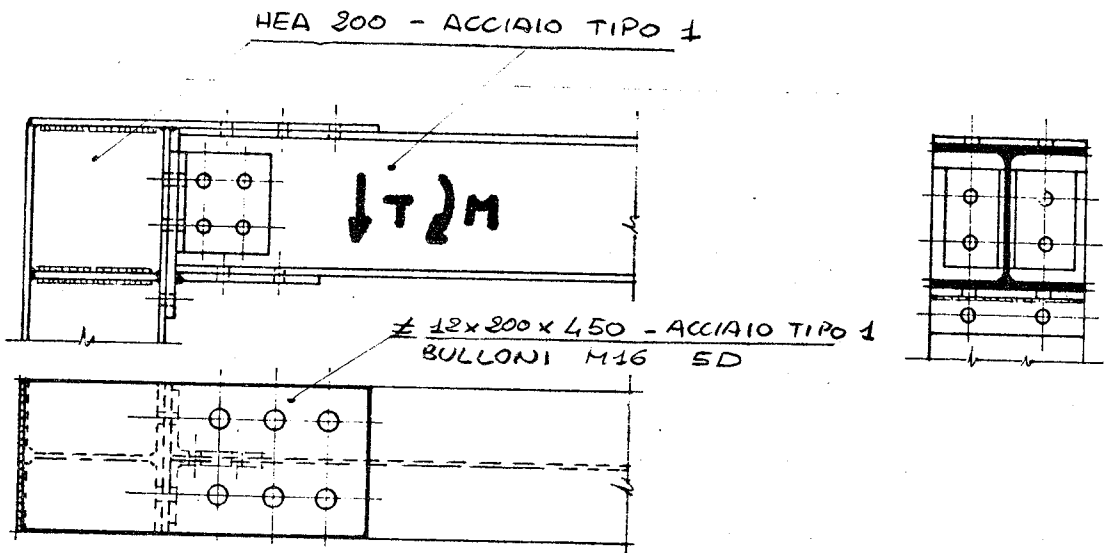


TAVOLA 8

Unione trave - pilastro: nodo incastro flangiato

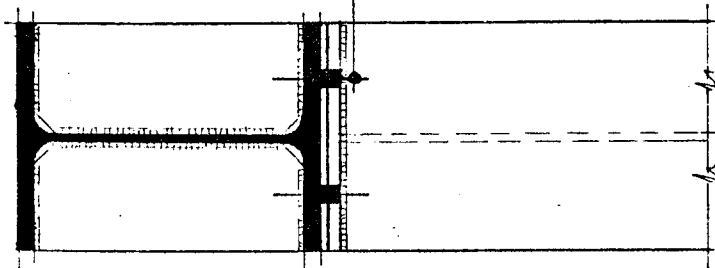
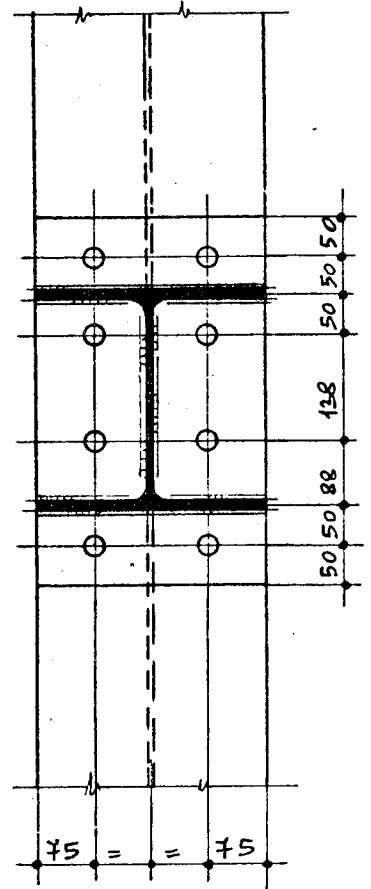
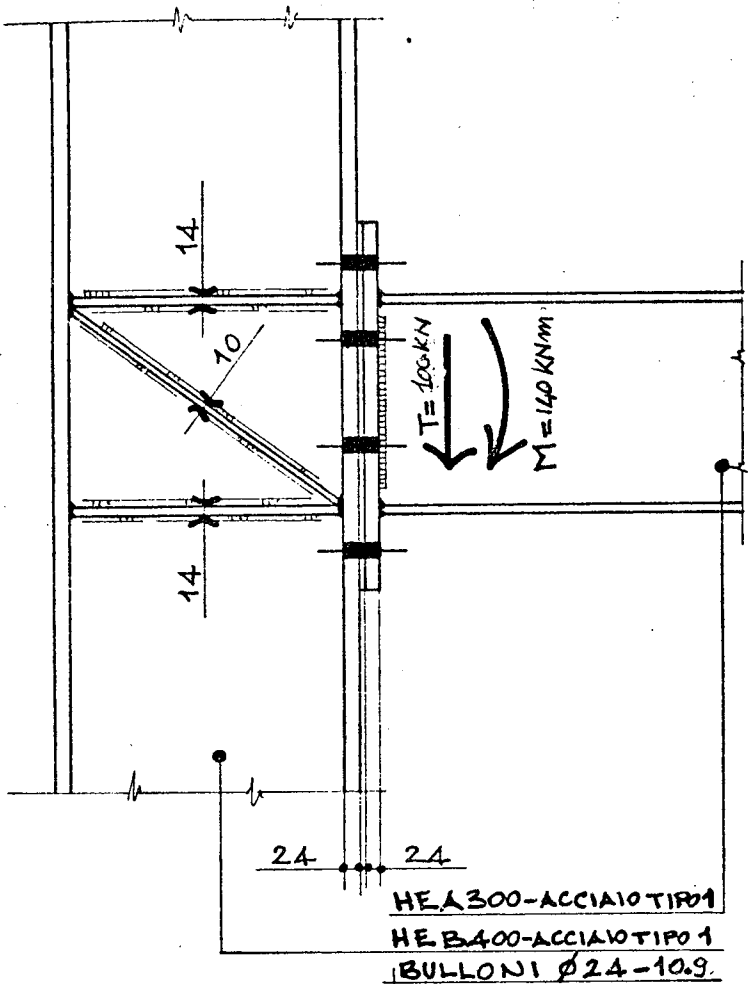


