

BOLLETTINO TECNICO
109/03 DEL 09/12/2003

OGGETTO:
GRU PM SERIE 12.5 / 12.5 S / 13.5 SP

Il presente bollettino ha lo scopo di portare a conoscenza della rete commerciale ed assistenziale tutte quelle notizie tecnico/commerciali riguardanti la nuova serie di macchine citate in oggetto.

Riteniamo che ciò possa garantire una sufficiente conoscenza preliminare sulle varie problematiche legate all'installazione della macchina sull'autocarro.

Per facilitare la consultazione abbiamo suddiviso il presente bollettino nei seguenti paragrafi:

Par.0 Premessa	R.00	(da pag. 1/1 a pag. 1/1)
Par.1 Installazione	R.00	(da pag. 1/17 a pag. 17/17)
Par.2 Impianto idraulico ...	R.00	(da pag. 1/13 a pag. 13/13)
Par.3 Impianto elettrico	R.00	(da pag. 1/5 a pag. 5/5)
Par.4 Diagrammi portate ...	R.00	(da pag. 1/34 a pag. 34/34)
Par.5 Notizie Tecniche	R.00	(da pag. 1/3 a pag. 3/3)
Par.6 Accessori	R.00	(da pag. 1/6 a pag. 6/6)

R.00 = Stato di revisione del paragrafo

NB: I dati riportati in questa pubblicazione sono a titolo indicativo. L'Autogru PM si riserva di apportare in qualunque momento modifiche ai modelli descritti, sia per ragioni di natura tecnica che commerciale, inoltre non si assume responsabilità circa eventuali errori nella pubblicazione.

- Tolleranze: dimensioni $\pm 1\%$, pesi $\pm 5\%$.

Par. 0
R. 01

TECHNICAL INFORMATION
109/03 OF 09/12/2003

SUBJECT:
PM SERIE 12.5 / 12.5 S / 13.5 SP

This service information sheet wants to inform our commercial/service network about all technical/commercial details concerning our new above mentioned crane.

We think this information can supply sufficient preliminary knowledge on various problems that can be linked to crane installation on truck.

For consultation ease purpose , we have subdivided this service information into following paragraphs:

<i>Par.0 Foreword</i>	<i>R.00</i>	<i>(page 1/1 to page 1/1)</i>
<i>Par.1 Installation</i>	<i>R.00 ..</i>	<i>(page 1/17 to page 17/17)</i>
<i>Par.2 Hydraulic circuits .</i>	<i>R.00 .</i>	<i>(page 1/13 to page 13/13)</i>
<i>Par.3 Eletrical circuits ...</i>	<i>R.00</i>	<i>(page 1/5 to page 5/5)</i>
<i>Par.4 Load charts</i>	<i>R.00 .</i>	<i>(page 1/34 to page 34/34)</i>
<i>Par.5 Technicals news ..</i>	<i>R.00</i>	<i>(page 1/3 to page 3/3)</i>
<i>Par.6 Accessories</i>	<i>R.00</i>	<i>(page 1/6 to page 6/6)</i>

R.00 = Paragraph revision number

NOTE: technical details here mentioned are indicatives. All details can be modified by AUTOGRU PM SPA for technical or commercial reasons. AUTOGRU PM SPA does not takes liability for any mistake here published.

- Tolerance: dimensions $\pm 1\%$, weights $\pm 5\%$.

1. INSTALLAZIONE.

1.1 SENSO DI MONTAGGIO.

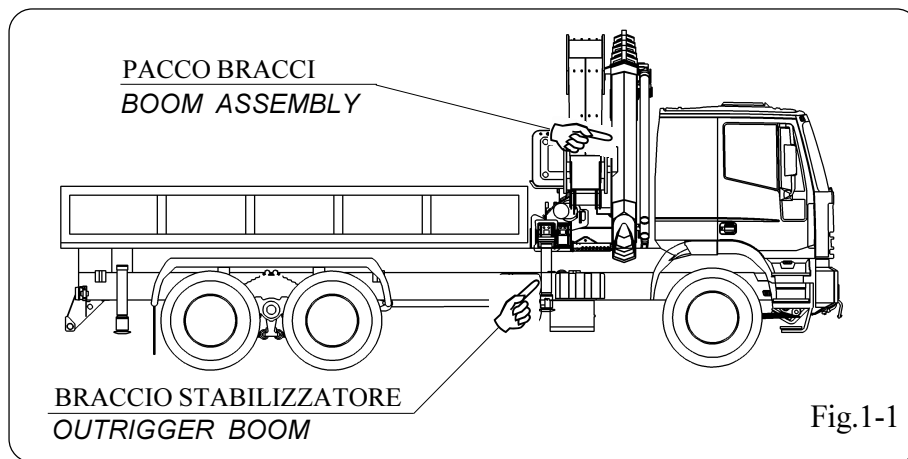
In versione standard la gru deve essere installata con gli stabilizzatori verso il cassone (il pacco bracci, quando la gru è in posizione di riposo deve essere dalla parte della cabina).

Fig.1-1

1. INSTALLATION

1.1 MOUNTING WAY

In standard version the crane shall be installed with outriggers placed towards the truck body (the booms must be by truck cabin side when the crane is in folded position). Fig. 1-1

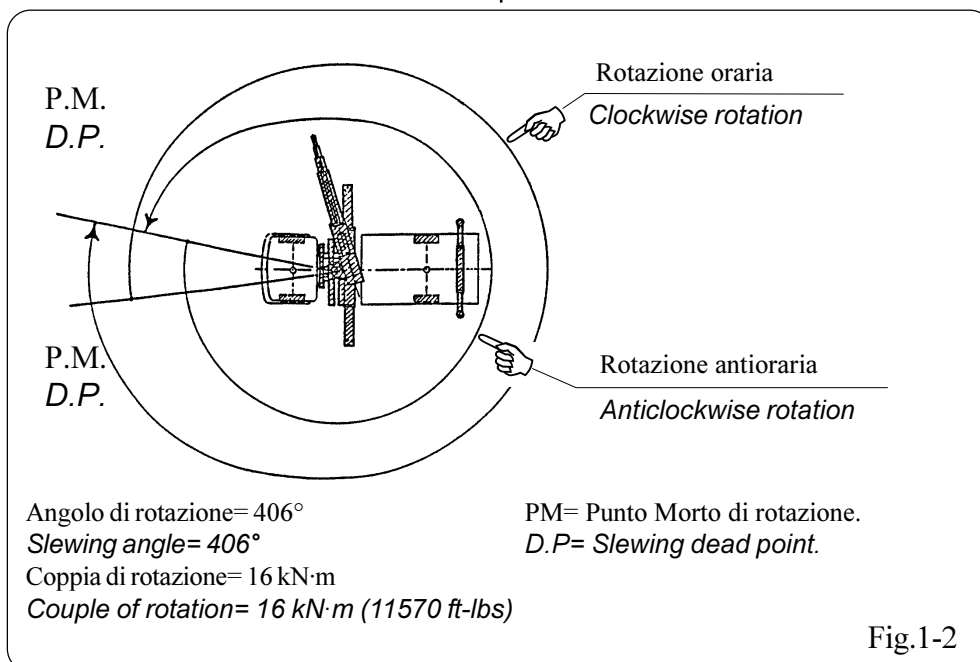


1.2 PUNTO MORTO

Con la gru installata come descritto dal punto 1.1 il punto morto viene a trovarsi sopra la cabina di guida. Fig.1-2

1.2 DEAD POINT

With crane installed as described in point 1.1, dead point (center) gets placed upon the truck cabin. Fig. 1-2



1.3 PESI 12.5 - 12.5 S - 13.5 SP (Kg)

1.3 WEIGHTS 12.5 - 12.5 S - 13.5 SP (kg-lbs)

VERSIONE => VERSION =>		21 21LC	22 22LC	23 23LC	24 24LC	25 25LC			
GRU 12500 *	kg	1390	1495	1600	1700	1790			
12500 CRANE *	lbs	3064	3296	3527	3748	3946			
GRU 12500 SLC *	kg	1475	1580	1685	1785	1875			
12500 S LC CRANE *	lbs	3252	3483	3715	3935	4134			
GRU 12500 S *	kg	1440	1550	1655	1755	1840			
12500 S CRANE *	lbs	3175	3420	3650	3870	4060			
GRU 12500 S LC *	kg	1525	1635	1740	1840	1925			
12500 S LC CRANE *	lbs	3365	3605	3840	4060	4245			
GRU 13500 SP *	kg	1450	1560	1665	1765	1850			
13500 SP CRANE *	lbs	3200	3440	3675	3895	4080			
GRU 13500 SP LC *	kg	1535	1645	1750	1850	1935			
13500 SP LC CRANE *	lbs	3385	3630	3860	4080	4270			
ANCORAGGIO	kg	22	22	22	22	22			
ANCHORAGE	lbs	50	50	50	50	50			
RIFORNIMENTO OLIO	kg	105	105	105	105	105			
OIL REFUELLING	lbs	230	230	230	230	230			
1a PROLUNGA MANUALE	kg	/	52	34	35	26			
1st MANUAL EXTENSION	lbs	/	115	75	75	60			
2a PROLUNGA MANUALE	kg	/	39	26	26	/			
2nd MANUAL EXTENSION	lbs	/	85	60	60	/			
3a PROLUNGA MANUALE	kg	/	/	39	/	/			
3rd MANUAL EXTENSION	lbs	/	/	85	/	/			
MARTINETTI STABILIZZATORI	kg	60	60	60	60	60			
OUTRIGGER BOOMS	lbs	135	135	135	135	135			
AUMENTO DI PESO PER STAB.EXTRALARGHI	kg	126	126	126	126	126			
WEIGHT INCREASE DUE TO XL OUTRIGGER BOOM	lbs	280	280	280	280	280			
STABIL.SUPPLEM.FISSI 2.2 F 67	kg	140	140	140	140	140			
FIXED SUPPL. OUTRIGGER 2.2 F 67	lbs	310	310	310	310	310			
1a ATTIVAZIONE GRU (AVVOLGITUBO)	kg	28	28	/	/	/			
1st ACTIVATION CRANE (DRUM WINDER)	lbs	60	60	/	/	/			
1a + 2a ATTIVAZIONE GRU (AVVOLGITUBO)	kg	56	56	/	/	/			
1st + 2nd ACTIVATION CRANE (DRUM WINDER)	lbs	120	120	/	/	/			
1a ATTIVAZIONE GRU (CANALINE)	kg	/	65	65	65	/			
1st ACTIVATION CRANE (HOSE DUCT)	lbs	/	140	140	140	/			
1a + 2a ATTIVAZIONE GRU (CANALINE)	kg	/	75	75	75	/			
1st + 2nd ACTIVATION CRANE (HOSE DUCT)	lbs	/	210	210	210	/			
POSTO IN PIEDI	kg	65	65	65	65	65			
STANDING CONTROL POSITION	lbs	140	140	140	140	140			
VERRICELLO P9 COMPLETO DI FUNE (65 m)	kg	95	95	95	95	95			
P9 WINCH COMPLETE WITH CABLE (215' ft)	lbs	210	210	210	210	210			
BOZZELLO (1-2 TIRI)	kg	40	40	40	40	40			
PULLEY (TWO PULL LINE)	lbs	90	90	90	90	90			
ANTENNA J 252	kg	/	/	360	360	/			
J 252 JIB	lbs	/	/	790	790	/			

* BRACCI STABILIZZ. STANDARD - SENZA OLIO NEL SERBATOIO.

* STANDARD OUTRIGGER BOOMS - WITHOUT OIL IN THE TANK.

1.4 DIMENSIONI GRU SERIE 12.5 - 12.5 S - 13.5 SP

1.4 DIMENSIONS CRANE SERIE 12.5 - 12.5 S - 13.5 SP

	21	22	23	24	25
A (mm)	2135	2135	2135	2135	2145
A (ft)	7'	7'	7'	7'	7'
B (mm)	770	770	770	865	865
B (ft)	2'6"	2'6"	2'6"	2'10"	2'10"
C (mm)	770	770	970	970	-----
C (ft)	2'6"	2'6"	3'2"	3'2"	-----

RAGGIO DI GOMBRO IN FASE DI ROTAZIONE
OVERALL RAY DURING ROTATION

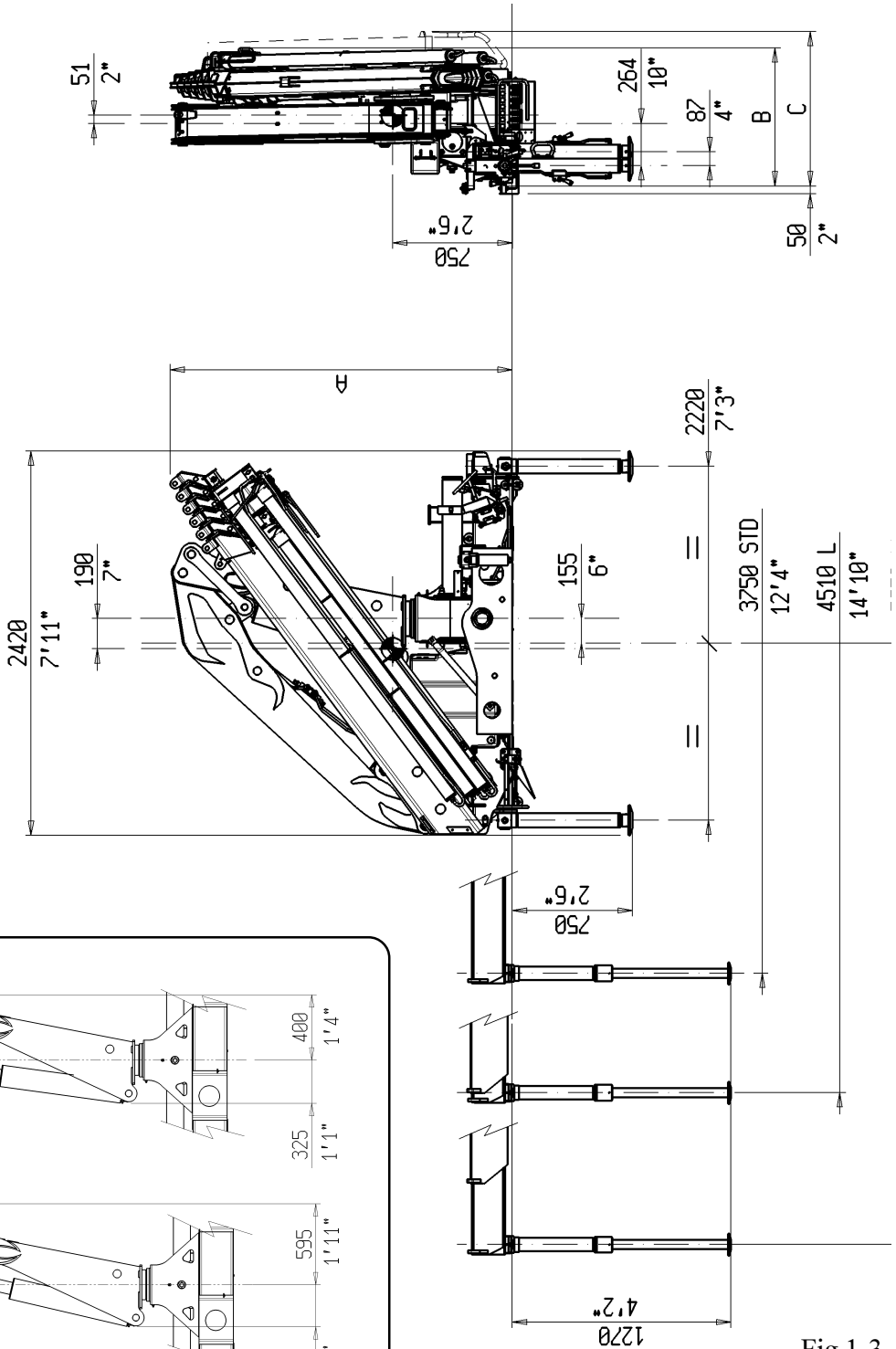
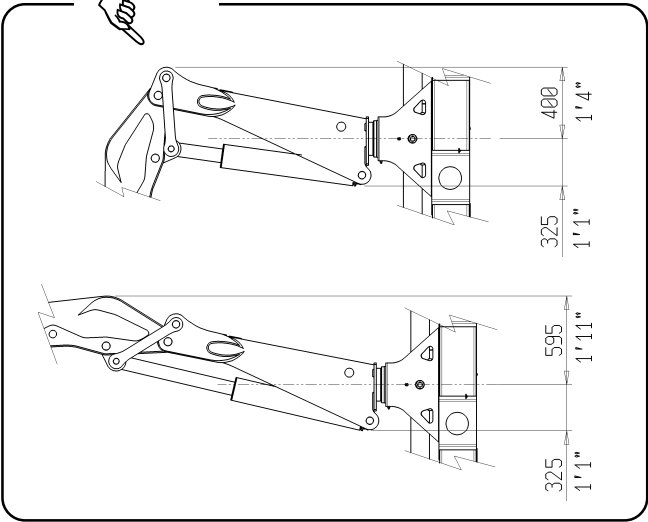