TAVOLA 9

Unione pilastro - pilastro: giunto completo coprigiunto

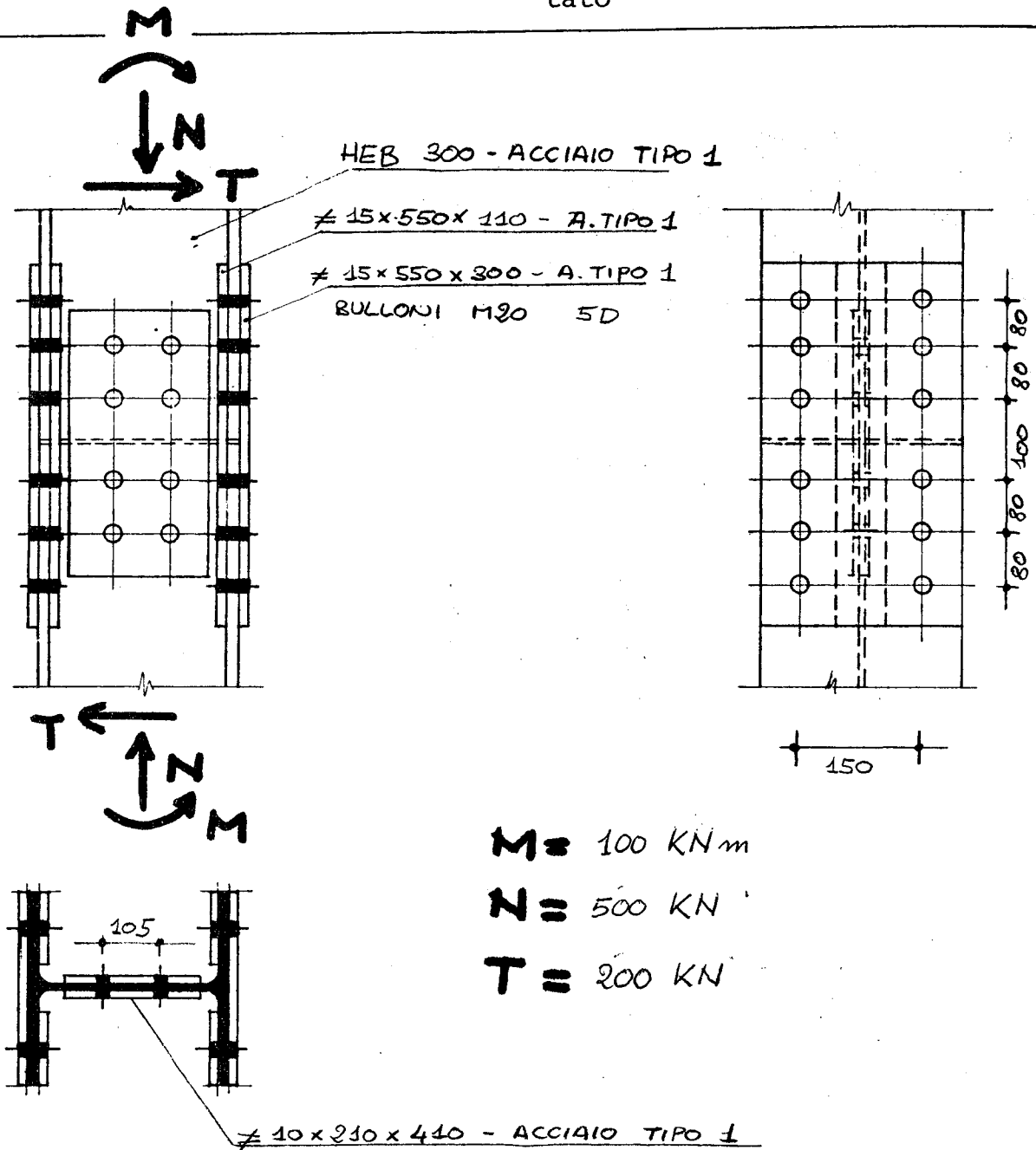
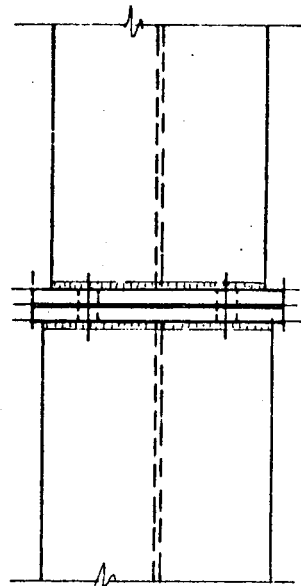
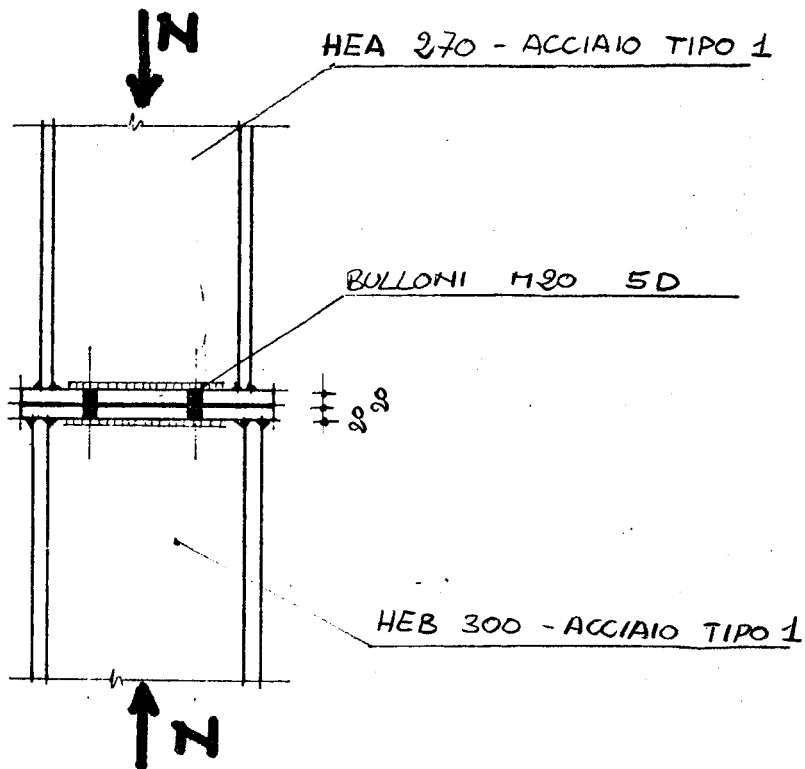