Fig.1-3

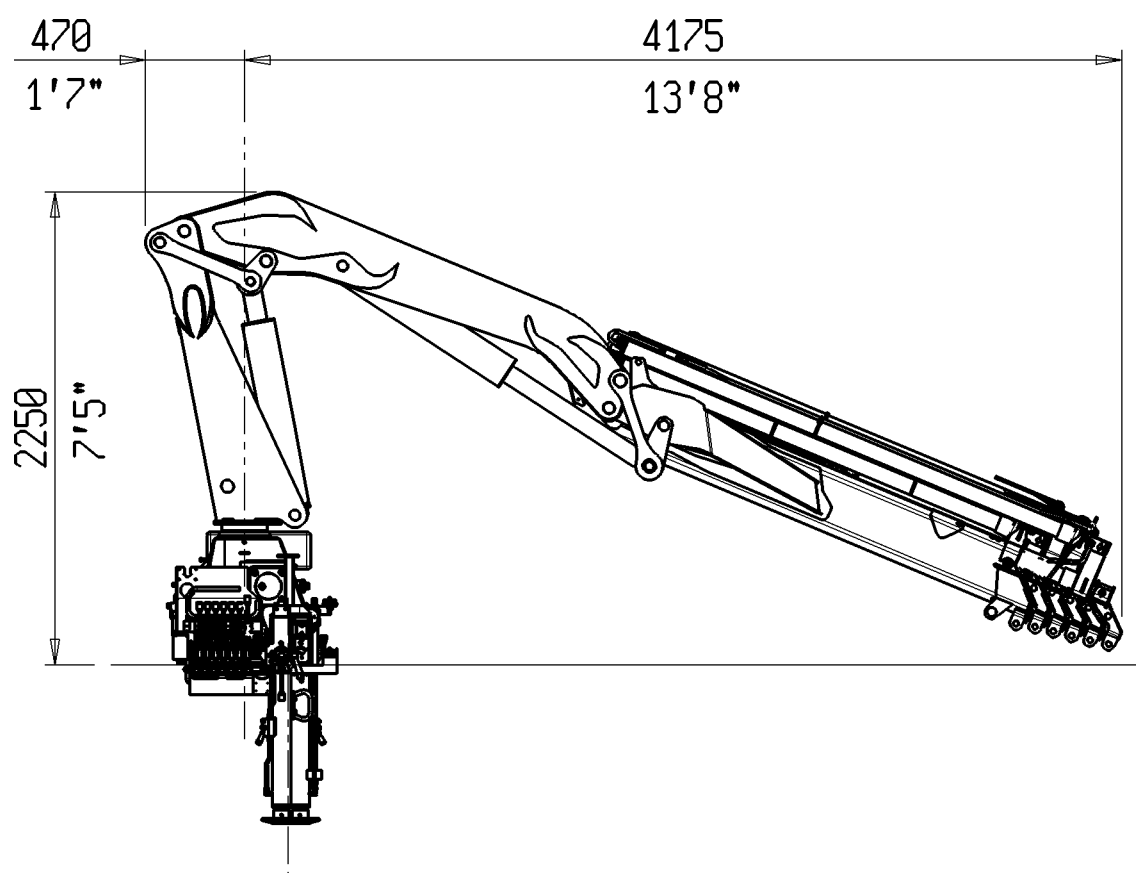
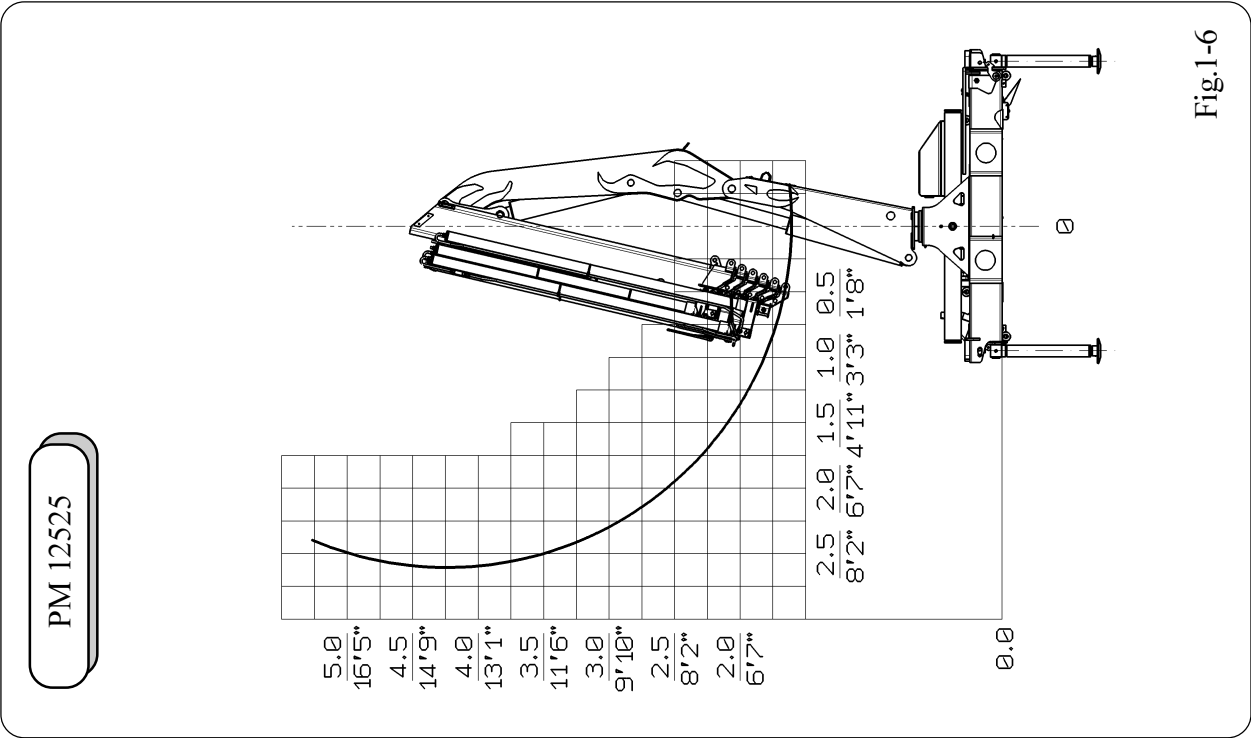
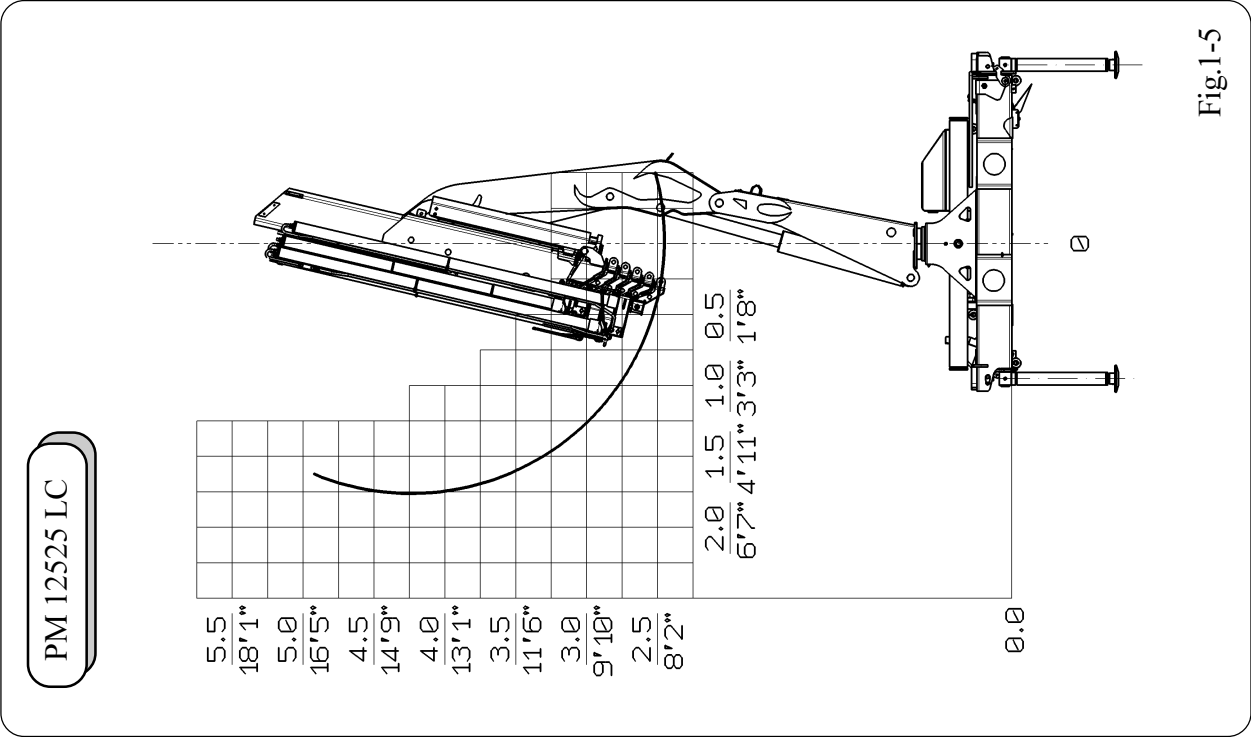
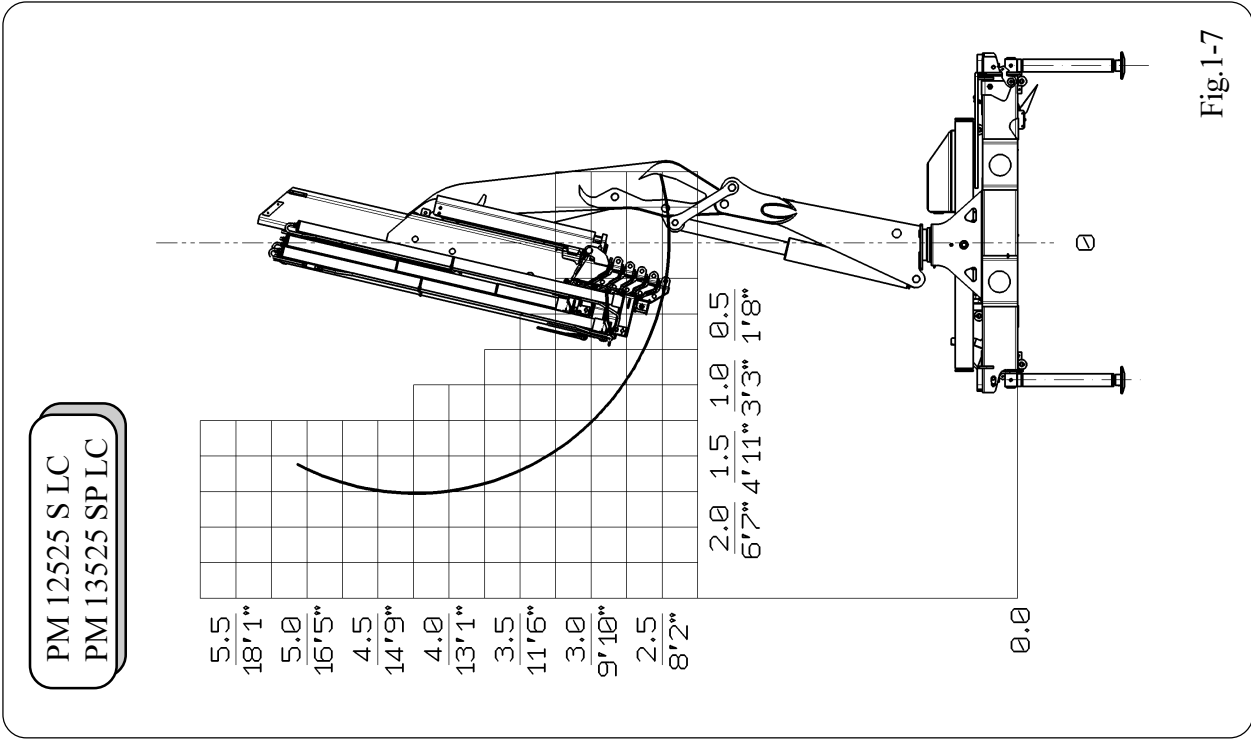
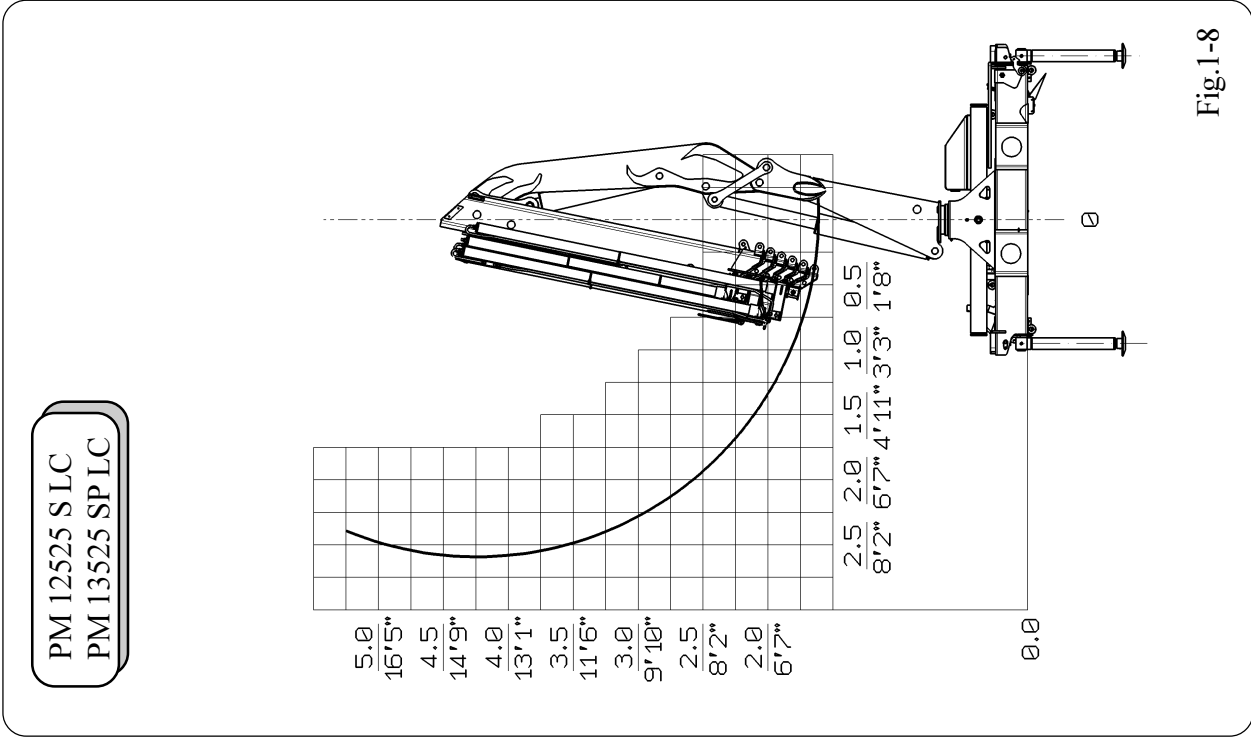


Fig.1-4

1.5 TRAIETTORIE DI SOLLEVAMENTO
DEL CARICO SOTTO COLONNA

1.5 LIFTING TRAJECTORIES UNDER
COLUMN





1.6 MODALITA' DI INSTALLAZIONE

Le seguenti modalità di installazione sono un piccolo riassunto di quanto indicato per esteso sul nostro manuale di installazione, per ogni dubbio o chiarimento o per ulteriori dettagli vogliate consultarlo.

In ogni caso l'installazione deve essere eseguita in conformità alle prescrizioni impartite dalla casa costruttrice del veicolo e degli organi competenti di ciascun Paese.

1.6.1 GRU MONTATA DIETRO OGNI CABINA DI GUIDA

La gru deve essere piazzata sull'autotelaio con l'interposizione di un controtelaio di sezione costante per una lunghezza non inferiore a due volte la larghezza della base di appoggio della gru sul controtelaio.

Il controtelaio deve essere interposto partendo il più possibile sotto la cabina.

La sezione del controtelaio deve essere gradualmente ridotta per una lunghezza non inferiore a 1,5 volte l'altezza massima della sezione del controtelaio stesso oppure, deve essere raccordata e solidale con il controtelaio proprio della carrozzeria o di altra sovrastruttura.

Vale la riduzione graduale sopraddeita anche per l'estremità anteriore del controtelaio.

Nel caso di impiego degli stabilizzatori supplementari la lunghezza del controtelaio deve essere prolungata agli stabilizzatori supplementari che debbono essere collegati con esso.

Occorre inoltre che gli stabilizzatori supplementari siano scelti e montati rispettando l'interasse minimo indicato nel successivo paragrafo.

1.6.2 GRU INSTALLATA SULLO SBALZO POSTERIORE DEL VEICOLO

Il controtelaio deve essere continuo fino alla zona retro cabina e deve avere sezione costante per tutta la sua lunghezza. L'estremità anteriore del controtelaio deve essere rastremata per una lunghezza non inferiore a 1,5 volte l'altezza dei longheroni del controtelaio.

1.6 DIFFERENT TYPES OF CRANE'S INSTALLATION

The following instructions are a small summary of what indicated and explained in the operator's manual, therefore should you have any doubt or need explanation, will you please consult the manual. At any rate, the crane installation should be effected in accordance with the regulations of the vehicle's manufacturer and with the competent Institutions of any Country.

1.6.1 CRANE MOUNTED BEHIND TRUCK CABIN

The crane must be placed on the truck chassis with the interposition of a subframe with constant section and for a length not lower than two times the width of the supporting base of the crane on the subframe.

Subframe must be interposed starting as much as possible under cabin.

Section of subframe shall be gradually reduced for a length not lower than 1,5 times the maximum height of subframe section, or it must be connected and integral with proper subframe of bodywork or other superstructure.

The gradual reduction above mentioned is valid also for front end of subframe.

Using supplementary outriggers the length of subframe must be extended to the supplementary outriggers that must be connected with it.

Therefore supplementary outriggers must be chosen and mounted following the minimum distance indicated in following paragraph.

1.6.2 CRANE INSTALLED ON REAR OVERHANG OF TRUCK

Subframe shall be continuous up to the area behind cabin and must have constant section along its whole length.

The front end of subframe must be tapered for a length not lower than 1,5 times the subframe member height.

1.6.3 MOMENTO MASSIMO DINAMICO GRU

PM 12.5 - 12.5 S - 13.5 SP => 154 KNm

1.6.4 FORZA MASSIMA ESERCITATA SUL TERRENO DAGLI STABILIZZATORI

PM 12.5 - 12.5 S-13.5 SP => Stab.STD 7550daN
 => Stab.XL 5915daN

1.6.3 MAXIMUM DYNAMIC MOMENT OF THE CRANE

PM 12.5 - 12.5 S - 13.5 SP => 154 KNm
 (111390 ft lbs)

1.6.4 MAXIMUM FORCE EXERTED ON GROUND BY EACH OUTRIGGER

PM 12.5 - 12.5 S-13.5 SP => Outr.STD
 7550daN (16645 lbs)
 => Outr.XL
 5915daN (13040 lbs)

1.7 ANCORAGGIO (Fig. 1-9)

L'ancoraggio deve essere eseguito con l'ausilio dei tiranti, delle staffe e dei dadi che forniamo in dotazione con la macchina.

1.7.1 DATI TECNICI ANCORAGGIO DI NOSTRA FORNITURA

- Nr. 8 tiranti con filettatura M20x1.5
lunghezza: 900mm (interamente filettati)
materiale: 39 NiCrMo3 bonificato-Pos.5
- Nr. 8 staffe superiori - spessore 15mm, materiale: C40-Pos.3
- Nr. 4 staffe inferiori - spessore 40mm, materiale: C40-Pos.4
- Nr. 15 dadi alti M20x1.5-Pos.2
- Nr. 15 dadi bassi M20x1.5-Pos.1

COPPIA DI SERRAGGIO DEI TIRANTI DI ANCORAGGIO:
33 ± 3 daNm

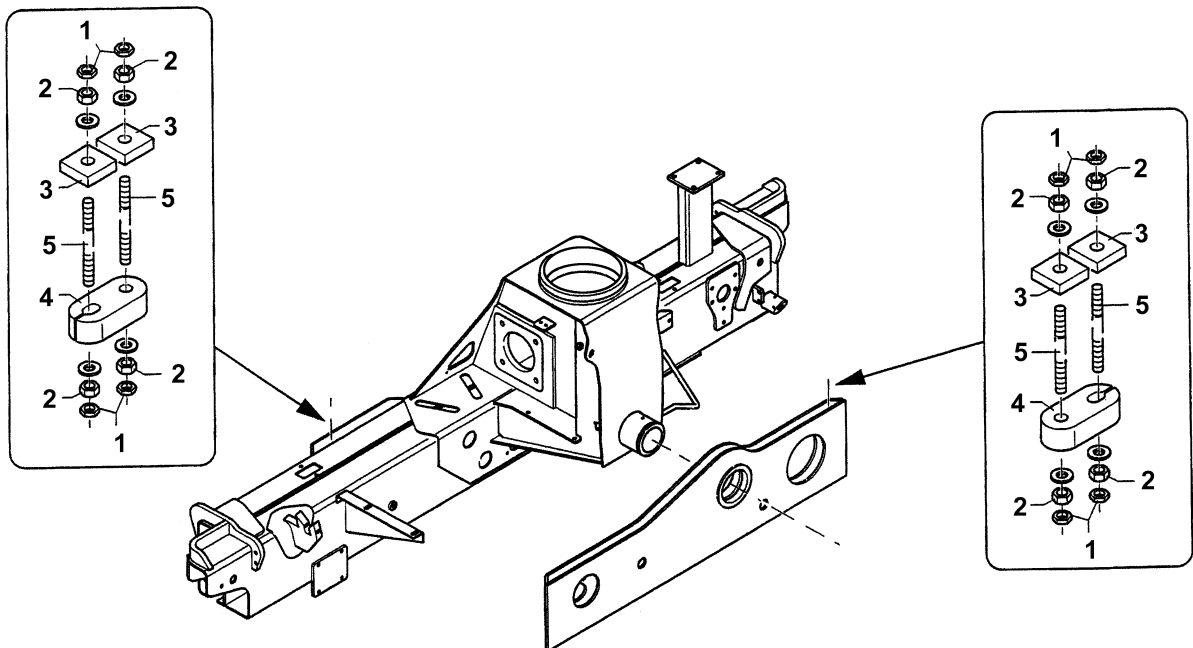
1.7 ANCHORAGE (fig. 1-9)

Anchorage should be done using tierods, brackets and nuts that are sent to you together with the crane.

1.7.1 TECHNICAL DATA ABOUT ANCHORAGE SUPPLIED

- Nr. 8 tierods with thread M20 x 1.5, length 900 mm (completely threaded), material: 39 NiCrMo3 hardened and tempered - Pos. 5
- Nr. 8 upper brackets for support - 15mm thickness, material: C40 - Pos. 3
- Nr. 4 lower brackets - 50 mm thickness, material -C40 - Pos. 4
- Nr. 15 high nuts M20 x 1.5 - Pos. 2
- Nr. 15 low nuts M16x 1.5 - Pos. 1

SETTING TORQUE OF ANCHORAGE TIERODS : 33±3 daN m
(240±20 ft lbs)



Schema di ancoraggio.

- 1 - Dado basso.
- 2 - Dado alto.
- 3 - Staffa superiore.
- 4 - Staffa inferiore.
- 5 - Tirante.

Anchoring drawing.

- 1 - Low nut.
- 2 - Hight nut.
- 3 - Superior bracket.
- 4 - Inferior bracket.
- 5 - Tierod.

Fig.1-9

1.7.2 DIMENSIONI DI ANCORAGGIO (fig.1-10)

1.7.2 MOUNTING DIMENSIONS (fig. 1-10)

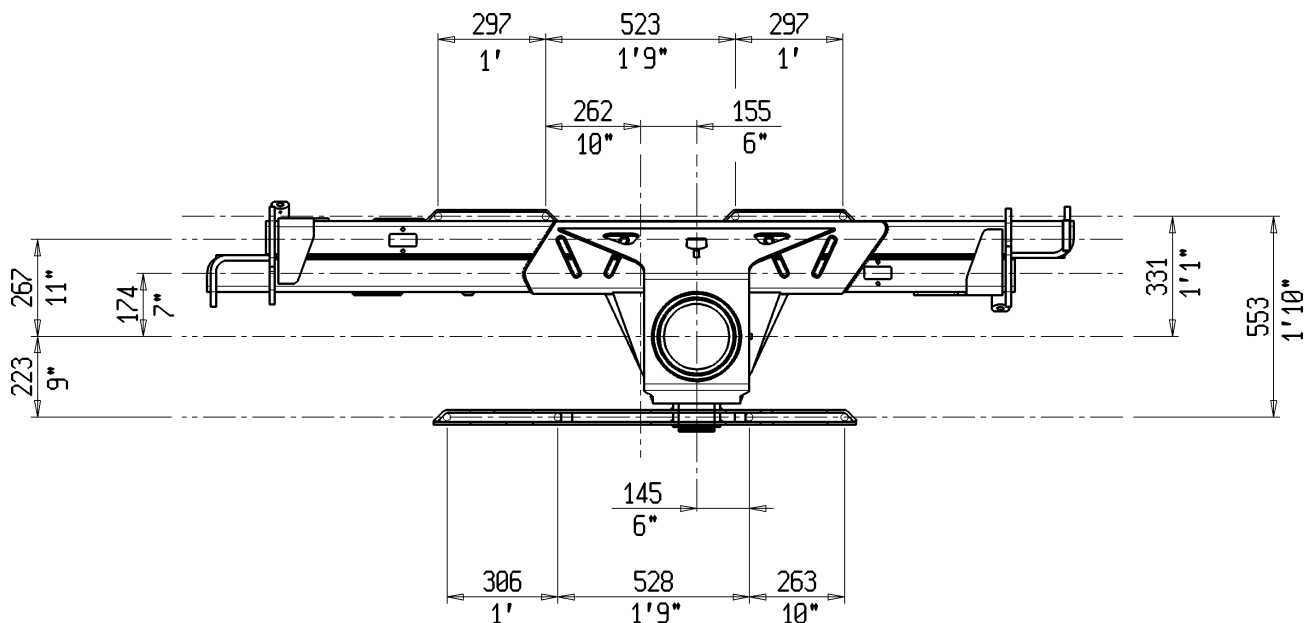


Fig.1-10

1.8 TABELLA BARICENTRI

1.8 CENTER OF GRAVITY TABLE

- a0= -Asse colon./ Stab.Dx.
-Colum axis/right outrigger
- a1= -Asse colon./ Stab.Sx.
-Colum axis/left outrigger
- b= -Asse colon./baricentro parti sospese.
-Colum axis/centre of gravity overhung parts
- L = -Sbracc.max.estensione (mensola 0°).
-Max idraulic reach (main boom 0°)
- G0= -Peso parti fisse.
-Fixed parts weight
- G1= Peso parti sospese.
-Overhung parts weight
- P= -Peso sollevato allo sbraccio L.
-Weight lifted at the max extension L

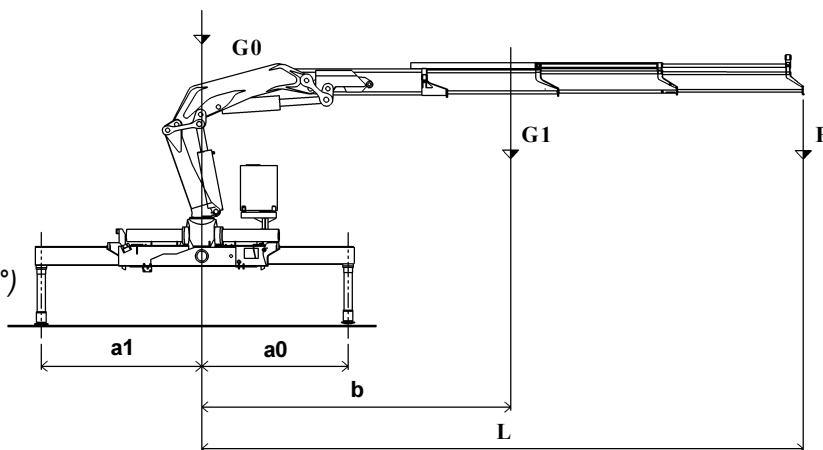


Fig.1-11

Gru	Br.Stab	a0 (LE2) mm	a1 (LE1) mm	b1 (CR) mm	b2 (WA2) mm	L (CL) mm	G0 (WC) kg	G1 (WA) kg	P (CL2) Kg
PM 12521 STD	Standard	2100	2410	2010	2920	6000	1002	576	1910
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12522 STD	Standard	2100	2410	2115	3740	8100	1002	683	1310
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12522 +PROL.	Standard	2100	2410	2470	4050	11900	1002	775	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12523 STD	Standard	2100	2410	2530	4665	10350	1002	789	940
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12523 +PROL.	Standard	2100	2410	2585	5020	16000	1002	888	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 11024 STD	Standard	2100	2410	2705	5475	12600	1002	889	660
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12524 +PROL.	Standard	2100	2410	2730	5660	16400	1002	950	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12525 STD	Standard	2100	2410	2715	5910	14950	1002	976	480
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12525 + PROL.	Standard	2100	2410	2725	5950	16800	1002	1002	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12521 LC STD	Standard	2100	2410	2010	2920	6000	1002	661	1910
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12522 LC STD	Standard	2100	2410	2115	3740	8100	1002	768	1310
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12522 LC +PROL.	Standard	2100	2410	2470	4050	11900	1002	859	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12523 LC STD	Standard	2100	2410	2530	4665	10350	1002	874	940
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12523 LC +PROL.	Standard	2100	2410	2585	5020	16000	1002	973	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12524 LC STD	Standard	2100	2410	2705	5475	12600	1002	974	660
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12524 LC +PROL.	Standard	2100	2410	2730	5660	16400	1002	1035	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12525 LC STD	Standard	2100	2410	2715	5910	14950	1002	1061	480
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		
PM 12525 LC + PROL.	Standard	2100	2410	2725	5950	16800	1002	1087	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1052		

Gru	Br.Stab	a0 (LE2) ft	a1 (LE1) ft	b1 (CR) ft	b2 (WA2) ft	L (CL) ft	G0 (WC) lbs	G1 (WA) lbs	P (CL2) lbs
PM 12521 STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 8"	2210	1270	4215
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12522 STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 7"	2210	1510	2890
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12522 +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2210	1710	1655
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12523 STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 11"	2210	1740	2075
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12523 +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2210	1960	905
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12524 STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 4"	2210	1960	1460
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12524 +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 10"	2210	2095	885
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12525 STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	49' 1"	2210	2155	1060
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12525 + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	55' 1"	2210	2210	775
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12521 LC STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 8"	2210	1460	4215
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12522 LC STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 7"	2210	1695	2890
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12522 LC +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2210	1895	1655
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12523 LC STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 11"	2210	1930	2075
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 11023 LC +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2210	2150	905
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 11024 LC STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 4"	2210	2150	1460
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 11024 LC +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 10"	2210	2285	885
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12525 LC STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	49' 1"	2210	2340	1060
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2320		
PM 12525 LC + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	55' 1"	2210	2400	775
	Large	/	/				/		
	ExtraLarge	2680	2990				2320		

Gru	Br.Stab	a0 (LE2) mm	a1 (LE1) mm	b1 (CR) mm	b2 (WA2) mm	L (CL) mm	G0 (WC) kg	G1 (WA) kg	P (CL2) Kg
PM 12521 S STD	Standard	2100	2410	2010	2920	6000	1027	606	1910
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12522 S STD	Standard	2100	2410	2115	3740	8100	1027	713	1310
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12522 S +PROL.	Standard	2100	2410	2470	4050	11900	1027	804	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12523 S STD	Standard	2100	2410	2530	4665	10350	1027	819	940
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12523 S +PROL.	Standard	2100	2410	2585	5020	16000	1027	918	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12523 S +J 252	Standard	2100	2410	3190	6175	15600	1027	1179	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12524 S STD	Standard	2100	2410	2705	5475	12600	1027	919	660
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12524 S +PROL.	Standard	2100	2410	2730	5660	16400	1027	980	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12524 S +J 252	Standard	2100	2410	3200	7115	17900	1027	1279	250
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12525 S STD	Standard	2100	2410	2715	5910	14950	1027	1006	480
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12525 S + PROL.	Standard	2100	2410	2725	5950	16800	1027	1032	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12521 S LC STD	Standard	2100	2410	2010	2920	6000	1027	691	1910
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12522 S LC STD	Standard	2100	2410	2115	3740	8100	1027	798	1310
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12522 S LC +PROL.	Standard	2100	2410	2470	4050	11900	1027	889	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12523 S LC STD	Standard	2100	2410	2530	4665	10350	1027	904	940
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12523 S LC +PROL.	Standard	2100	2410	2585	5020	16000	1027	1003	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12524 S LC STD	Standard	2100	2410	2705	5475	12600	1027	1004	660
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12524 S LC +PROL.	Standard	2100	2410	2730	5660	16400	1027	1065	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12525 S LC STD	Standard	2100	2410	2715	5910	14950	1027	1091	480
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		
PM 12525 S LC + PROL.	Standard	2100	2410	2725	5950	16800	1027	1117	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1077		

Gru	Br.Stab	a0 (LE2) ft	a1 (LE1) ft	b1 (CR) ft	b2 (WA2) ft	L (CL) ft	G0 (WC) lbs	G1 (WA) lbs	P (CL2) lbs
PM 12521 S STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 8"	2260	1340	4215
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12522 S STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 7"	2260	1575	2890
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12522 S +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2260	1775	1655
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12523 S STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 11"	2260	1810	2075
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12523 S +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2260	2025	905
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12523 S +J 252	Standard	6' 11"	7' 11"	10' 6"	20' 3"	51' 2"	2260	2600	880
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12524 S STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 4"	2260	2030	1460
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12524 S +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 10"	2260	2165	885
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12524 S + J 252	Standard	6' 11"	7' 11"	10' 6"	24' 4"	58' 9"	2260	2820	550
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12525 S STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	49' 1"	2260	2220	1060
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12525 S + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	55' 1"	2260	2280	775
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12521 S LC STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 8"	2260	1525	4215
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12522 S LC STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 7"	2260	1760	2890
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12522 S LC +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2260	1960	1655
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12523 S LC STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 11"	2260	1995	2075
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12523 S LC +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2260	2215	905
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12524 S LC STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 4"	2260	2215	1460
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12524 S LC +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 10"	2260	2350	885
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12525 S LC STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	49' 1"	2260	2410	1060
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		
PM 12525 S LC + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	55' 1"	2260	2465	775
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2370		

Gru	Br.Stab	a0 (LE2) mm	a1 (LE1) mm	b1 (CR) mm	b2 (WA2) mm	L (CL) mm	G0 (WC) kg	G1 (WA) kg	P (CL2) Kg
PM 13521 SP STD	Standard	2100	2410	2010	2920	5950	1037	606	2000
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13522 SP STD	Standard	2100	2410	2115	3740	8050	1037	713	1380
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13522 SP +PROL.	Standard	2100	2410	2470	4050	11900	1037	804	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13523 SP STD	Standard	2100	2410	2530	4665	10300	1037	819	1000
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13523 SP +PROL.	Standard	2100	2410	2585	5020	16000	1037	918	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13523 SP +J 252	Standard	2100	2410	3190	6175	15600	1037	1179	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13524 SP STD	Standard	2100	2410	2705	5475	12550	1037	919	700
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13524 SP +PROL.	Standard	2100	2410	2730	5660	16350	1037	980	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13524 SP +J 252	Standard	2100	2410	3200	7115	17900	1037	1279	270
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13525 SP STD	Standard	2100	2410	2715	5910	14900	1037	1006	500
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13525 SP + PROL.	Standard	2100	2410	2725	5950	16750	1037	1032	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13521 SP LC STD	Standard	2100	2410	2010	2920	5950	1037	691	2000
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13522 SP LC STD	Standard	2100	2410	2115	3740	8050	1037	798	1380
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13522 SP LC +PROL.	Standard	2100	2410	2470	4050	11900	1037	889	750
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13523 SP LC STD	Standard	2100	2410	2530	4665	10300	1037	904	1000
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13523 SP LC +PROL.	Standard	2100	2410	2585	5020	16000	1037	1003	410
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13524 SP LC STD	Standard	2100	2410	2705	5475	12550	1037	1004	700
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13524 SP LC +PROL.	Standard	2100	2410	2730	5660	16350	1037	1065	400
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13525 SP LC STD	Standard	2100	2410	2715	5910	14900	1037	1091	500
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		
PM 13525 SP LC + PROL.	Standard	2100	2410	2725	5950	16750	1037	1117	350
	Large	/	/				/		
	ExtraLarge	2680	2990				1087		

Gru	Br.Stab	a0 (LE2) ft	a1 (LE1) ft	b1 (CR) ft	b2 (WA2) ft	L (CL) ft	G0 (WC) lbs	G1 (WA) lbs	P (CL2) lbs
PM 13521 SP STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 6"	2290	1340	4410
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13522 SP STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 5"	2290	1575	3040
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13522 SP +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2290	1775	1650
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13523 SP STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 10"	2290	1810	2200
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13523 SP +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2290	2025	900
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13523 SP +J 252	Standard	6' 11"	7' 11"	10' 6"	20' 3"	51' 2"	2290	2600	880
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13524 SP STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 2"	2290	2030	1540
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13524 SP +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 8"	2290	2165	880
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13524 SP +J 252	Standard	6' 11"	7' 11"	10' 6"	24' 4"	58' 9"	2290	2820	590
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13525 SP STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	48' 11"	2290	2220	1100
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13525 SP + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	54' 11"	2290	2280	770
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13521 SP LC STD	Standard	6' 11"	7' 11"	6' 7"	9' 7"	19' 6"	2290	1525	4410
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13522 SP LC STD	Standard	6' 11"	7' 11"	6' 11"	12' 3"	26' 5"	2290	1760	3040
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13522 SP LC +PROL.	Standard	6' 11"	7' 11"	8' 1"	13' 3"	39' 1"	2290	1960	1650
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13523 SP LC STD	Standard	6' 11"	7' 11"	8' 4"	15' 4"	33' 10"	2290	1995	2200
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13523 SP LC +PROL.	Standard	6' 11"	7' 11"	8' 6"	16' 6"	52' 6"	2290	2215	900
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13524 SP LC STD	Standard	6' 11"	7' 11"	8' 10"	17' 12"	41' 2"	2290	2215	1540
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13524 SP LC +PROL.	Standard	6' 11"	7' 11"	8' 11"	18' 7"	53' 8"	2290	2350	880
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13525 SP LC STD	Standard	6' 11"	7' 11"	8' 11"	19' 5"	48' 11"	2290	2410	1100
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		
PM 13525 SP LC + PROL.	Standard	6' 11"	7' 11"	8' 11"	19' 6"	54' 11"	2290	2465	770
	Large	/	/				/		
	ExtraLarge	8' 10"	9' 10"				2400		

1.9 STABILIZZATORI SUPPLEMENTARI

Possono essere applicati i seguenti tipi di stabilizzatori supplementari:

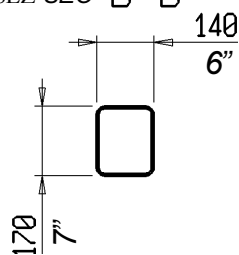
VERSIONE FISSA 2.2 F 67 (fig.1-12 - fig.1-13).

1.9 SUPPLEMENTARY OUTRIGGERS

It is possible to install this types of supplementary outriggers:

FIXED VERSION 2.2 F 67 (Fig. 1-12- 1-13) .

SEZ-SEC B-B



Boccola di prolunga
Bushing.