TAVOLA 10

Unione pilastro - pilastro: nodo cerniera flangiato



$N = 700 \text{ KN}$

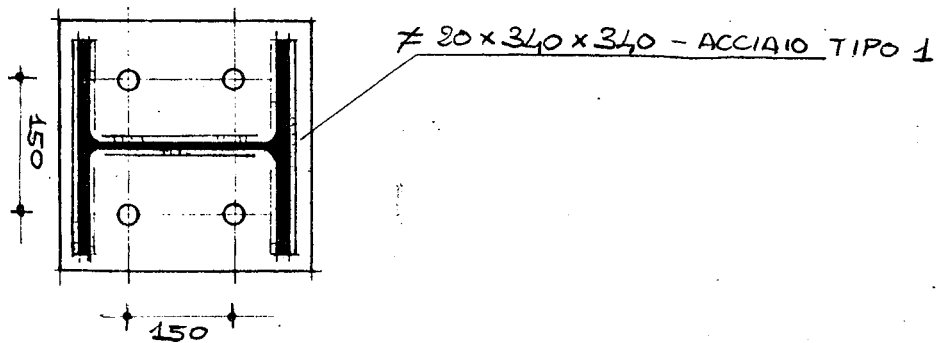
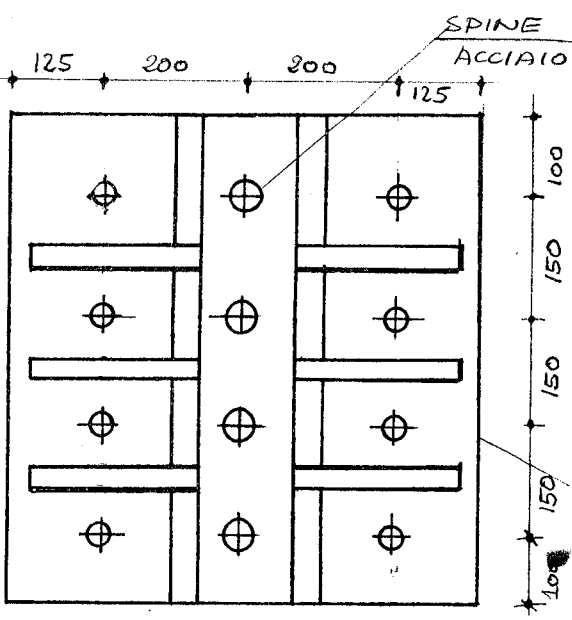
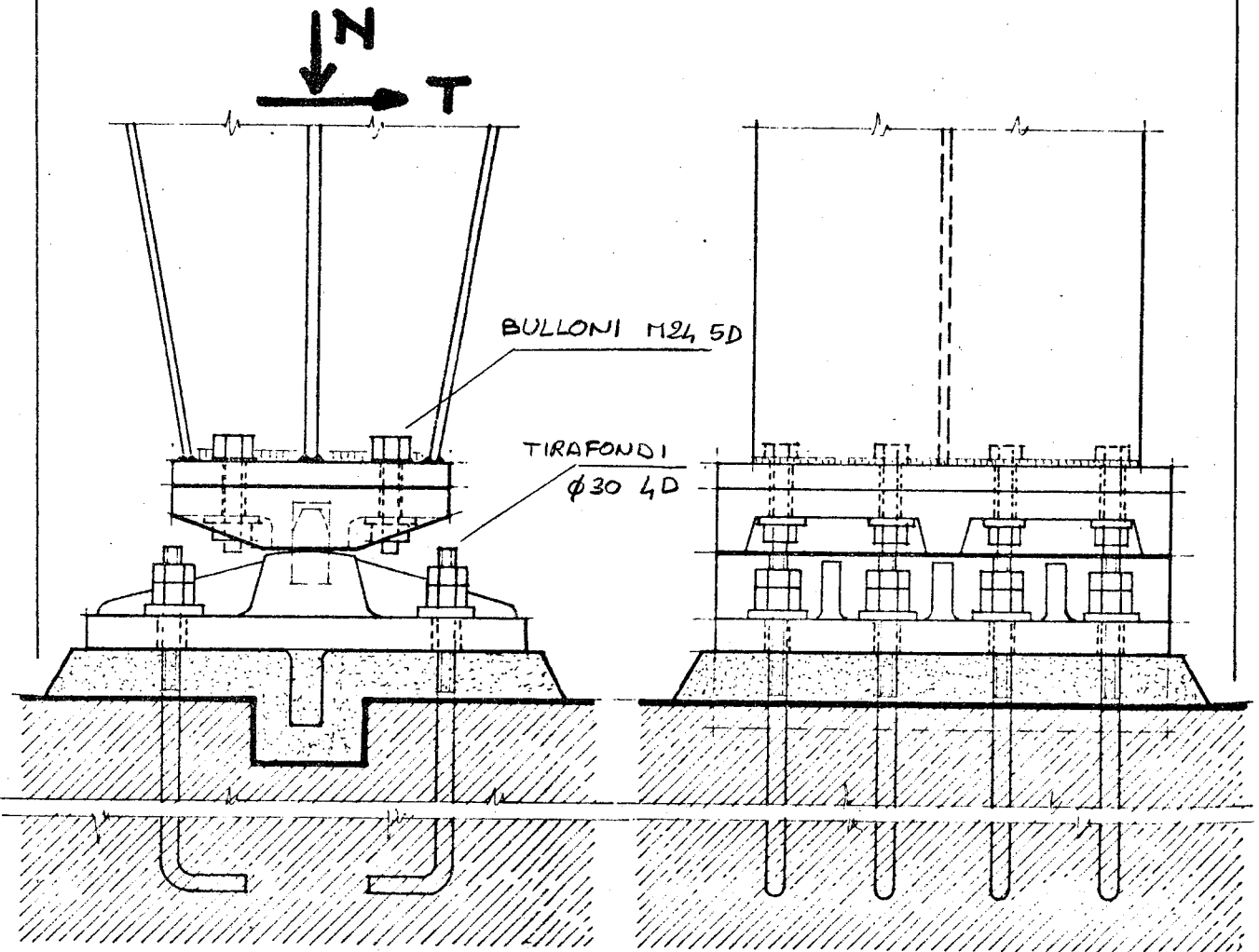


TAVOLA 11
Piede di pilastro: nodo cerniera



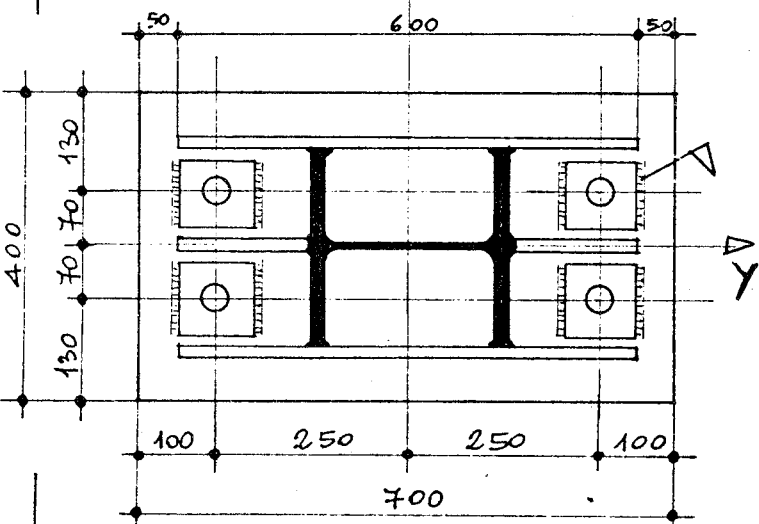
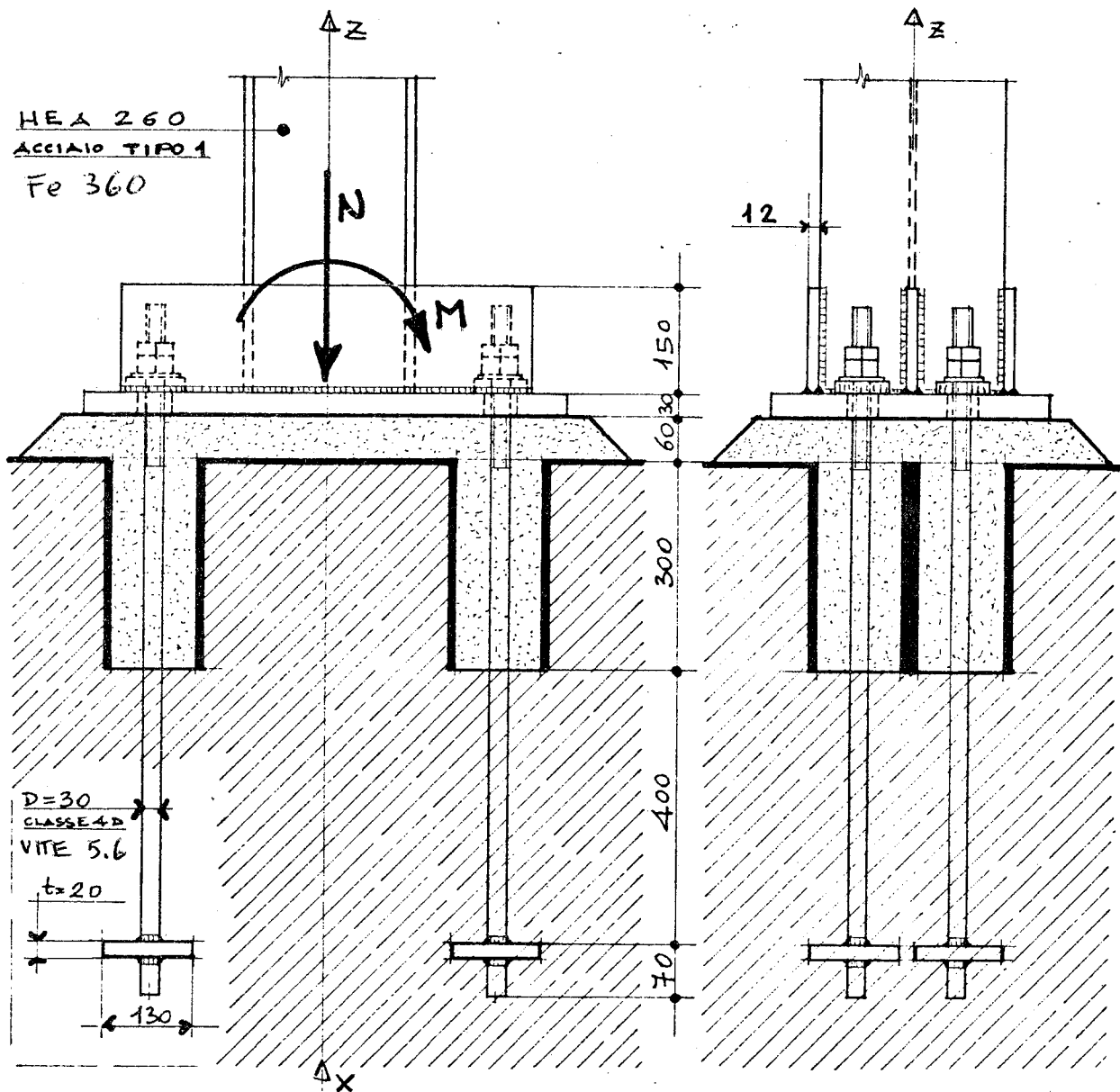
$N = 2000 \text{ KN}$