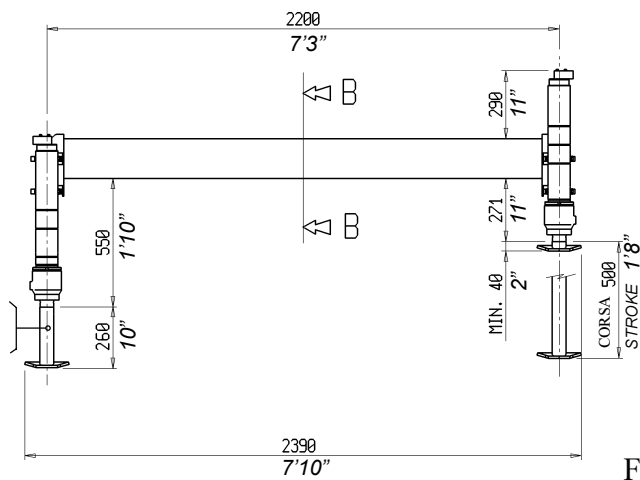


Fig.1-12

Collegamenti Idraulici
Hydraulic connections

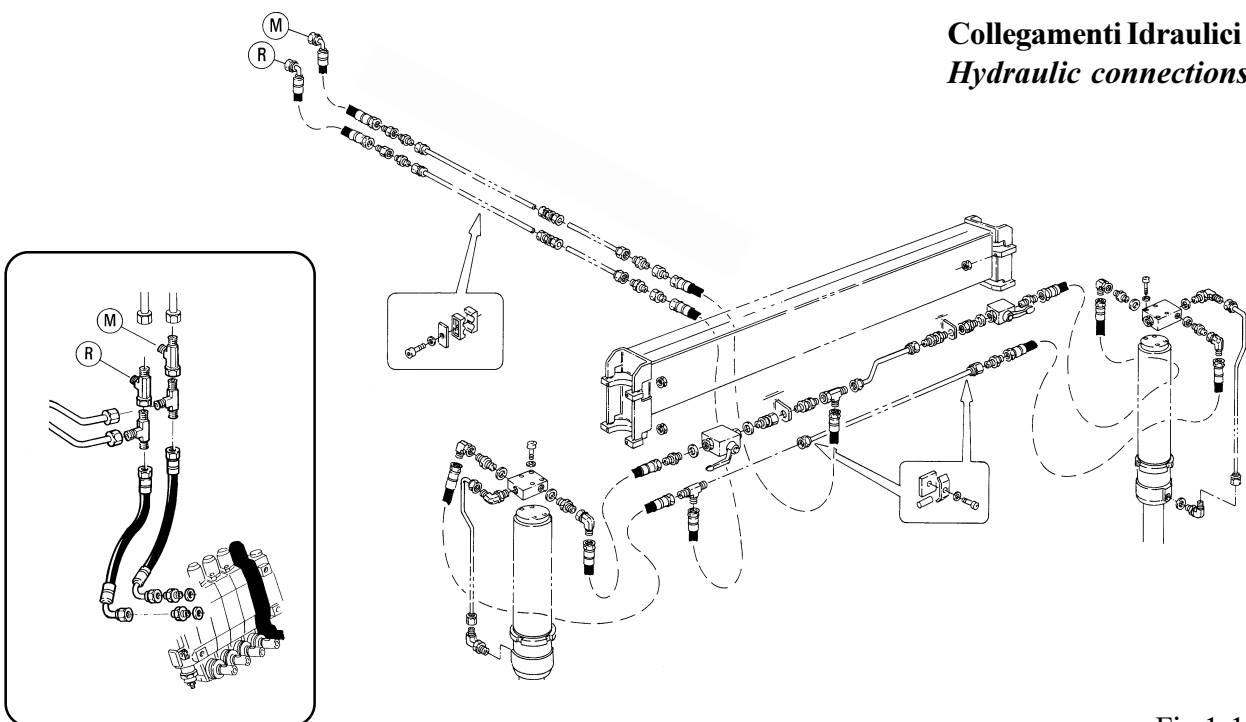


Fig.1-13

2: IMPIANTO IDRAULICO

2.1 LEGENDA DEL CIRCUITO IDRAULICO

A	= Valvola di sovrappressione generale.
B	= Valvola di scarico.
S	= Valvola di blocco semplice
BD	= Valvola di blocco doppia
R	= Valvola di blocco con rubinetto
FR	= Valvola di frenaggio
G	= Motore idraulico verricello
SD	= Valvola di sequenza
I	= Freno idraulico verricello
LT	= Tamburo del verricello
P	= Valvola paracadute
F	= Valvola selettiva
L	= Limitatore di momento
DV	= Deviatore multifunzione
PE	= Pressostato elettrico
RI	= Valvola di riarmo idraulico
NO	= Elettrovalvola N.O.
E	= Arresto di emergenza
PR	= Interruttore innesto PTO
FS	= Fusibile
D1	= Distributore stabilizzatori
D2	= Distributore rotazione
D3	= Distributore martinetto colonna
D4	= Distributore martinetto mensola
D5	= Distributore martinetto bracci
D6	= Distributore martinetto snodo antenna
D7	= Distributore martinetto sfilo antenna
D8	= Distributore verricello

NOTA

I valori di taratura delle valvole sono espresse in MPa. (1MPa = 10 bar = 145psi)

2: HYDRAULIC CIRCUITS

2.1 LETTERS' DESCRIPTION IN HYDRAULIC SYSTEMS

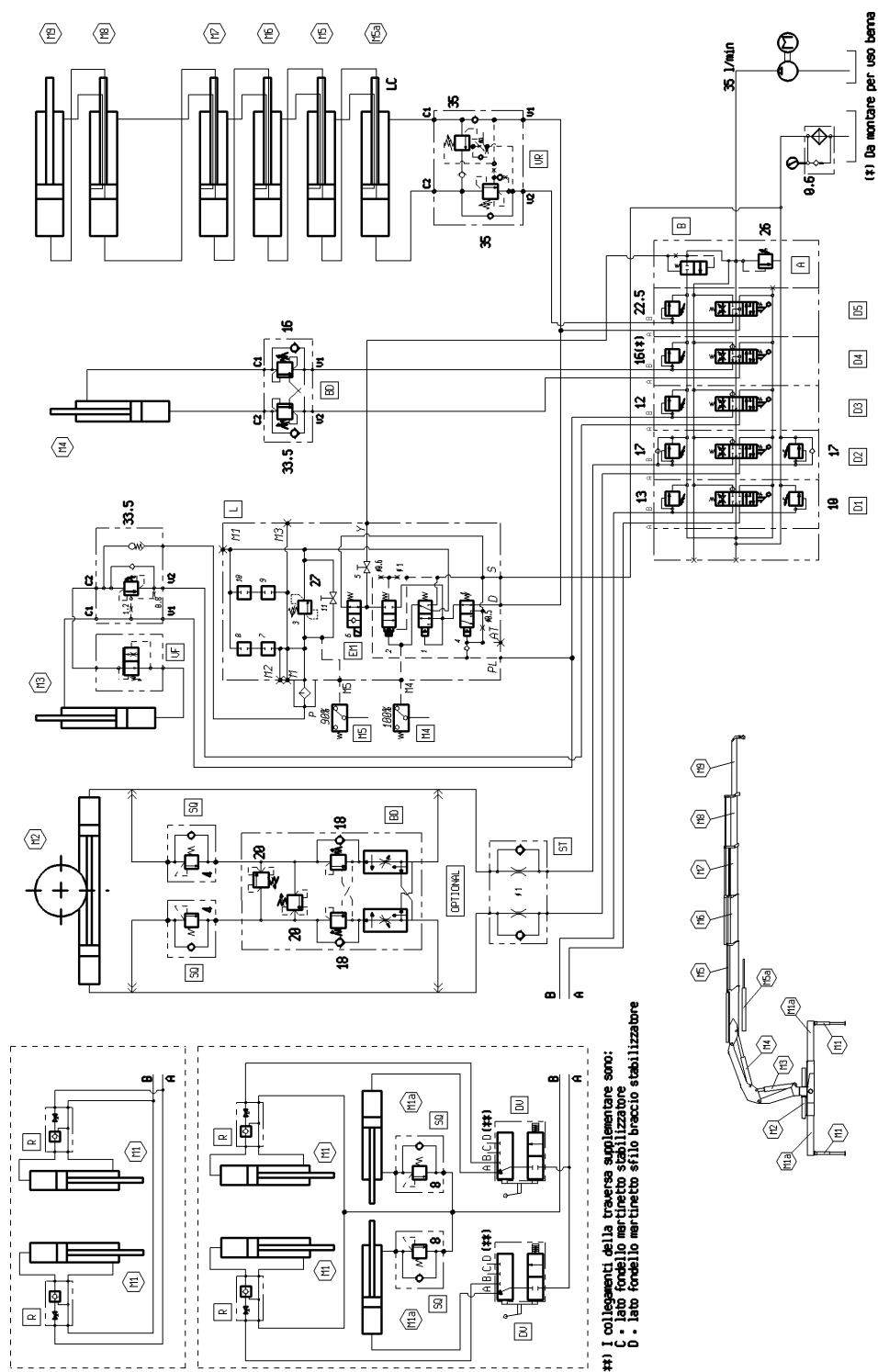
A	= General overpressure valve
B	= Exhaust valve
S	= Simple lock valve
BD	= Double lock valve
R	= Check valve with taps
FR	= Breaking valve
G	= Hydraulic winch motor
SD	= Sequence valve
I	= Hydraulic winch drum
LT	= Winch drum
P	= Parachute valve
F	= Selector valve
L	= Load limiting device
DV	= Multifunction lever switch
PE	= Electric pressure switch
RI	= Hydraulic resetting valves
NO	= N.O. solenoid valve
E	= Emergency stop
PR	= PTO clutch switch
FS	= Fuse
D1	= Outriggers control valve block
D2	= Slewing sys. control valve block
D3	= Column cyl. control valve block
D4	= Main boom cyl. control valve block
D5	= Boom cyl. control valve block
D6	= Cylinder control valve block for jib articulation
D7	= Cylinder control valve block for jib extension
D8	= Winch control valve block

NOTE

The valve settings are expressed in MPa. (1MPa = 10bar = 145 psi)

2.2 IMPIANTI IDRAULICI GRU SERIE 12.5 - 12.5 S HYDROCONTROL

2.2 HIDRAULIC SYSTEMS SERIE 12.5 - 12.5 S HYDROCONTROL



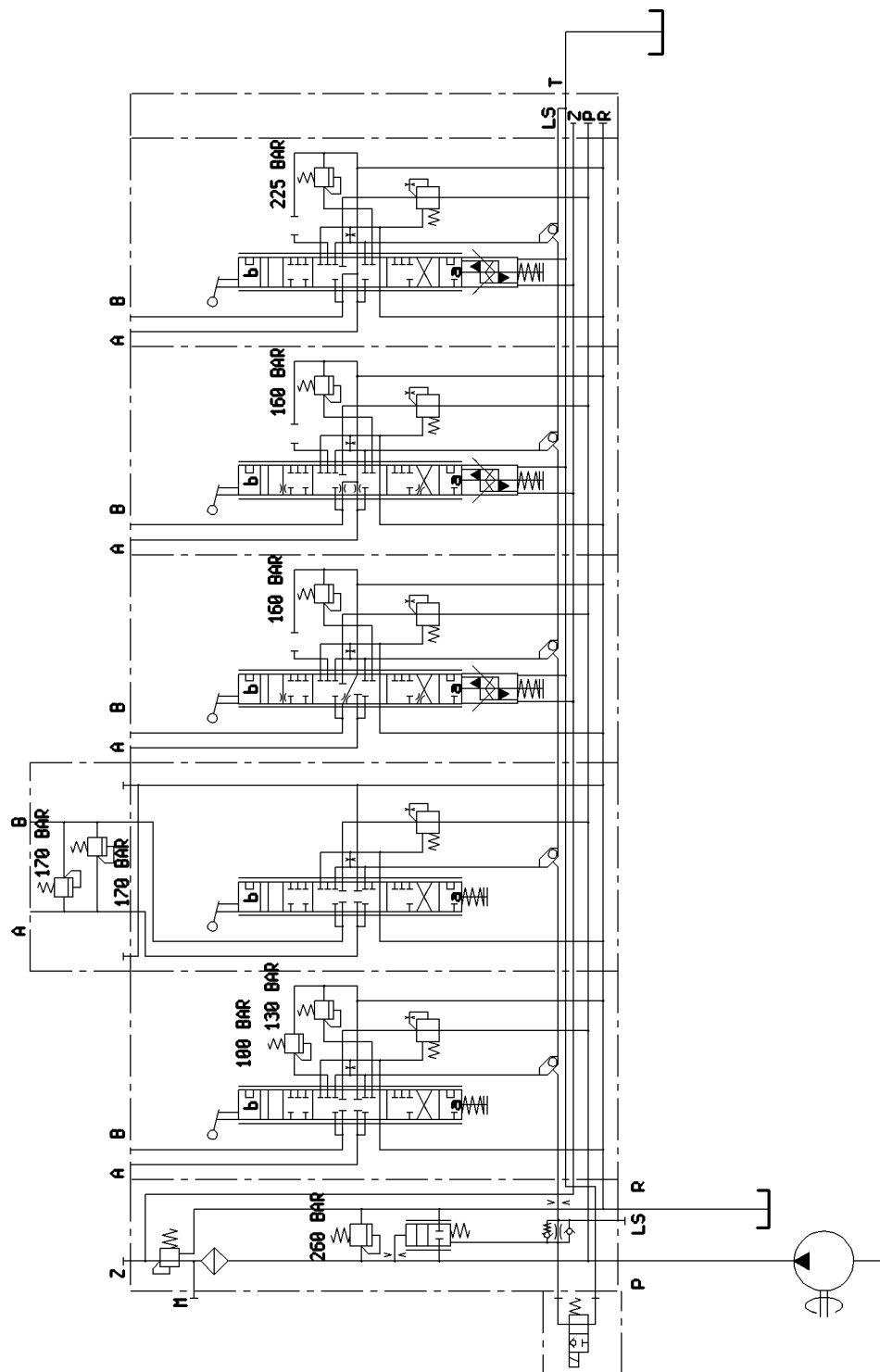


Fig.2-3

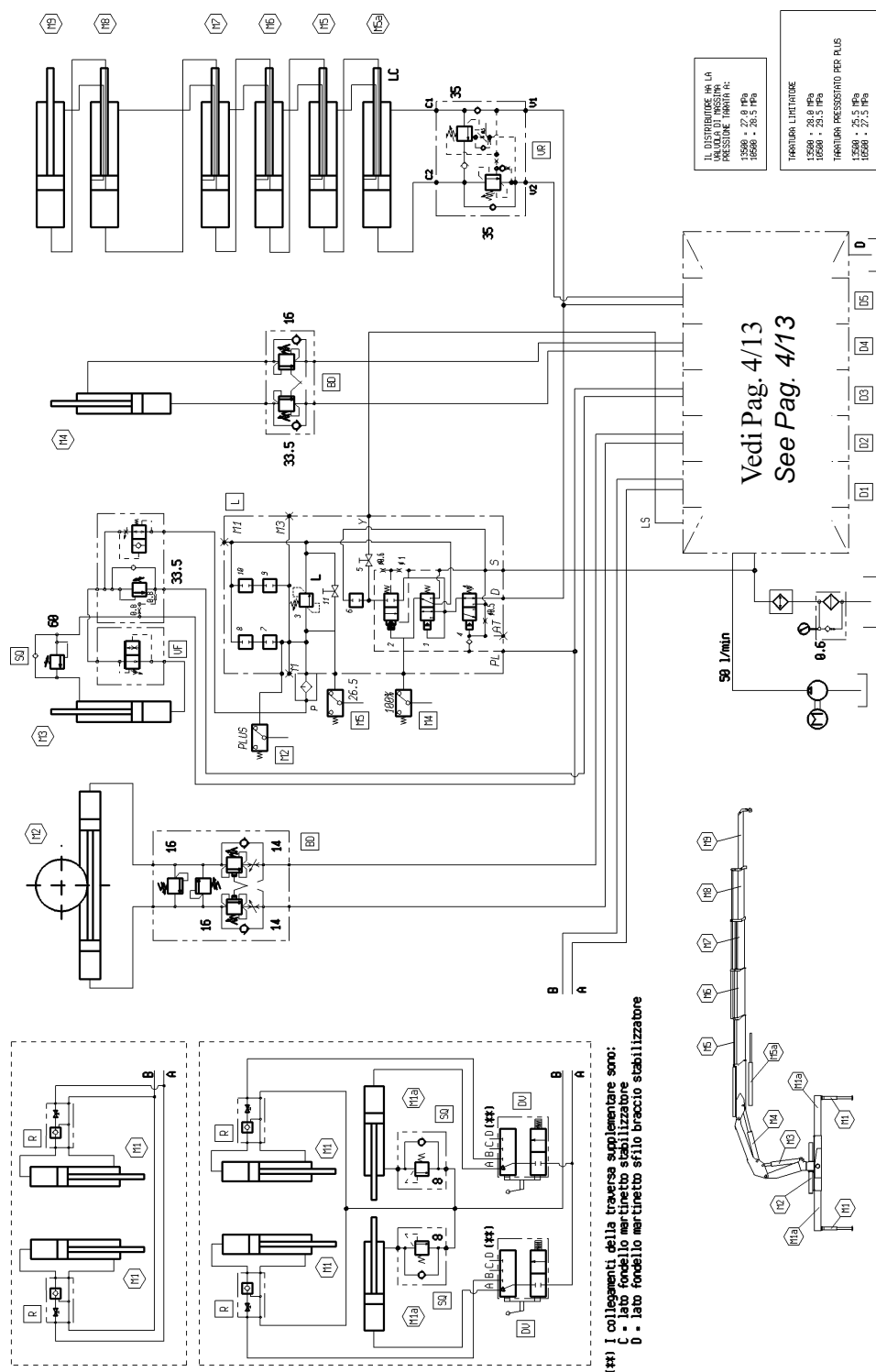


Fig.2-4

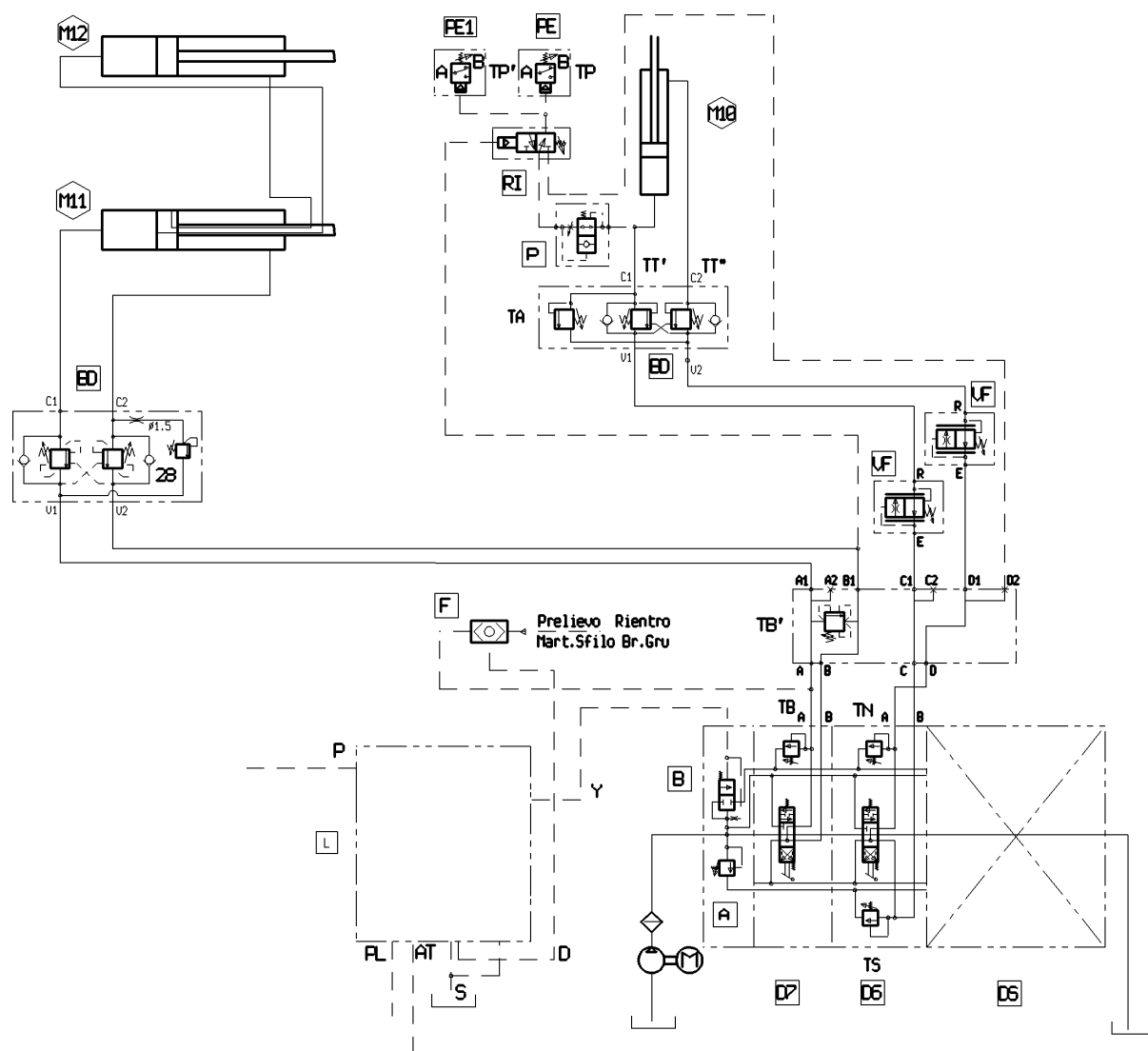


Fig.2-5

2.5 PROSPETTO RIEPILOGATIVO DELLE PRESSIONI DEL DISTRIBUTORE (MPa)

- Portata pompa: 35 l/min (Hydrocontrol),50 l/min(Hawe)
- Temperatura OLIO 45° C
- Olio ISO VG 46
- Tolleranza: 0 ÷ +1 MPa

2.5 PRESSURE ON CONTROL VALVES BLOCK (MPa - psi)

- 35 l/min (9.2 US-gal/min) (Hydrocontrol),
50 l/min (13 US-gal/min)(Hawe)
- Temperature OIL 45°C (113 F°)
- Oil ISO VG 46
- Tolerance: 0 ÷ +1 MPa

		12521 12521LC		12522 12522LC		12523 12523LC		12524 12524LC		12525 12525LC							
		S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
- MARTINETTO COLONNA	MPa	**	**	**	**	**	**	**	**	**	**						
- COLUMN CYLINDER	PSI	**	**	**	**	**	**	**	**	**	**						
- MARTINETTO MENSOLA	MPa	26	26	26	26	26	26	26	26	26	26						
- MAIN BOOM CYLINDER	PSI	3775	3775	3775	3775	3775	3775	3775	3775	3775	3775						
		U	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R
- MARTINETTO BRACCI	MPa	22.5	26	22.5	26	22.5	26	22.5	26	22.5	26						
- BOOMS CYLINDER	PSI	3265	3775	3265	3775	3265	3775	3265	3775	3265	3775						
		O	A	O	A	O	A	O	A	O	A	O	A	O	A	O	A
- ROTAZIONE	MPa	17	17	17	17	17	17	17	17	17	17						
- SLEWING SYSTEM	PSI	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470						
		U	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R
- STABILIZZATORI	MPa	10	13	10	13	10	13	10	13	10	13						
- OUTRIGGER	PSI	1450	1885	1450	1885	1450	1885	1450	1885	1450	1885						
- HYDROCONTROL**	MPa	26	12	26	12	26	12	26	12	26	12						
	PSI	3775	1740	3775	1740	3775	1740	3775	1740	3775	1740						
- HAVE**	MPa	26	16	26	16	26	16	26	16	26	16						
	PSI	3775	2325	3775	2325	3775	2325	3775	2325	3775	2325						

UNITA' DI PRESSIONE / PRESSURE UNIT = Mpa (1 Mpa = 10 bar)
PRESSURE UNIT = PSI (1MPa = 145 PSI)

S=Salita
D=Discesa
U=Uscita
R=Rientro
O=Oraria
A=Antioraria

S=Lifting
D=Lowering
U=Extension
R=Retracting
O=Clockwise
A=Anticlockwise

-Portata pompa: 35 l/min (Hydrocontrol),35 l/min(Have)
- Temperatura OLIO 45° C
- Olio ISO VG 46
- Tolleranza: 0 ÷ +1 MPa

-Pump capacity: 35 l/min (9.2 US-gal/min) (Hydrocontrol),
50 l/min (13 US-gal/min)(Have)
- Temperature OIL 45°C (113 F°)
- Oil ISO VG 46
- Tolerance: 0 ÷ +1 MPa

		12521S		12522S		12523S		12524S		12525S							
		12521S LC	12522S LC	12523S LC	12524S LC	12525S LC						S	D	S	D	S	D
- MARTINETTO COLONNA - COLUMN CYLINDER	MPa	**	**	**	**	**	**	**	**	**	**						
	PSI	**	**	**	**	**	**	**	**	**	**						
- MARTINETTO MENSOLA - MAIN BOOM CYLINDER	MPa	26	26	26	26	26	26	26	26	26	26						
	PSI	3775	3775	3775	3775	3775	3775	3775	3775	3775	3775						
		U	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R
- MARTINETTO BRACCI - BOOMS CYLINDER	MPa	22.5	26	22.5	26	22.5	26	22.5	26	22.5	26						
	PSI	3265	3775	3265	3775	3265	3775	3265	3775	3265	3775						
		O	A	O	A	O	A	O	A	O	A	O	A	O	A	O	A
- ROTAZIONE - SLEWING SYSTEM	MPa	17	17	17	17	17	17	17	17	17	17						
	PSI	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470						
		U	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R
- STABILIZZATORI - OUTRIGGER	MPa	10	13	10	13	10	13	10	13	10	13						
	PSI	1450	1885	1450	1885	1450	1885	1450	1885	1450	1885						
- HYDROCONTROL**	MPa	26	12	26	12	26	12	26	12	26	12						
	PSI	3775	1740	3775	1740	3775	1740	3775	1740	3775	1740						
- HAVE**	MPa	26	16	26	16	26	16	26	16	26	16						
	PSI	3775	2325	3775	2325	3775	2325	3775	2325	3775	2325						

UNITA' DI PRESSIONE / PRESSURE UNIT = Mpa (1 Mpa = 10 bar)
PRESSURE UNIT = PSI (1MPa = 145 PSI)

S=Salita
D=Discesa
U=Uscita
R=Rientro
O=Oraria
A=Antioraria

S=Lifting
D=Lowering
U=Extension
R=Retracting
O=Clockwise
A=Anticlockwise

- Portata pompa: 50 l/min(Have)
- Temperatura OLIO 45° C
- Olio ISO VG 46
- Tolleranza: 0 ÷ +1 MPa

- Pump capacity: 50 l/min (13 US-gal/min)(Have)
- Temperature OIL 45°C (113 F°)
- Oil ISO VG 46
- Tollerance: 0 ÷ +1 MPa

[illegible]

UNITA' DI PRESSIONE / PRESSURE UNIT = Mpa (1 Mpa = 10 bar)
PRESSURE UNIT = PSI (1MPa = 145 PSI)

S=Salita
D=Discesa
U=Uscita
R=Rientro
O=Oraria
A=Antioraria

S=Lifting
D=Lowering
U=Extension
R=Retracting
O=Clockwise
A=Anticlockwise

2.6 PROSPETTO RIEPILOGATIVO DELLE PRESSIONI DELLE VALVOLE SUI MARTINETTI E DEL LIMITATORE DI MOMENTO (MPa)

-Temperatura OLIO 45° C
-Olio ISO VG46
-Tolleranza: 0 ÷ +1 MPa

2.6 PRESSURE ON CYLINDERS VALVES AND LOAD LIMITING DEVICE (MPa - psi)

-Temperature OIL 45°C (113 F°)
-Oil ISO VG 46
-Tolerance: 0 ÷ +1 MPa

		12521 12521LC		12522 12522LC		12523 12523LC		12524 12524LC		12525 12525LC							
		S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
- MARTINETTO COLONNA	MPa	33.5	/	33.5	/	33.5	/	33.5	/	33.5	/						
- COLUMN CYLINDER	PSI	4860	/	4860	/	4860	/	4860	/	4860	/						
- MARTINETTO MENSOLA	MPa	33.5	16	33.5	16	33.5	16	33.5	16	33.5	16						
- MAIN BOOM CYLINDER	PSI	4860	2325	4860	2325	4860	2325	4860	2325	4860	2325						
- MARTINETTO BRACCI*	MPa	35	35	35	35	35	35	35	35	35	35						
- BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080						
- MART. BRACCI LC*	MPa	35	35	35	35	35	35	35	35	35	35						
- LC BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080						
- ROTAZIONE	MPa	**	**	**	**	**	**	**	**	**	**						
- SLEWING SYSTEM	PSI	**	**	**	**	**	**	**	**	**	**						
- LIM. DI MOMENTO*	MPa	27		27		27		27		27							
- LOAD LIMIT DEVICE*	PSI	3920		3920		3920		3920		3920							
- HYDROCONTROL**	MPa	18	18	18	18	18	18	18	18	18	18						
	PSI	2615	2615	2615	2615	2615	2615	2615	2615	2615	2615						
- HAVE**	MPa	14	14	14	14	14	14	14	14	14	14						
	PSI	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030						

* Tolleranza: 0 ÷ +2 MPa * Tolerance: 0 ÷ +2 MPa

S=Salita
D=Discesa
U=Uscita
R=Rientro
O=Oraria
A=Antioraria
*=Vedi impianti idraulici

S=Lifting
D=Lowering
U=Extension
R=Retracting
O=Clockwise
A=Anticlockwise
*=See hydraulic system

-Temperatura OLIO 45° C
 -Olio ISO VG 46
 -Tolleranza: 0 ÷ +1MPa

-Temperature OIL 45°C (113 F°)
 -Oil ISO VG 46
 -Tolerance: 0 ÷ +1 MPa

		12521S		12522S		12523S		12524S		12525S					
		12521S LC		12522S LC		12523S LC		12524S LC		12525S LC					
		S	D	S	D	S	D	S	D	S	D	S	D	S	D
- MARTINETTO COLONNA	MPa	33.5	/	33.5	/	33.5	/	33.5	/	33.5	/				
- COLUMN CYLINDER	PSI	4860	/	4860	/	4860	/	4860	/	4860	/				
- MARTINETTO MENSOLA	MPa	33.5	16	33.5	16	33.5	16	33.5	16	33.5	16				
- MAIN BOOM CYLINDER	PSI	4860	2325	4860	2325	4860	2325	4860	2325	4860	2325				
		U	R	U	R	U	R	U	R	U	R	U	R	U	R
- MARTINETTO BRACCI*	MPa	35	35	35	35	35	35	35	35	35	35				
- BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080				
- MART. BRACCI LC*	MPa	35	35	35	35	35	35	35	35	35	35				
- LC BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080				
		O	A	O	A	O	A	O	A	O	A	O	A	O	A
- ROTAZIONE	MPa	**	**	**	**	**	**	**	**	**	**				
- SLEWING SYSTEM	PSI	**	**	**	**	**	**	**	**	**	**				
- LIM. DI MOMENTO*	MPa	27		27		27		27		27					
- LOAD LIMIT DEVICE*	PSI	3920		3920		3920		3920		3920					
- HYDROCONTROL**	MPa	18	18	18	18	18	18	18	18	18	18				
	PSI	2615	2615	2615	2615	2615	2615	2615	2615	2615	2615				
- HAVE**	MPa	14	14	14	14	14	14	14	14	14	14				
	PSI	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030				

* Tolleranza: 0 ÷ +2 MPa * Tolerance: 0 ÷ +2 MPa

S=Salita
 D=Discesa
 U=Uscita
 R=Rientro
 O=Oraria
 A=Antioraria
 *=Vedi impianti idraulici

S=Lifting
 D=Lowering
 U=Extension
 R=Retracting
 O=Clockwise
 A=Anticlockwise
 *=See hydraulic system

-Temperatura OLIO 45° C
 -Olio ISO VG 46
 -Tolleranza: 0 ÷ +1MPa

-Temperature OIL 45°C (113 F°)
 -Oil ISO VG 46
 -Tolerance: 0 ÷ +1 MPa

		13521SP		13522SP		13523SP		13524SP		13525SP							
		13521SP LC		13522SP LC		13523SP LC		13524SP LC		13525SP LC							
		S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
- MARTINETTO COLONNA	MPa	33.5	/	33.5	/	33.5	/	33.5	/	33.5	/						
- COLUMN CYLINDER	PSI	4860	/	4860	/	4860	/	4860	/	4860	/						
- MARTINETTO MENSOLA	MPa	33.5	16	33.5	16	33.5	16	33.5	16	33.5	16						
- MAIN BOOM CYLINDER	PSI	4860	2325	4860	2325	4860	2325	4860	2325	4860	2325						
		U	R	U	R	U	R	U	R	U	R	U	R	U	R	U	R
- MARTINETTO BRACCI*	MPa	35	35	35	35	35	35	35	35	35	35						
- BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080						
- MART. BRACCI LC*	MPa	35	35	35	35	35	35	35	35	35	35						
- LC BOOMS CYLINDER*	PSI	5080	5080	5080	5080	5080	5080	5080	5080	5080	5080						
		O	A	O	A	O	A	O	A	O	A	O	A	O	A	O	A
- ROTAZIONE	MPa	14	14	14	14	14	14	14	14	14	14						
- SLEWING SYSTEM	PSI	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030						
- LIMITATORE	MPa	28		28		28		28		28							
- LIMITING DEVICE	PSI	4065		4065		4065		4065		4065							

UNITA' DI PRESSIONE / PRESSURE UNIT = Mpa (1 Mpa = 10 bar)
 PRESSURE UNIT = PSI (1MPa = 145 PSI)

* TOLLERANZA = 0 ÷ + 2 Mpa (1 Mpa = 10 bar)
 * TOLERANCE = 0 ÷ + 2 Mpa (1 Mpa = 10 bar)

S=Salita
 D=Discesa
 U=Uscita
 R=Rientro
 O=Oraria
 A=Antioraria
 *=Vedi impianti idraulici

S=Lifting
 D=Lowering
 U=Extension
 R=Retracting
 O=Clockwise
 A=Anticlockwise
 *=See hydraulic system

2.6 TEMPI DI LAVORO

(tempi teorici minimi senza carico)

- Q= 35 l/min (Hydrocontrol), 50 l/min (Hawe)
- Temperatura OLIO= 45°C
- OLIO ISO VG 46
- Tolleranza: ±5%

2.6 MOUVEMENTS SPEED

(minimum teorics times - without load)

- Q= 35 l/min (9.2 US-gal/min) (Hydrocontrol), 50 l/min (13 US-gal/min) (Hawe)
- Temperature OIL= 45°C (113 F°)
- OIL ISO VG 46
- Tollerance: ±5%

	21		22		23		24		25							
	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
- MARTINETTO COLONNA - COLUMN CYLINDER sec.	18	9	18	9	18	9	18	9	18	9						
- MARTINETTO MENSOLA - MAIN BOOM CYLINDER sec.	18	10	18	10	18	10	18	10	18	10						
- MARTINETTO BRACCI - BOOMS CYLINDER sec.	6	5	12	10	19	17	29	25	44	35						
- MART. BRACCI LC - LC BOOMS CYLINDER sec.	9	8	15	13	22	20	32	28	47	38						
- ROTAZIONE(410°) - SLEWING SYSTEM(410°) sec.	11	11	11	11	11	11	11	11	11	11						
- STABILIZZATORI - OUTRIGGER sec.	4	2	4	2	4	2	4	2	4	2						

S=Salita / Uscita
D=Discesa / Rientro

S=Lifting / Extension
D=Lowering / Retracting

3: IMPIANTI ELETTRICI

3.1 DISTINTA DESCRIZIONI

F1	= Fusibile di protezione 6 A
EM1	= Pulsante emergenza lato distributore
EM2	= Pulsante emergenza lato doppio comando
FCDX	= Finecorsa rotazione oraria (con blocco rotazione tipo B)
FCSX	= Finecorsa rotazione antioraria (con blocco rotazione tipo B)
MDX	= Micro riarmo rotazione antioraria (con blocco rotazione tipo B)
MSX	= Micro riarmo rotazione oraria (con blocco rotazione tipo B)
EV9	= Elettrovalvola di emergenza
P100	= Pressostato 100% carico gru
P90	= Pressostato 90% carico gru (solo con radio)
TLA	= Lampeggiante arancione 90% carico gru (con radio)
TLB	= Lampeggiante bianco radio acceso (con radio)
BA	= Cicalino allarme 100% carico gru
PC1	= Pulsante clacson lato distributore
PC2	= Pulsante clacson lato doppio comando
MROT	= Kit direz.leva distrib.elemento rot. (con blocco rotazione tipo B)
PA	= Pressostato 100% carico antenna (solo con antenna)
EVA	= Elettrovalvola antenna (solo con antenna)
PA1	= Pressostato 90% carico antenna (solo con antenna)
LCV	= Limitatore carico verricello (solo con verricello)
LCV1	= Lampeggiante arancione 90% carico verricello (solo con verricello)
MD	= Micro riarmo discesa verricello (solo con verricello)
MS	= Micro riarmo salita verricello (solo con verricello)
MBR	= Kit direz.leva distrib.elemento sf. br. (solo con verricello)
MVERR	= Kit direz.leva distrib.elemento verricello (solo con verricello)
FCDV	= Fine corsa discesa verricello (solo con verricello)

3: ELECTRICAL CIRCUITS

3.1 DESCRIPTIONS LIST

F1	= Safety fuse 6 A
EM1	= Emergency switch on control valve block side
EM2	= Emergency switch on dual control side
FCDX	= Limit switch, clockwise slewing (with type-B slewing stop)
FCSX	= Limit switch, anticlockwise slewing (with type-B slewing stop)
MDX	= Microswitch reset, anticlockwise slewing (with type-B slewing stop)
MSX	= Microswitch reset, clockwise slewing (with type-B slewing stop)
EV9	= Emergency solenoid valve
P100	= Pressure switch, 100% crane load
P90	= Pressure switch, 90% crane load (only with radio)
TLA	= Orange flashing lamp, 90% crane load (with radio)
TLB	= White flashing lamp, radio on (with radio)
BA	= Acoustic alarm, 100% crane load
PC1	= Horn switch, control valve block side
PC2	= Horn switch, double control side
MROT	= Control valve block lever (with type-B slewing stop)
PA	= Pressure switch, 100% jib load (only with jib)
EVA	= Solenoid valve, jib (only with jib)
PA1	= Pressure switch, 90% jib load (only with jib)
LCV	= Limiter, winch load (only with winch)
LCV1	= Orange flashing lamp, 90% winch load (only with winch)
MD	= Microswitch reset, winch descent (only with winch)
MS	= Microswitch reset, winch ascent (only with winch)
MBR	= Control valve block lever for boom extension (only with winch)
MVERR	= Control valve block lever for winch (only with winch)
FCDV	= Limit switch, winch descent (only with winch)

LA1/2 = Lampada segnalazione 90% carico antenna
(solo con antenna)

DISTINTARELE'

KPTO = Rele' consenso presa di forza
KVERR = Rele' comando verricello
KANT = Rele' comando antenna
KON = Rele' comando lampeggiante radio

DISTINTAPONTICELLI

J1 = Quando non c'e' il radiocomando
J2 = Quando non c'e' il controllo rotazione
J3 = Quando non c'e' il verricello

DISTINTAKIT SCATOLE ELETTRICHE

Scatola elettrica principale 289537
Scatola elettrica verricello 289536
Scatola elettrica antenna 289555

LA1/2 = Signal lamp, 90% jib load
(only with jib)

RELAY LIST

KPTO = Relay, consent for power take-off
KVERR = Relay, winch command
KANT = Relay, jib command
KON = Relay, radio flashing lamp command

JUMPERS LIST

J1 = When there is no radio command
J2 = When there is no slewing control
J3 = When there is no winch

ELECTRICAL BOX LIST

Main electrical box 289537
Main electrical box, winch 289536
Electrical box, jib 289555