$T = 400 \text{ KN}$

50x650x650
ACCIAIO TIPO 1

TAVOLA 12

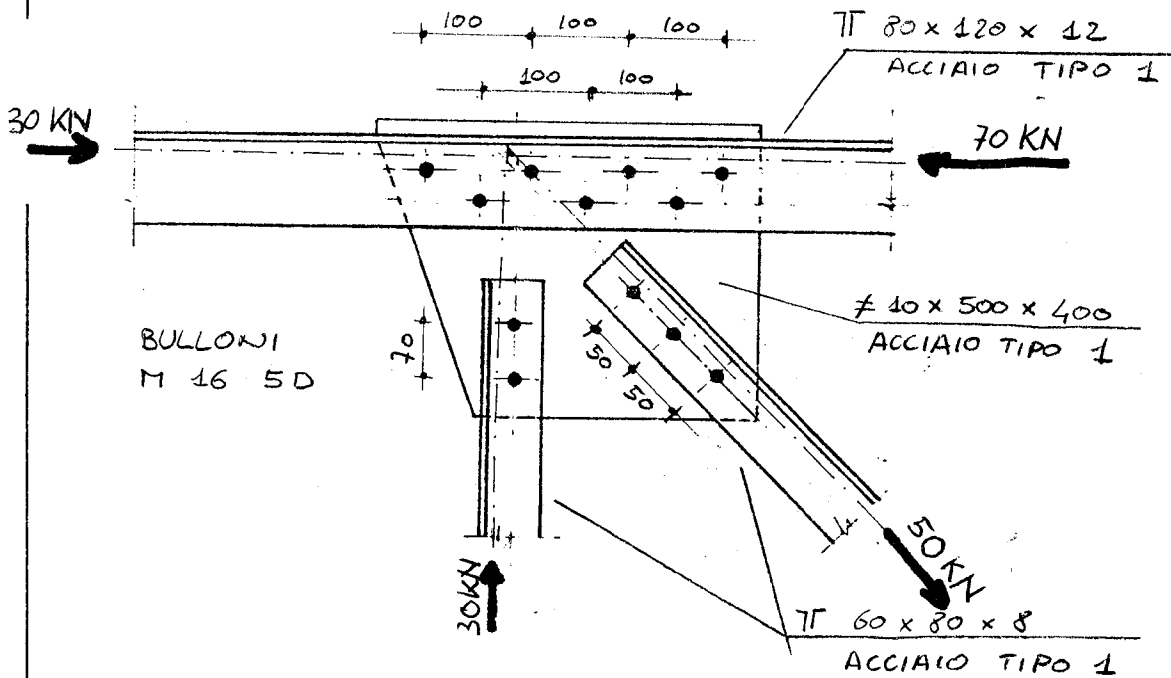
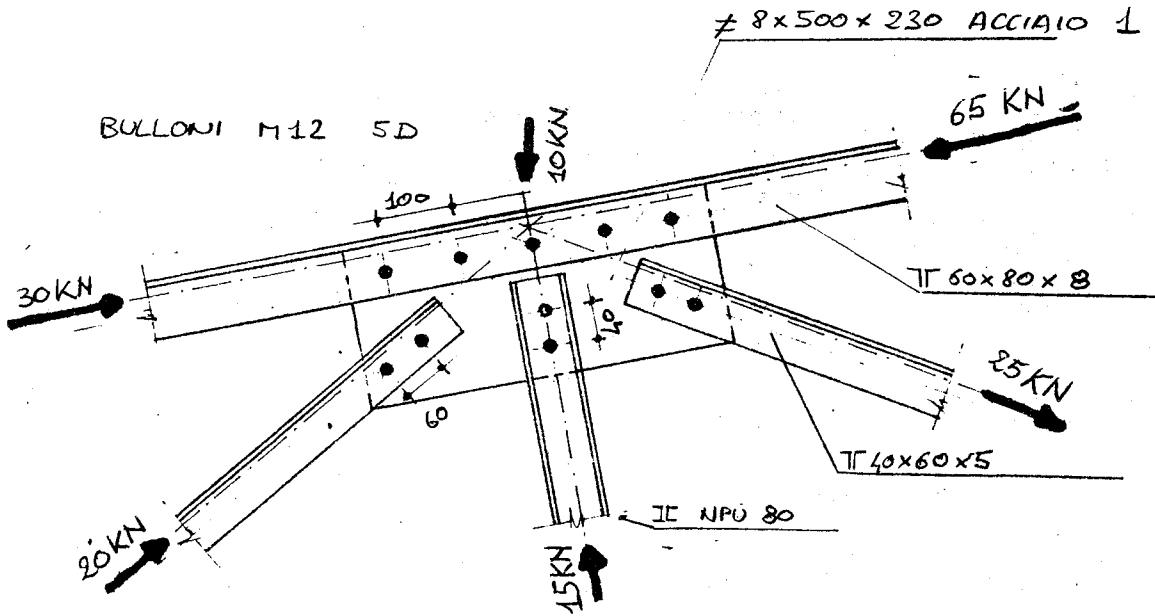
Piede di pilastro: nodo incastro nel piano y - z
nodo cerniera nel piano x - z



$$\begin{aligned}
 1^a \left\{ \begin{aligned} N_{max} &= 200 \text{ KN} \\ M &= +80 \text{ KNm} \end{aligned} \right. \\
 2^a \left\{ \begin{aligned} N_{min} &= 30 \text{ KN} \\ M &= +40 \text{ KNm} \end{aligned} \right. \\
 3^a \left\{ \begin{aligned} N &= 90 \text{ KN} \\ M_{max} &= -90 \text{ KNm} \end{aligned} \right.
 \end{aligned}$$

TAVOLA 13 - 13a

Nodi di travature reticolari



TAVOLE 14 - 14a
Nodi di travature reticolari

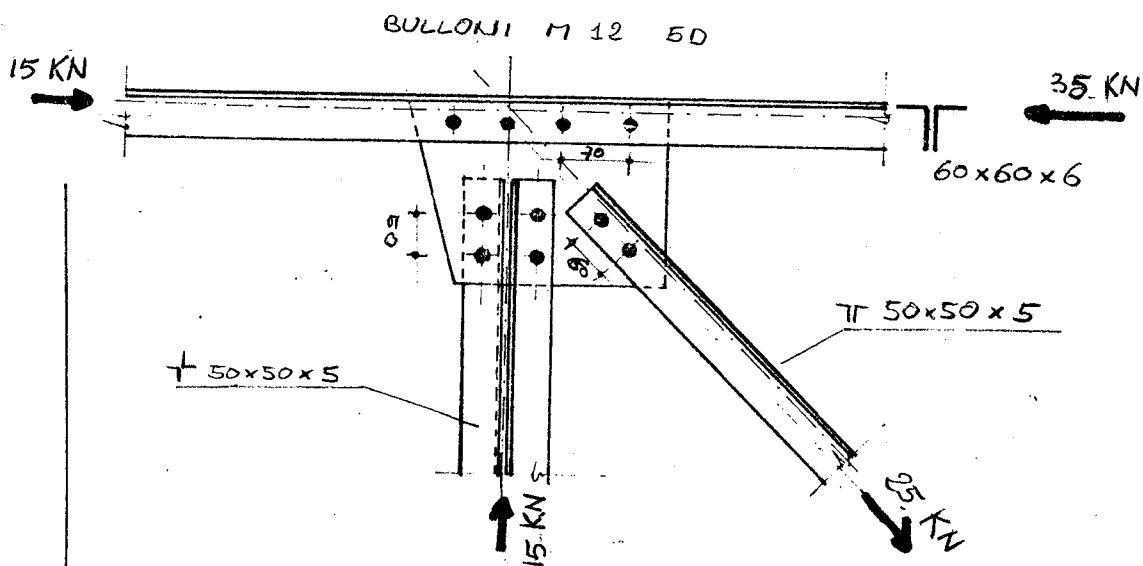
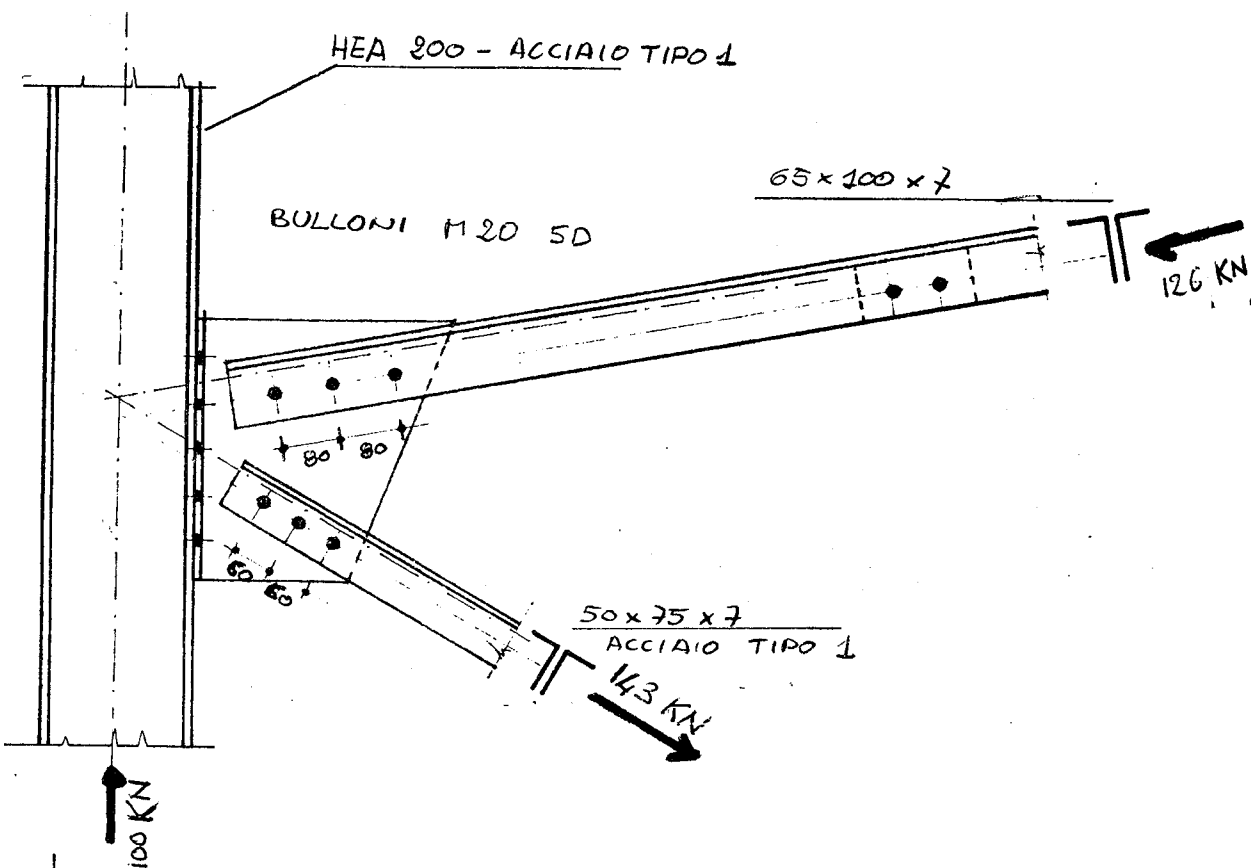
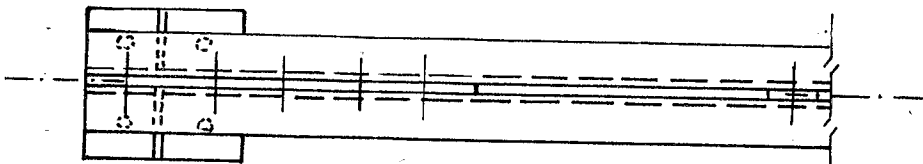
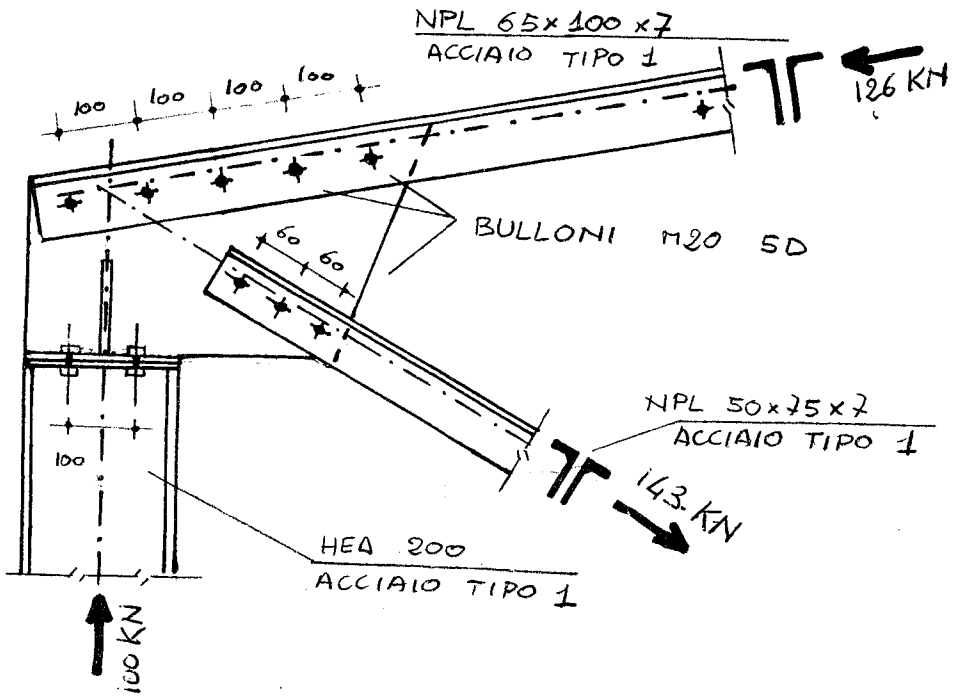