3.2 STANDARD + RADIO
(Fig. 3-1)

3.2 STANDARD + RADIO
(Fig. 3-1)

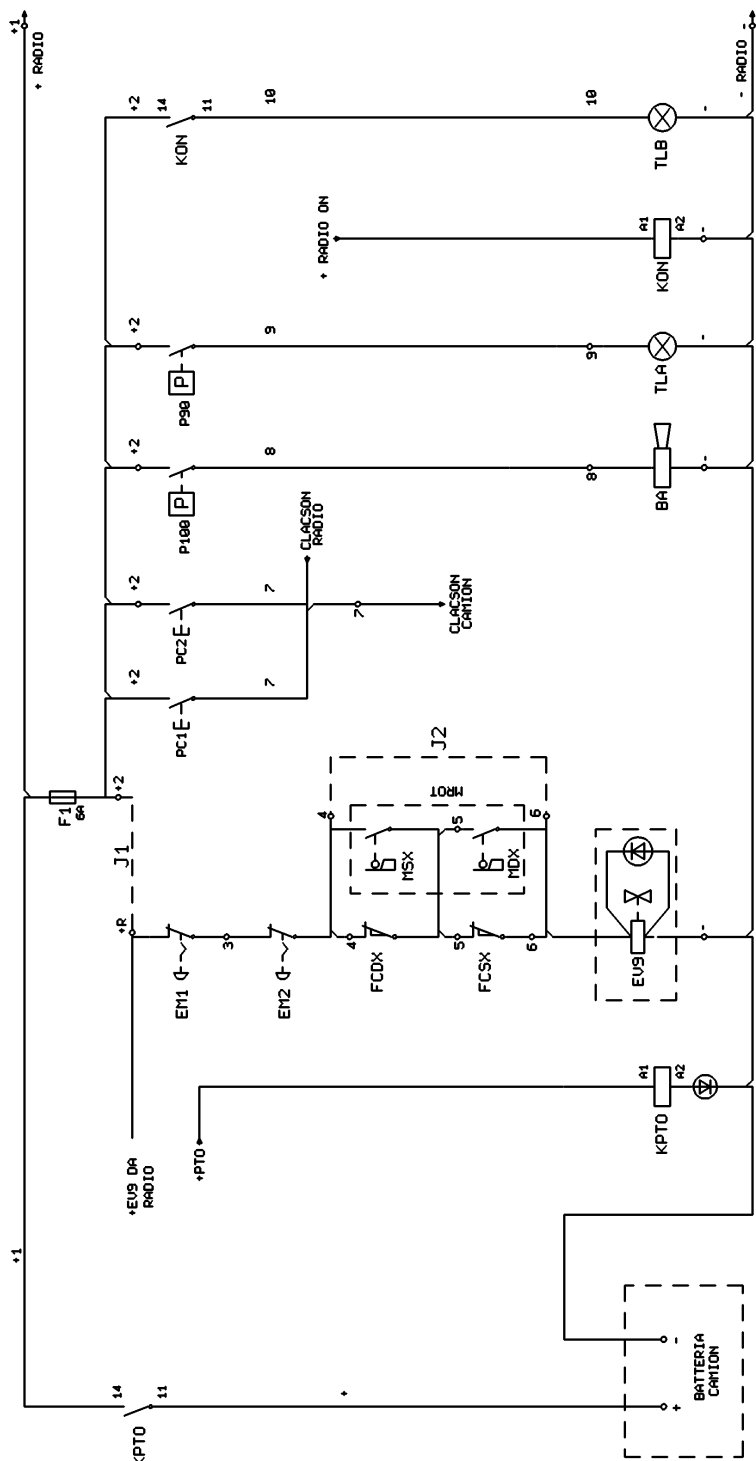


Fig.3-1

3.3 ANTENNA+ VERRICELLO (Fig. 3-2, Fig 3-3)

3.3 JIB + WINCH (Fig. 3-2, Fig. 3-3)

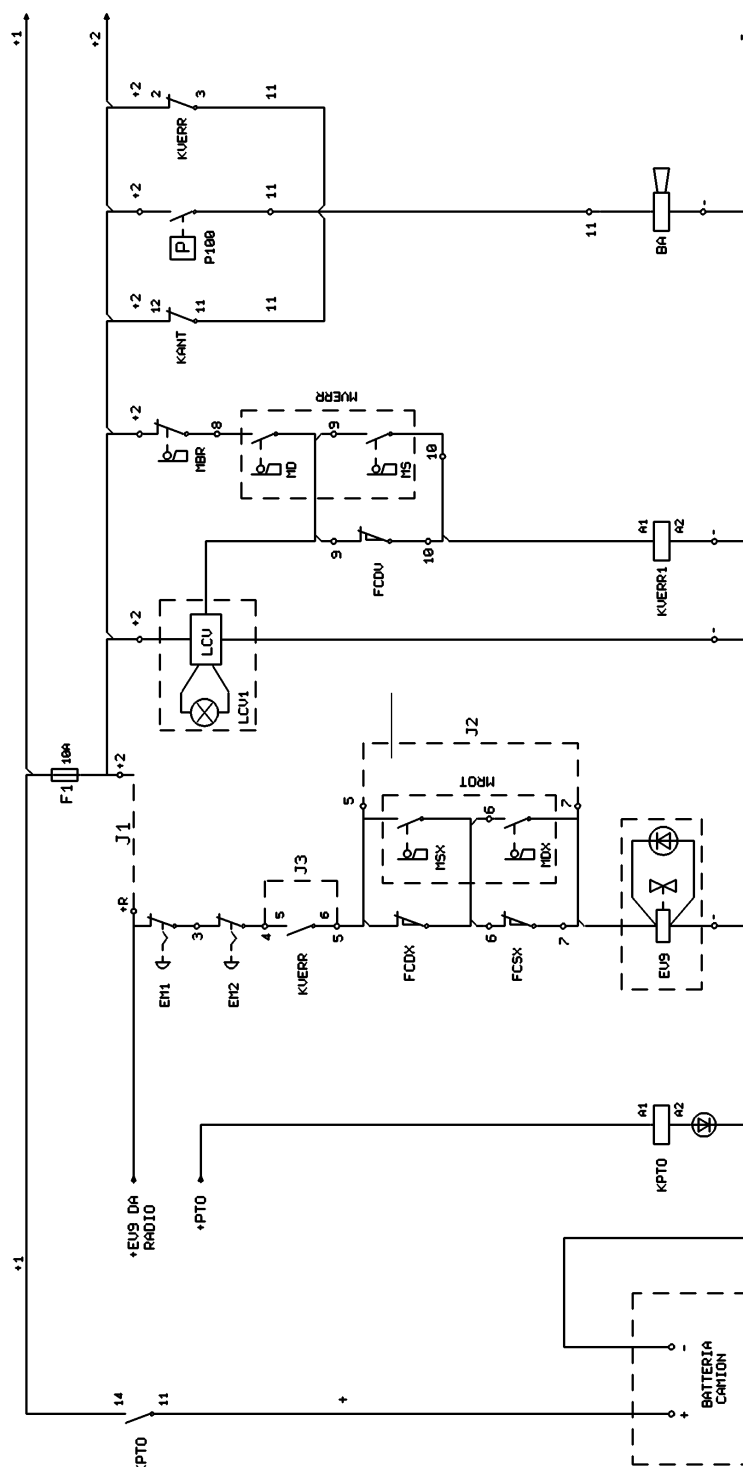


Fig.3-2

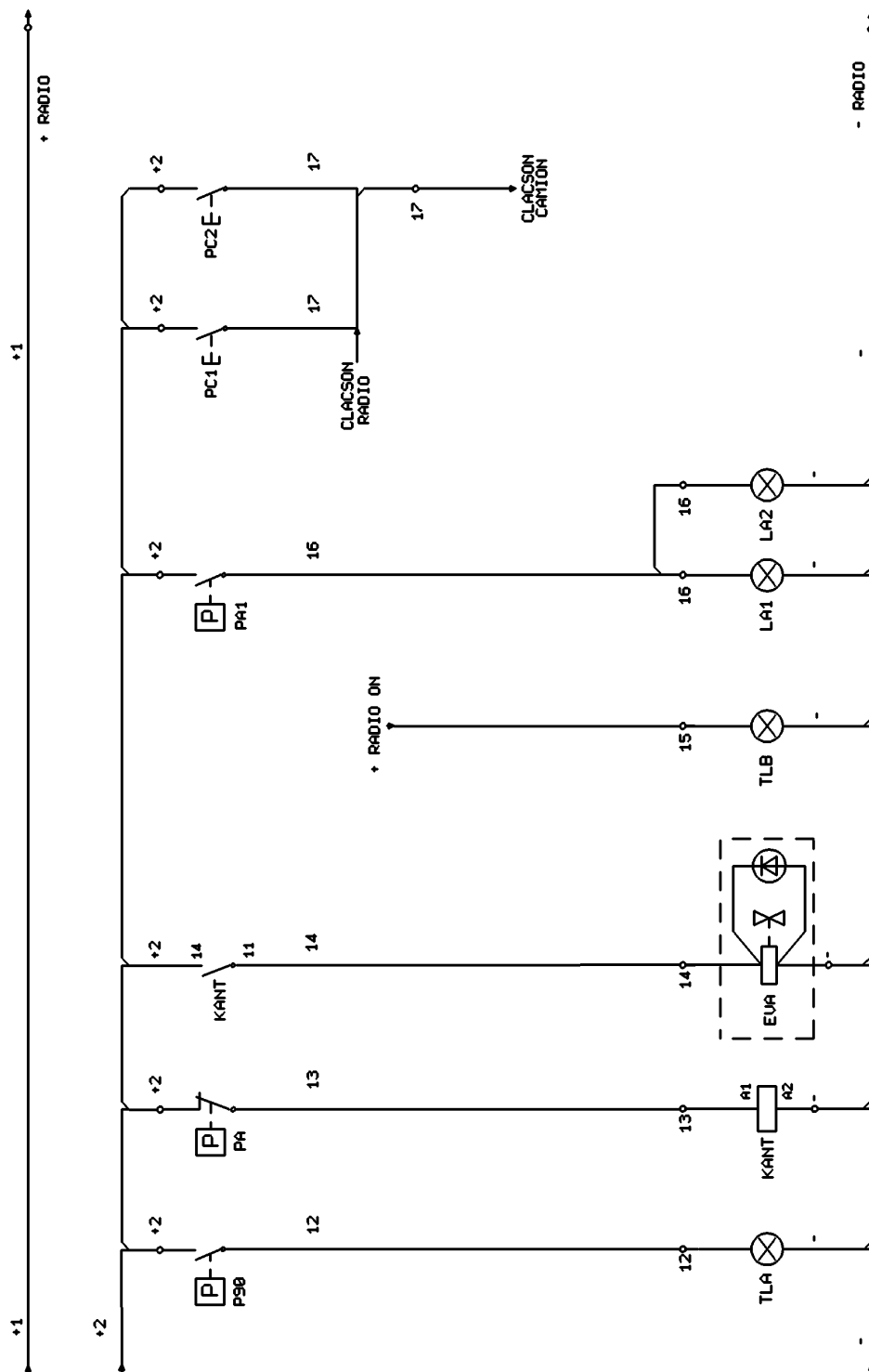
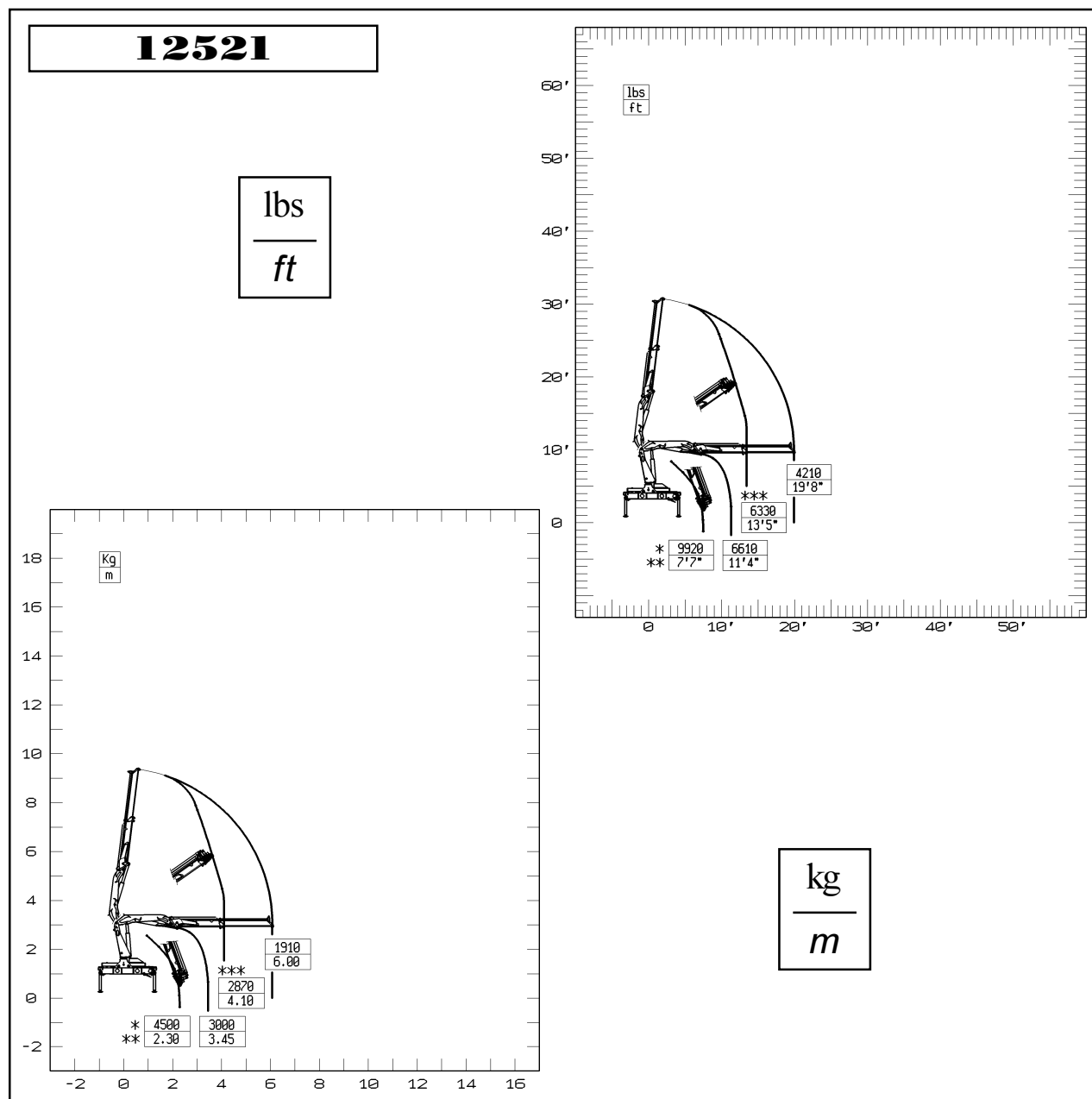


Fig.3-2

4: DIAGRAMMI PORTATE

4: LOAD CHARTS



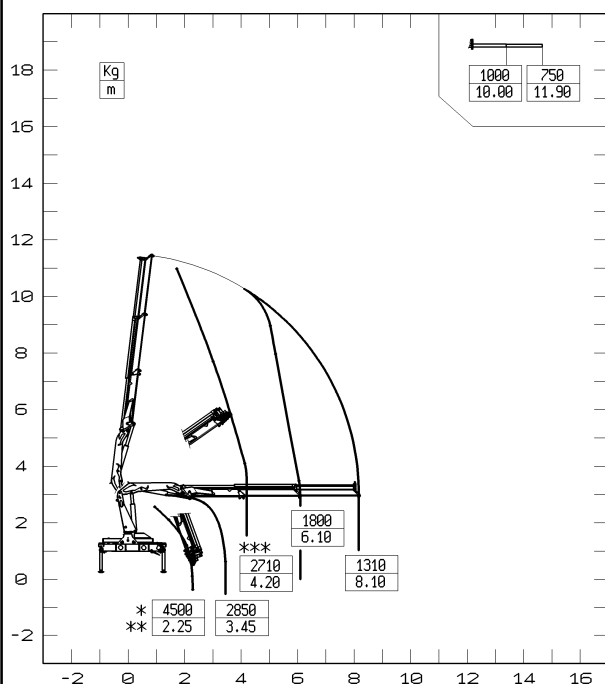
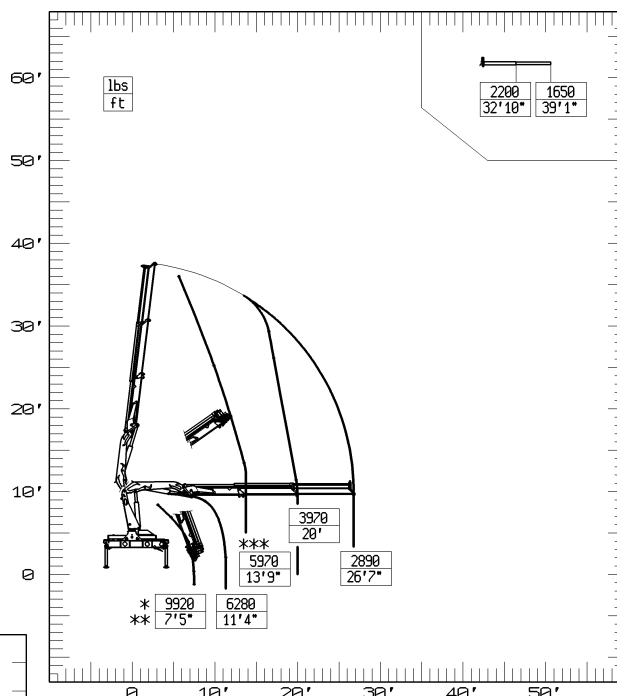
- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12522

lbs
ft



kg
m

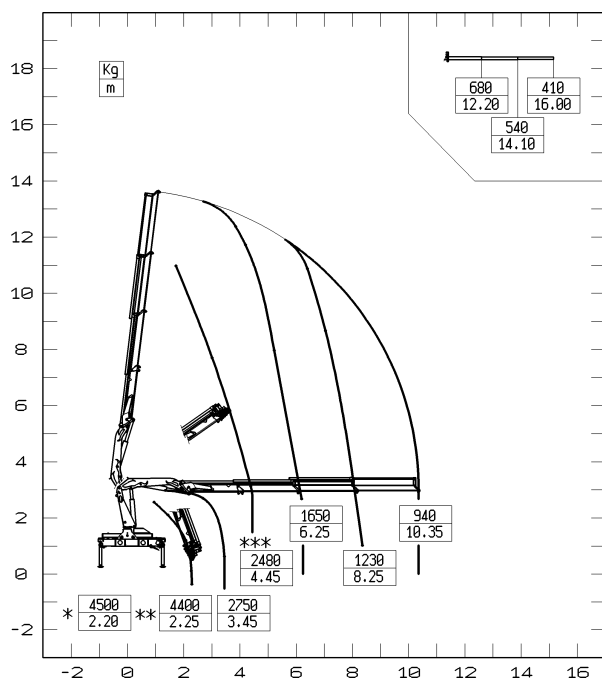
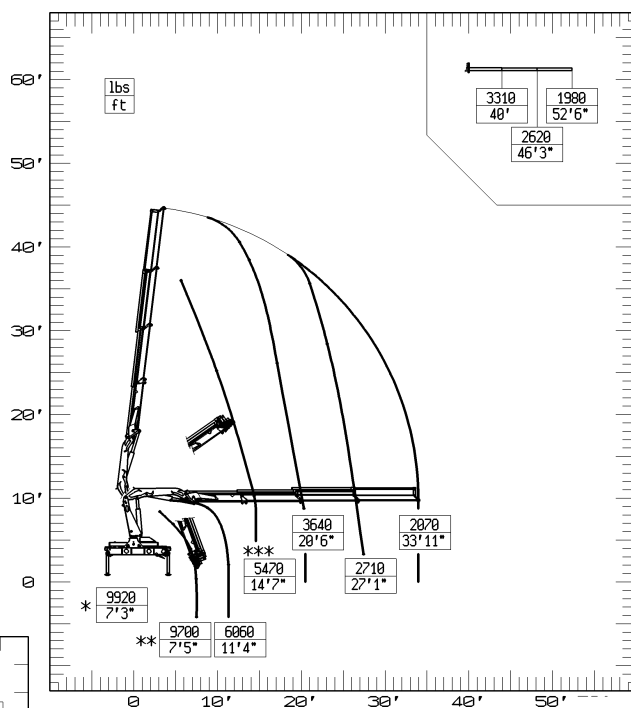
- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12523

lbs
ft



kg
m

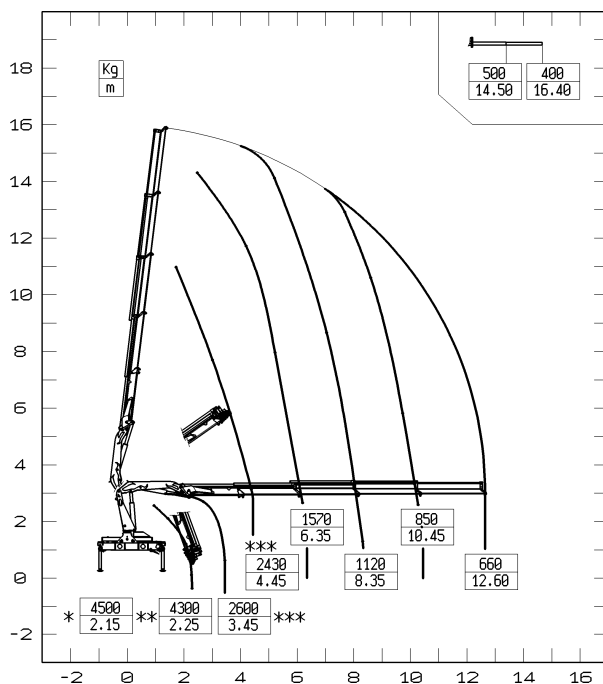
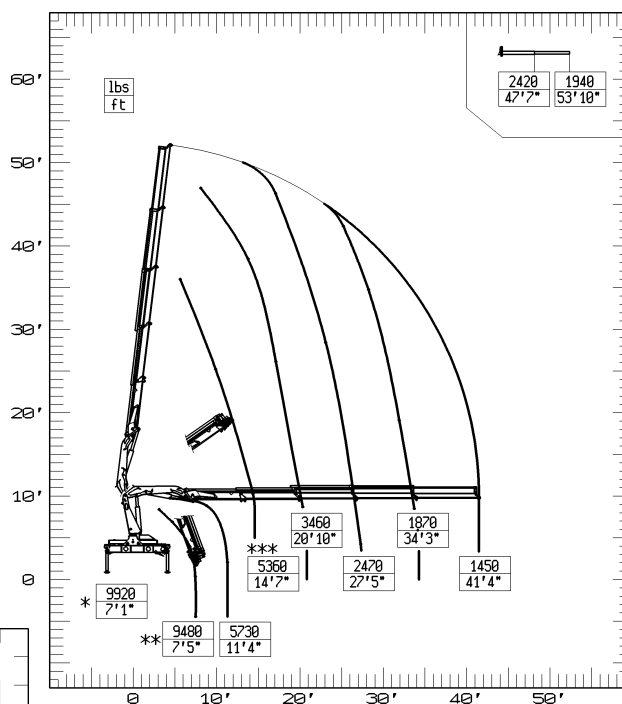
- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12524

lbs
ft



kg
m

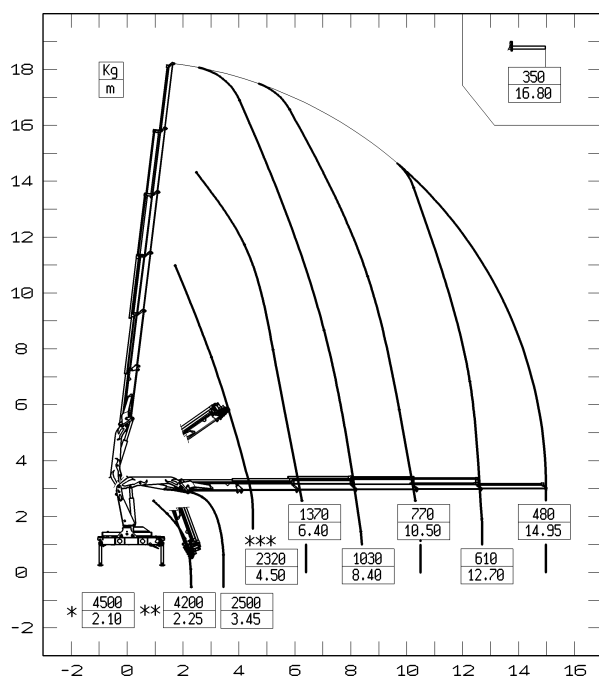
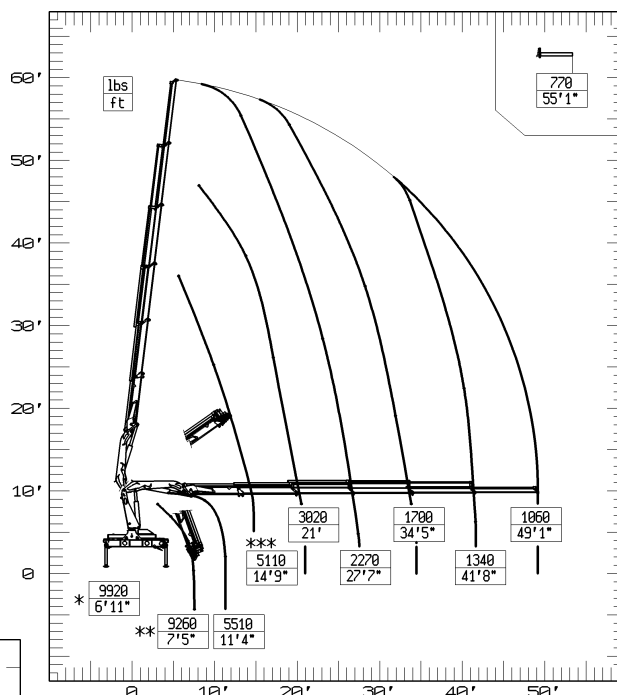
- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12525

lbs
ft



kg
m

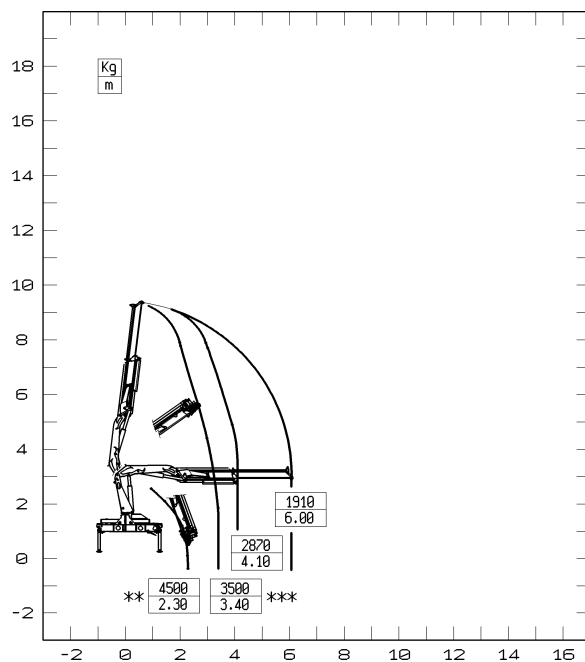
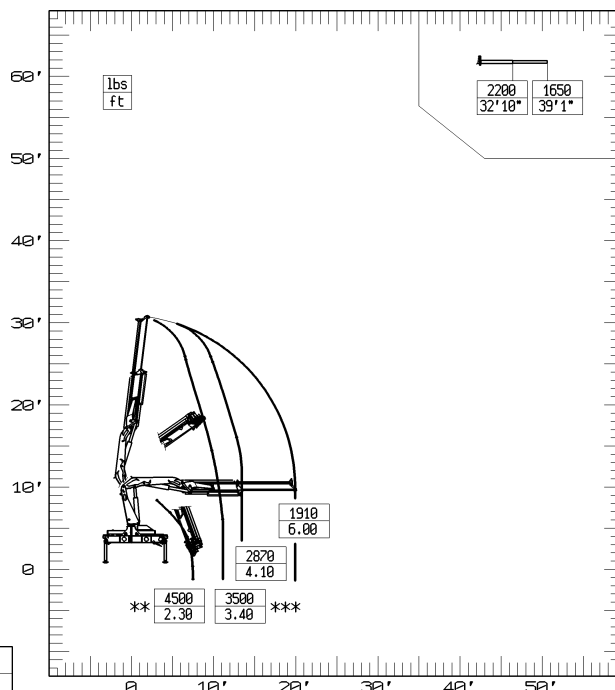
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12521 LC

lbs
ft



kg
m

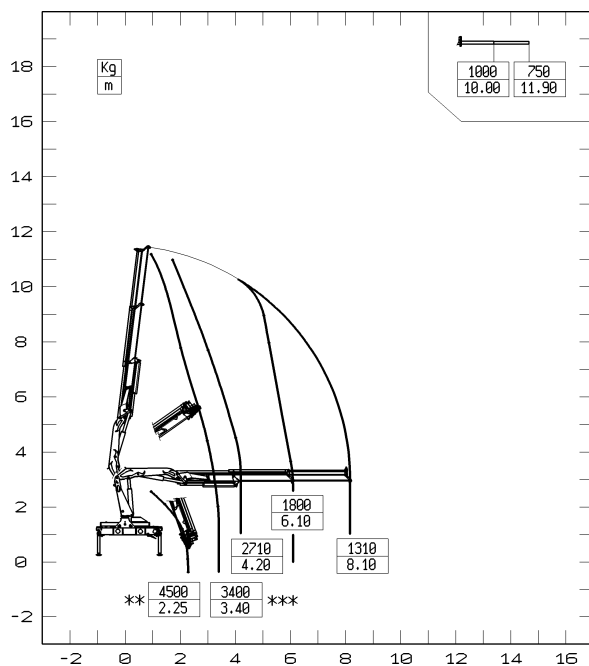
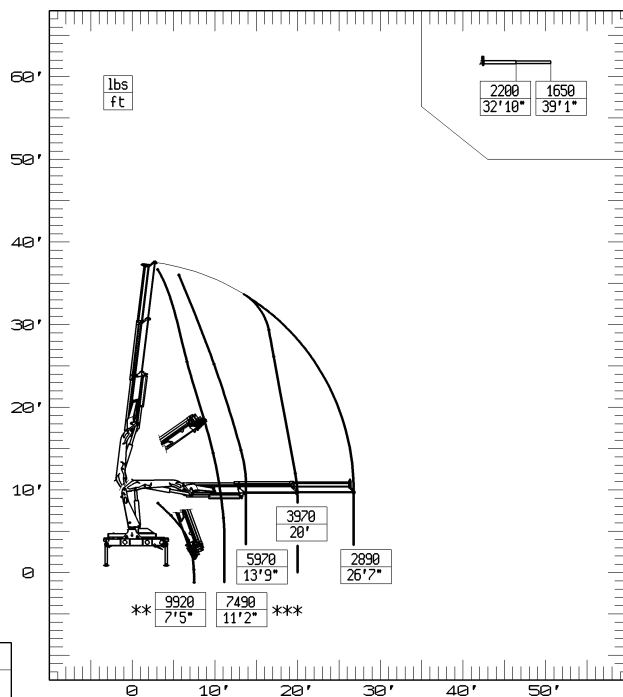
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12522 LC

lbs
ft



kg
m

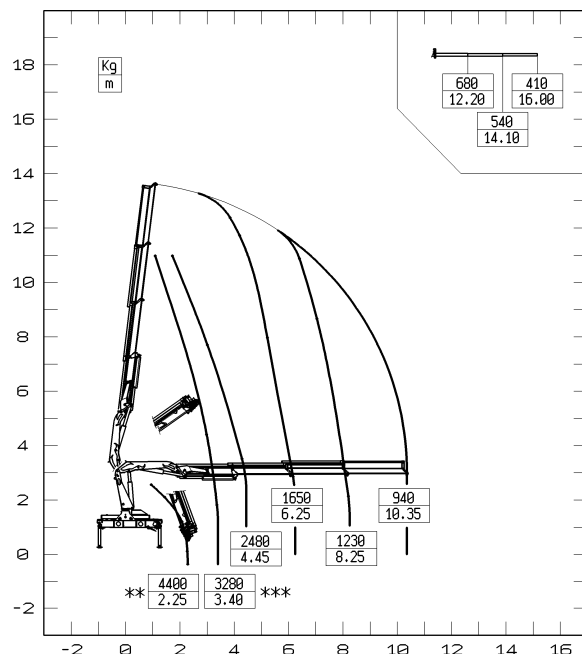
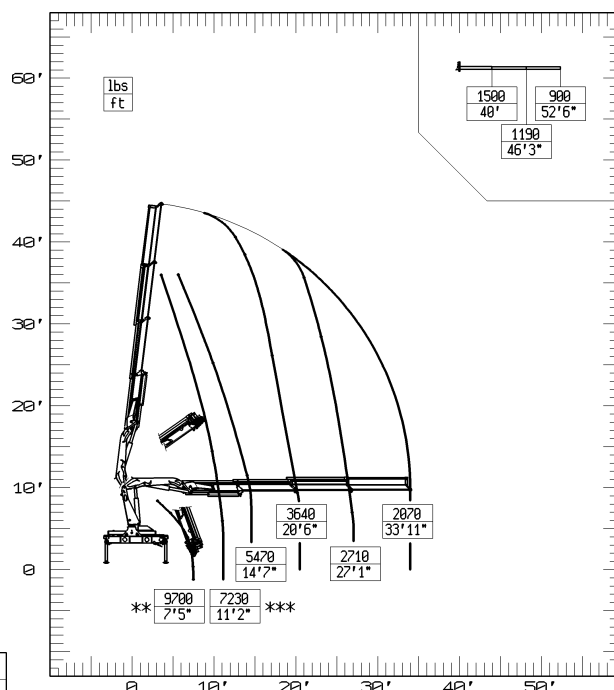
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12523 LC

lbs
ft



kg
m

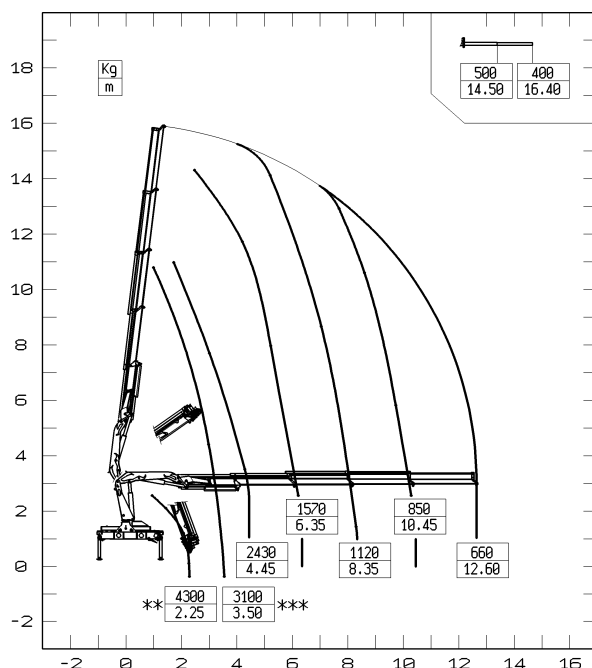
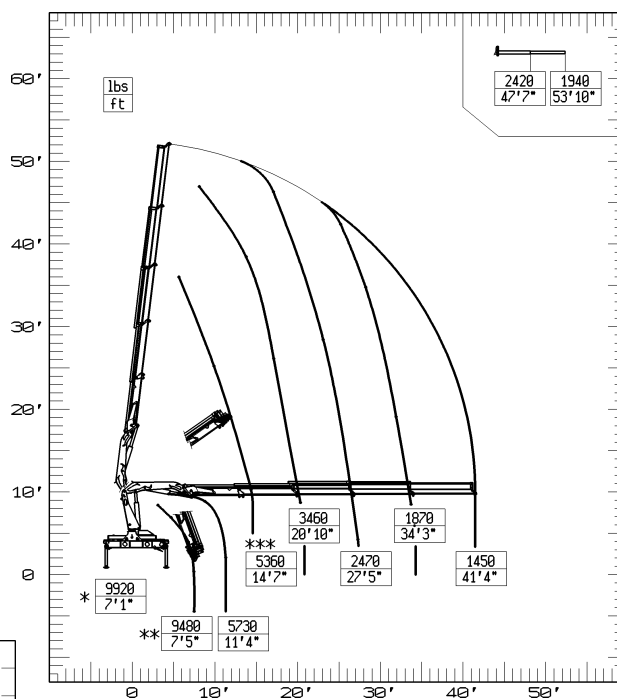
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12524 LC

lbs
ft



kg
m

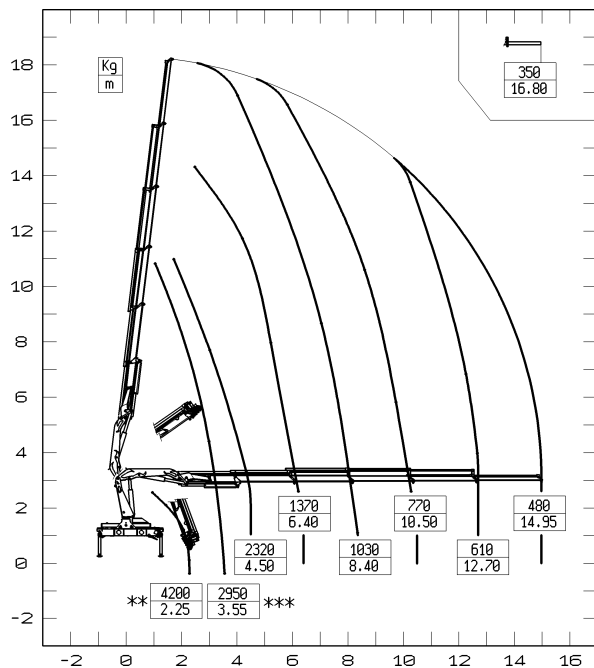
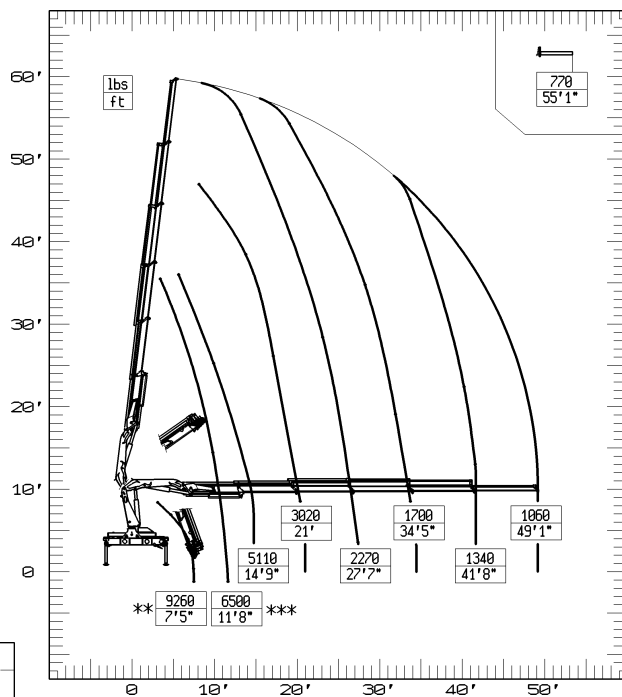
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12525 LC