TAVOLA 15

Appoggio di capriata



ESEMPI DI UNIONI SALDATE

Alcuni dei più significativi nodi realizzati mediante bullo natura vengono qui ripresentati realizzati mediante saldatura.

TAVOLA 16

Unione trave - trave: nodo incastro (vedi tav. 3)

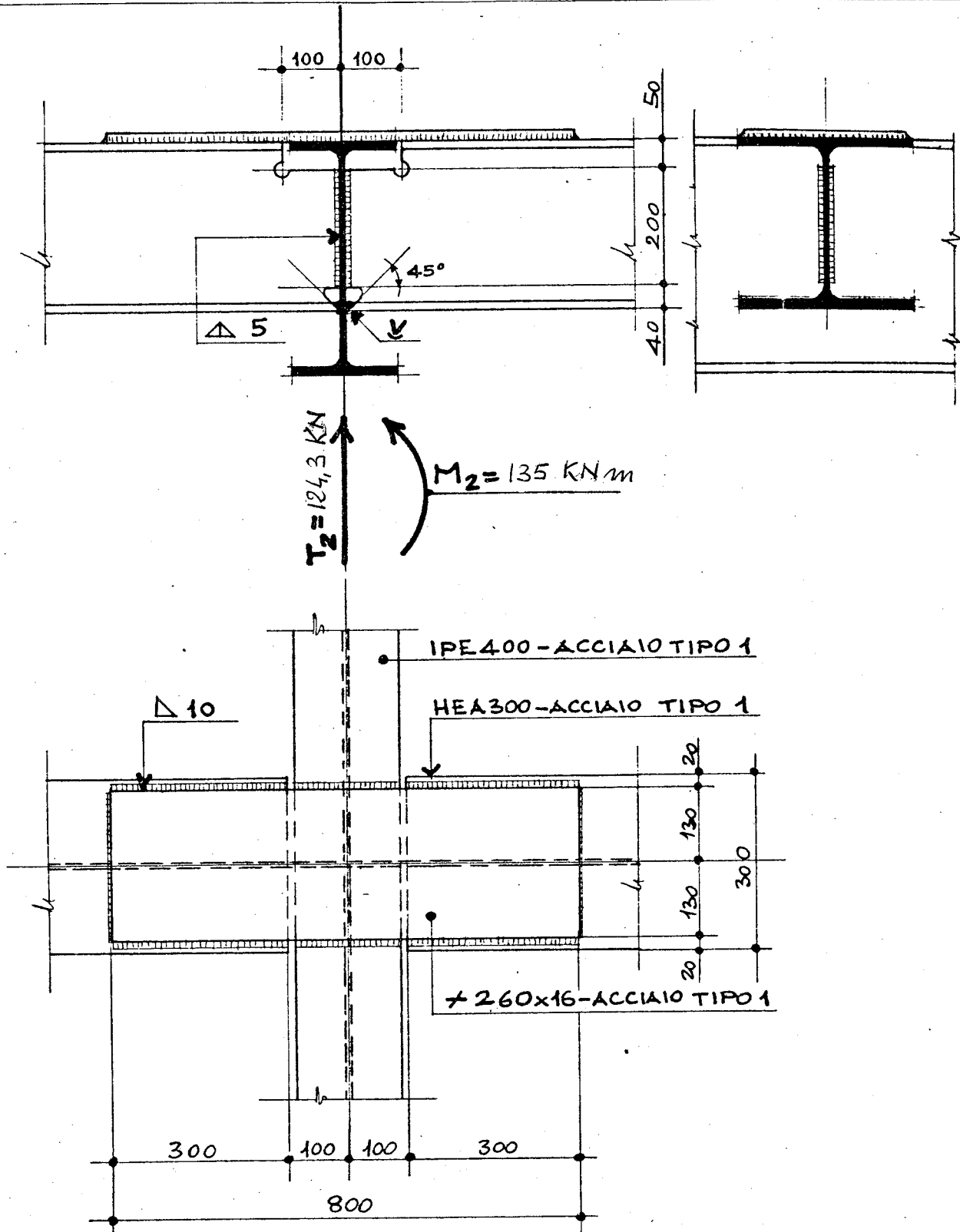
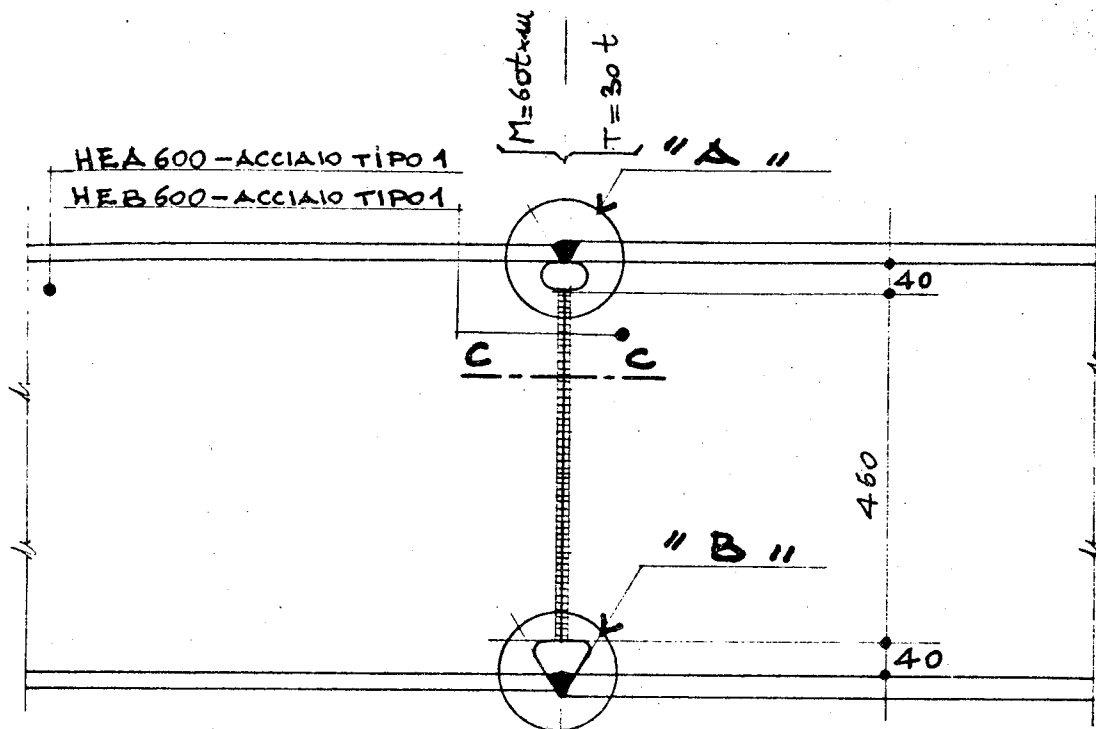


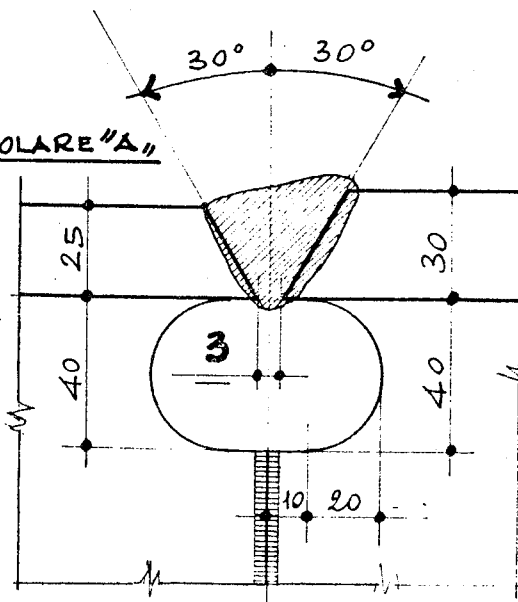
TAVOLA 17

Unione trave - trave: giunto completo di testa
(vedi Tav. 4 e 5)

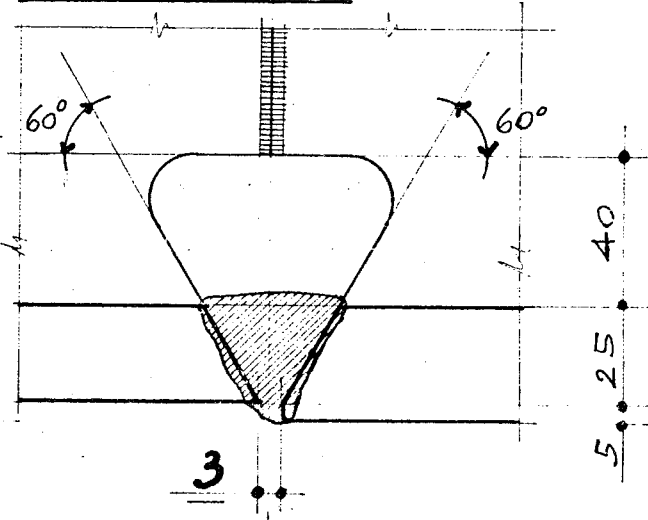


SALDATE DI I CLASSE

PARTICOLARE "A"



PARTICOLARE "B"



SEZIONE "C-C"

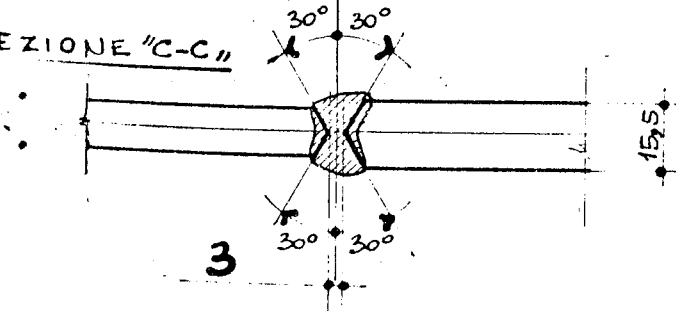
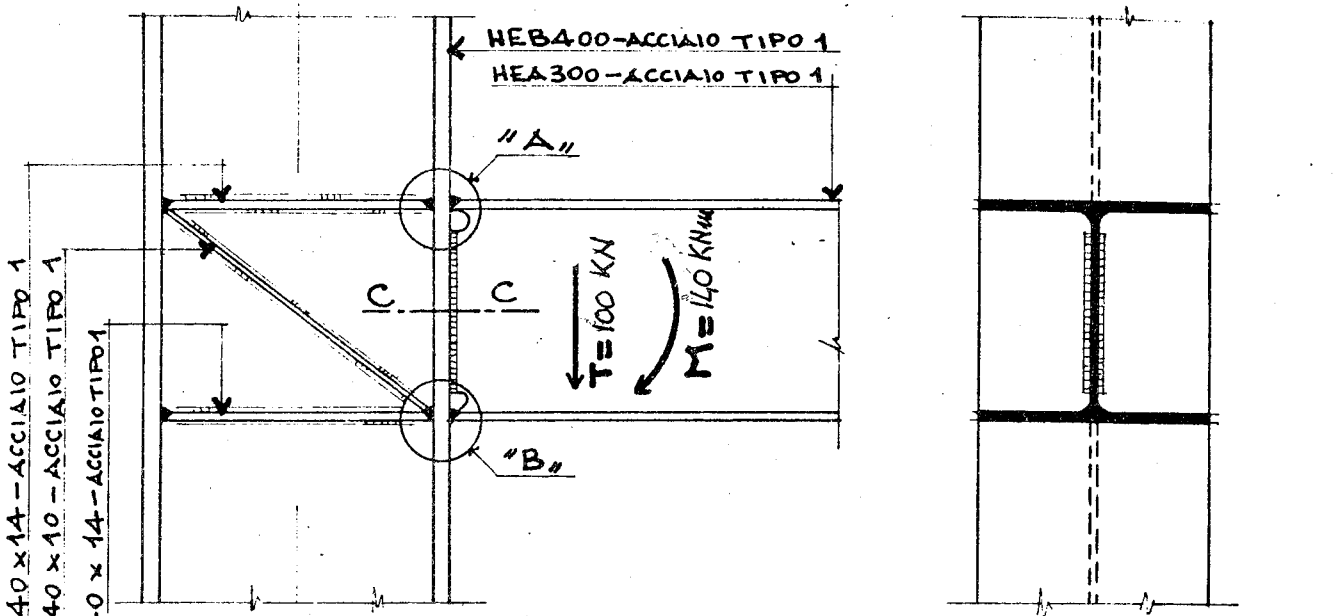
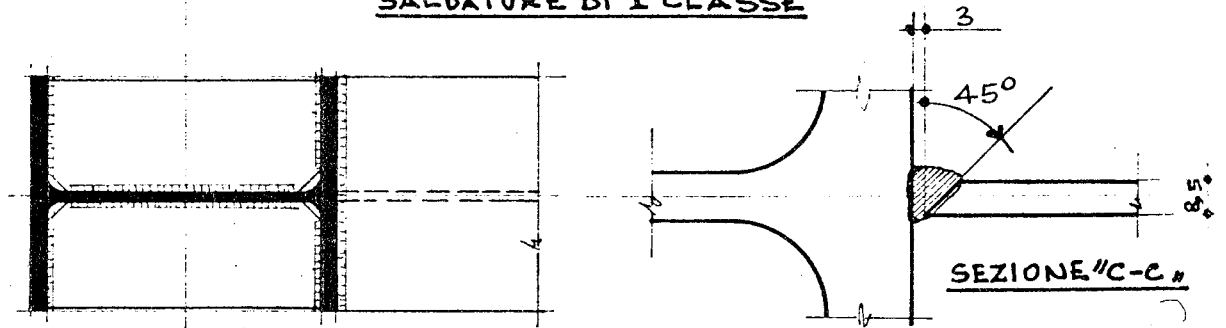


TAVOLA 18

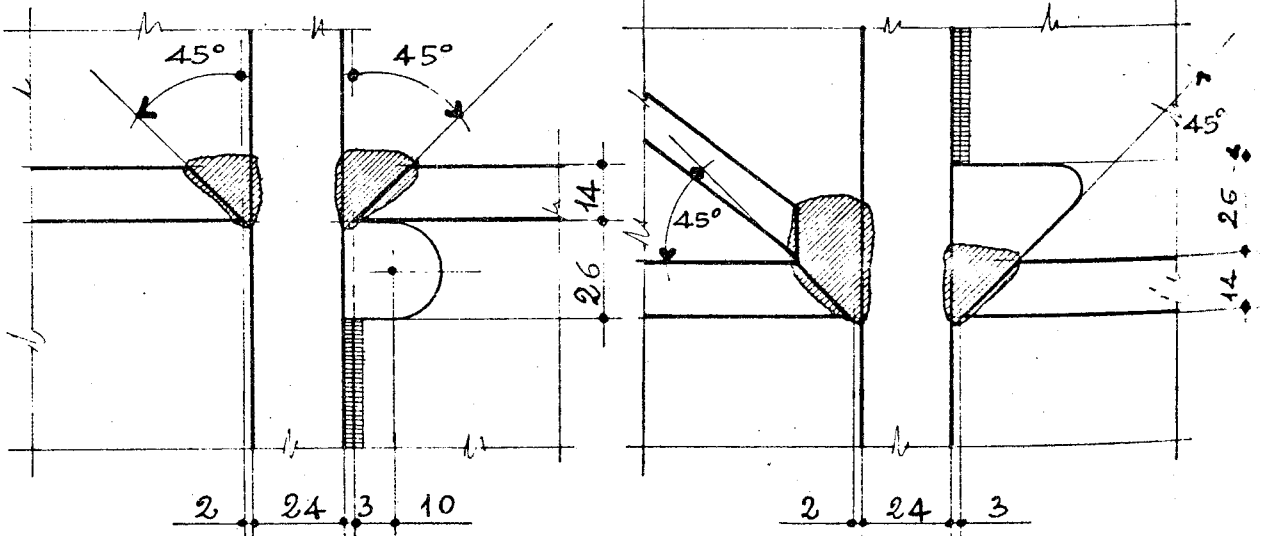
Unione trave - pilastro: nodo incastro (vedi Tavv. 7, 7a, 8)



SALDATURE DI I CLASSE



PARTICOLARE "B"



PARTICOLARE "A"

TAVOLA 19 e 19 a
Nodi di travature reticolari (vedi tavv. 13 e 13a)

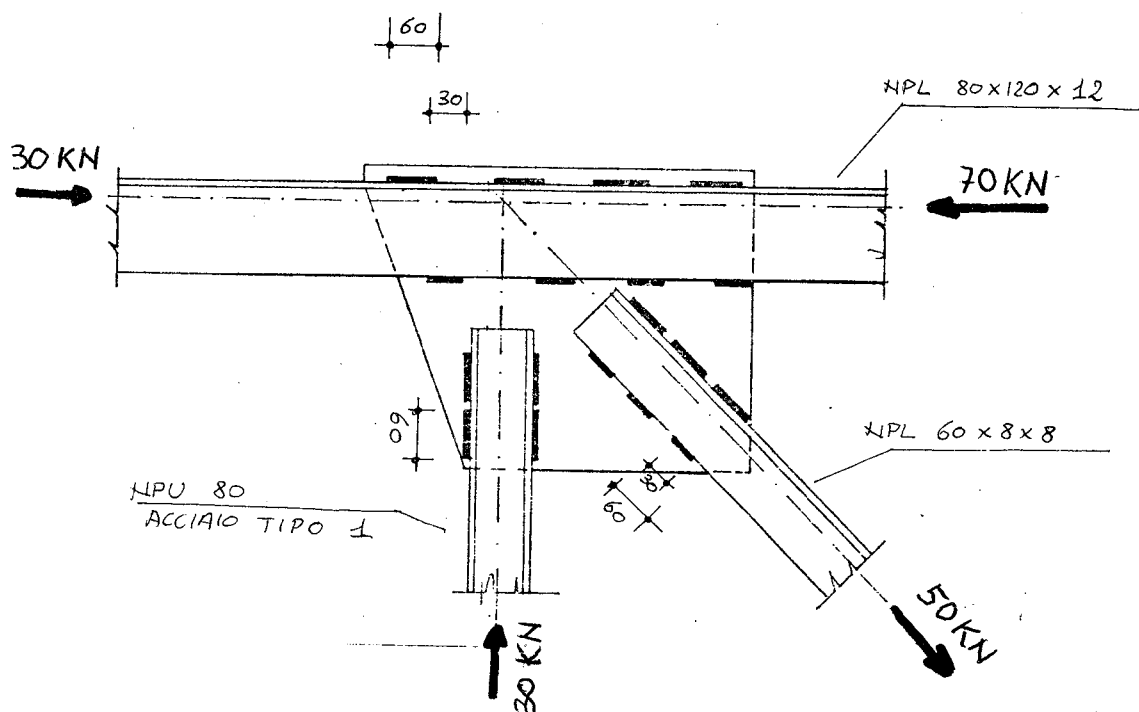
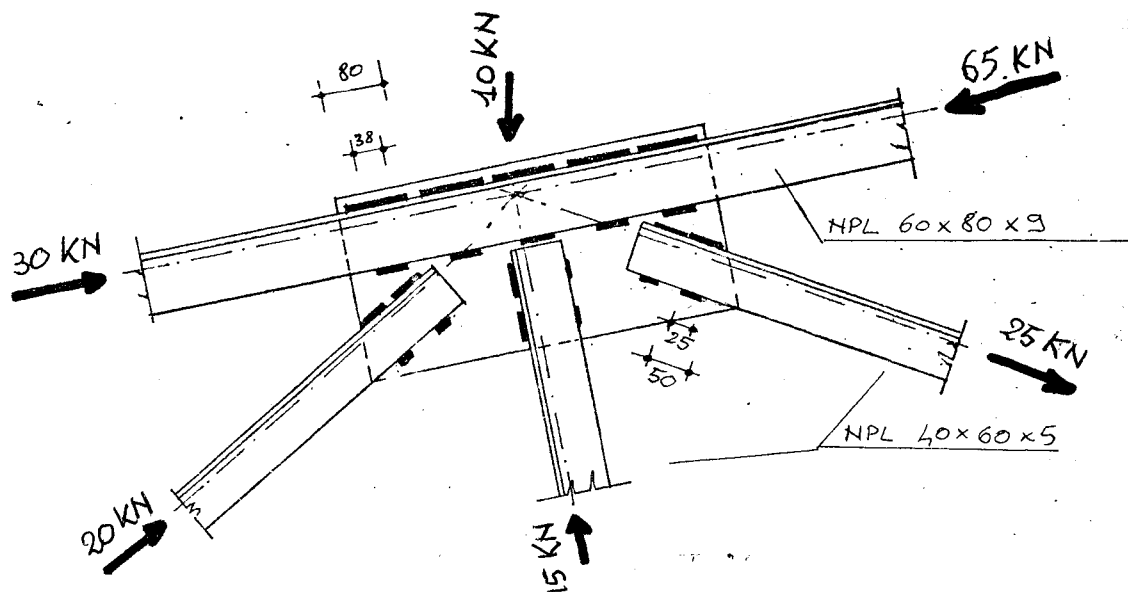


TAVOLA 20 e 20a
Nodi di travature reticolari (vedi Tavv. 14 e 14a)