lbs
ft



kg
m

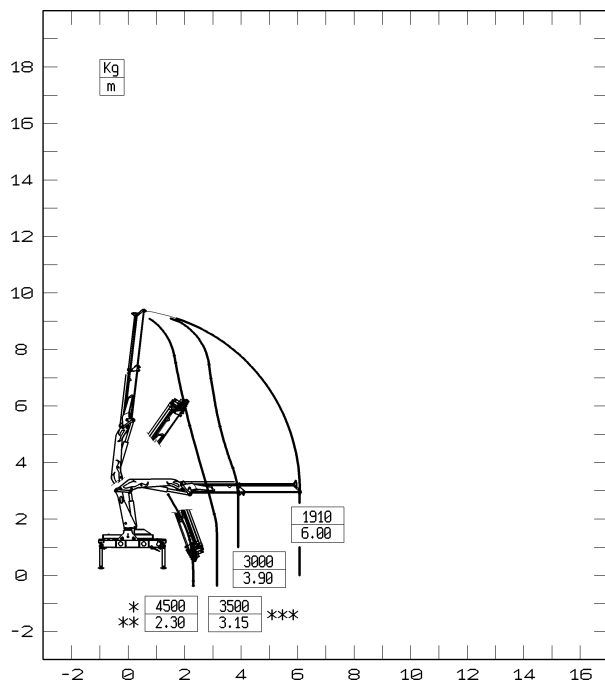
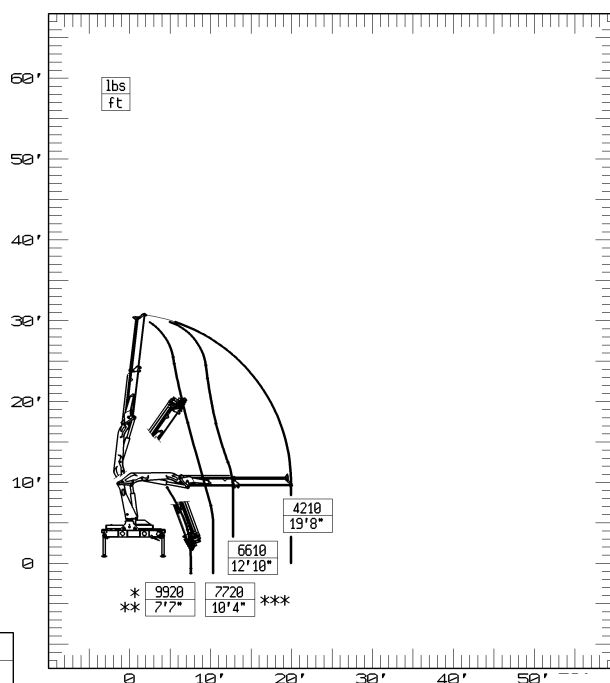
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12521 S

lbs
ft



kg
m

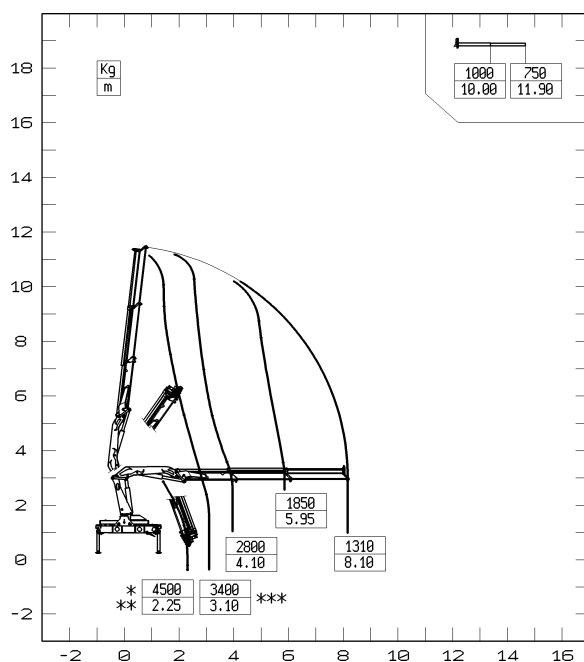
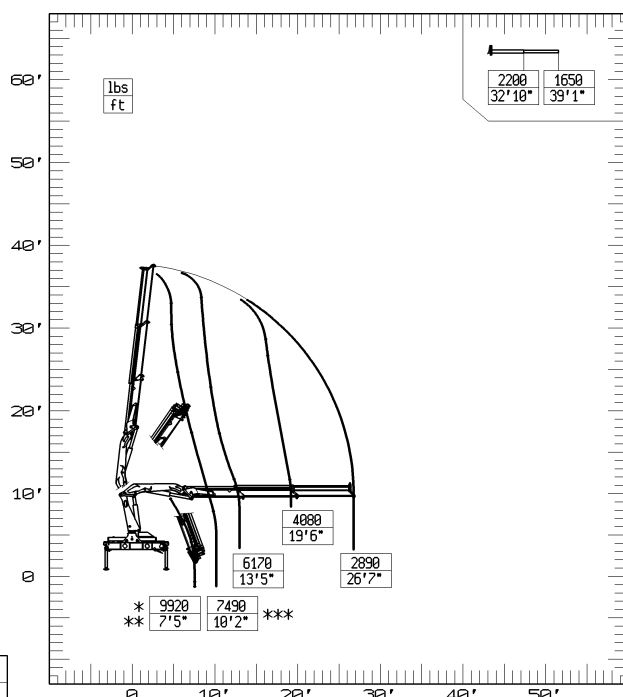
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12522 S

lbs
ft



kg
m

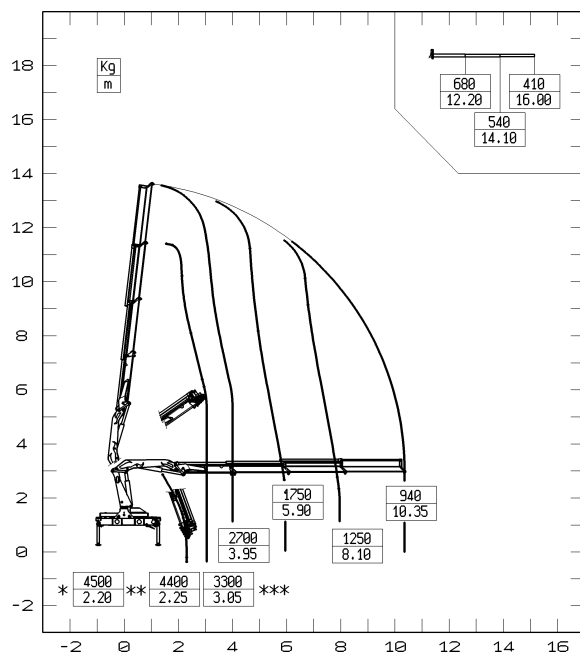
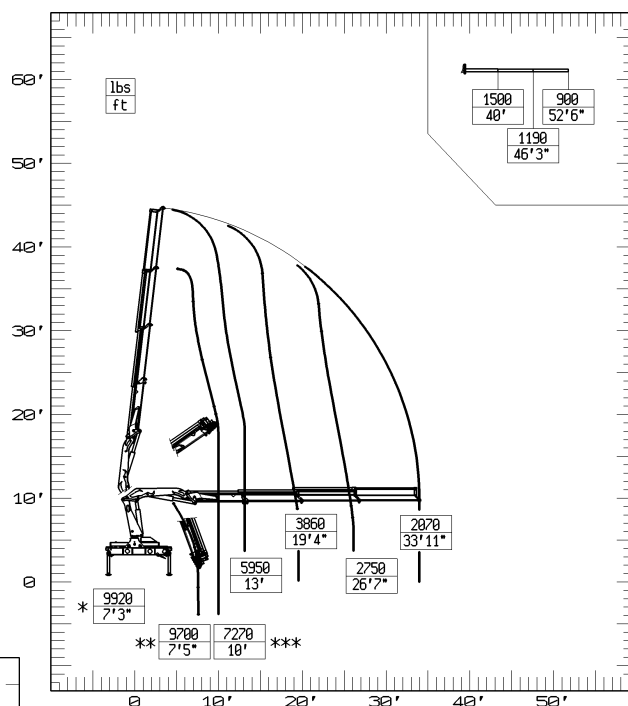
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12523 S

lbs
ft



kg
m

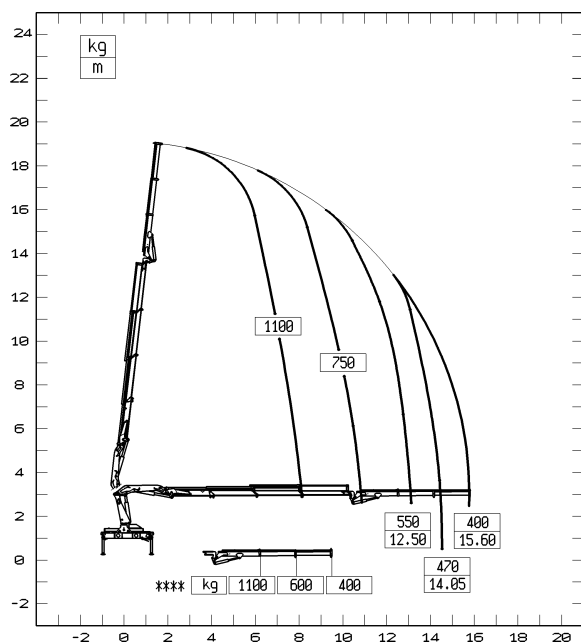
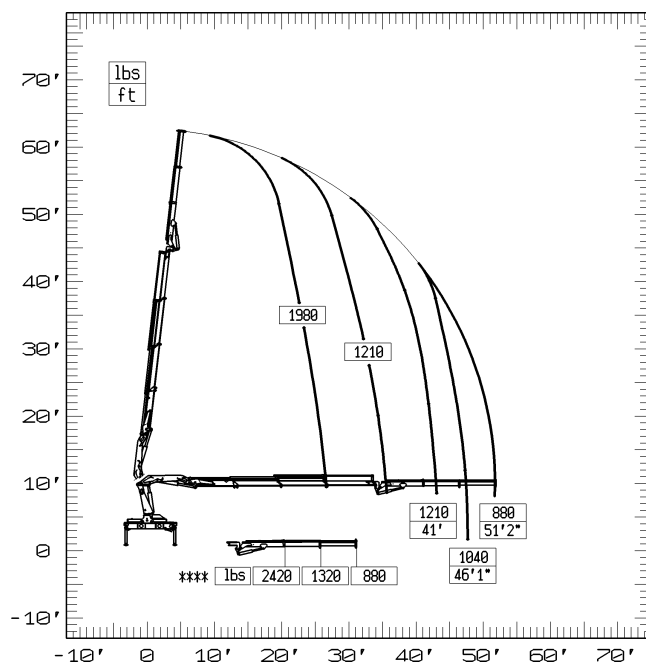
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12523 S + J 252

lbs
ft



kg
m

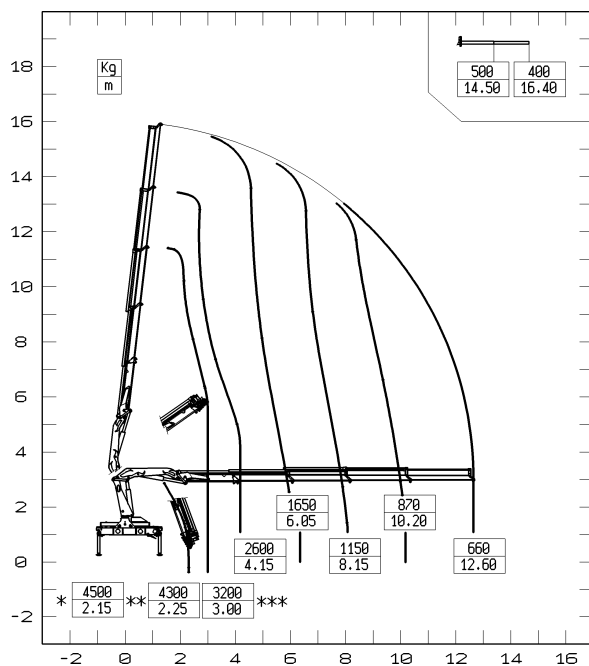
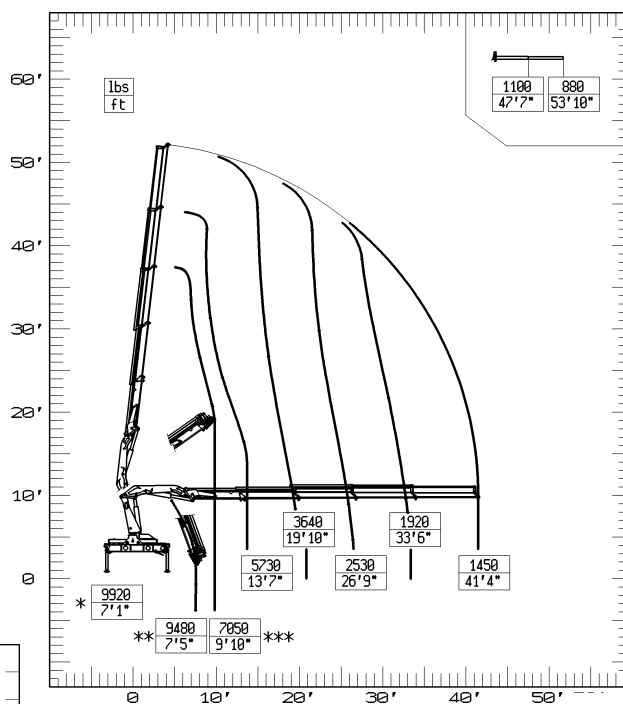
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12524 S

lbs
ft



kg
m

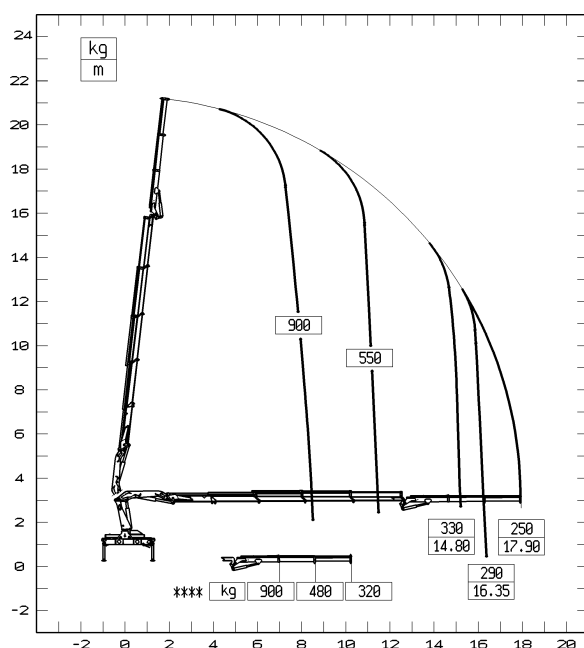
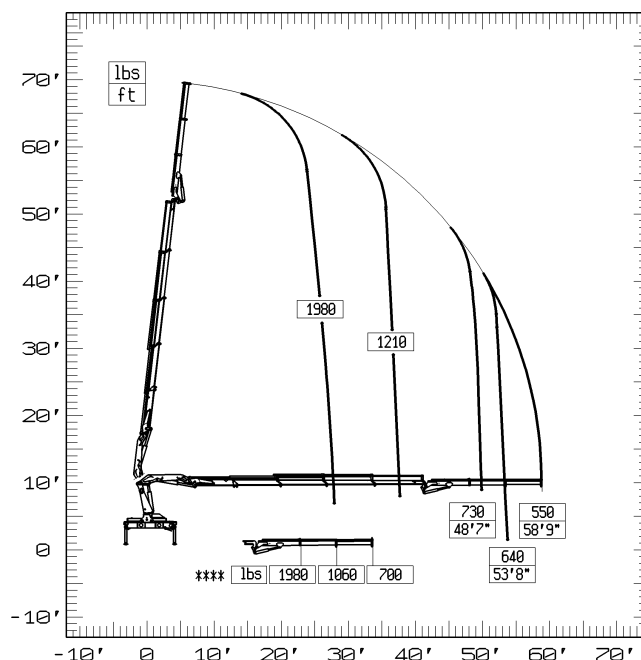
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12524 S+J 252

lbs
ft



kg
m

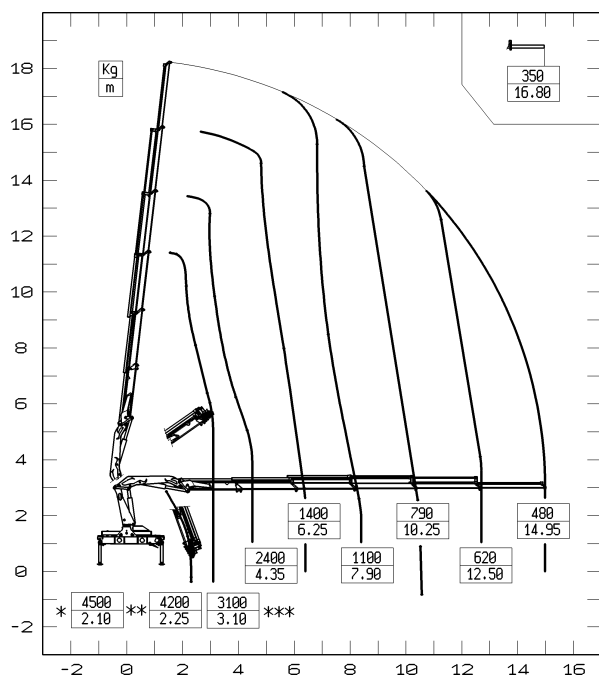
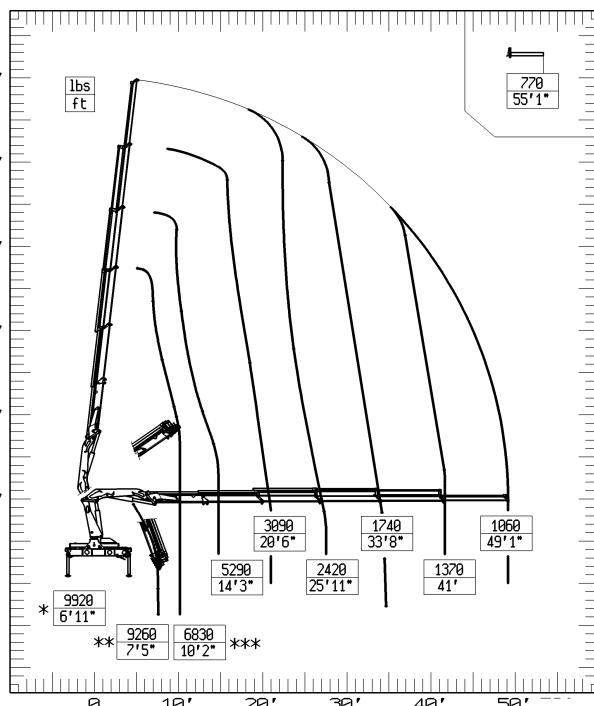
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12525 S

lbs
ft



kg
m

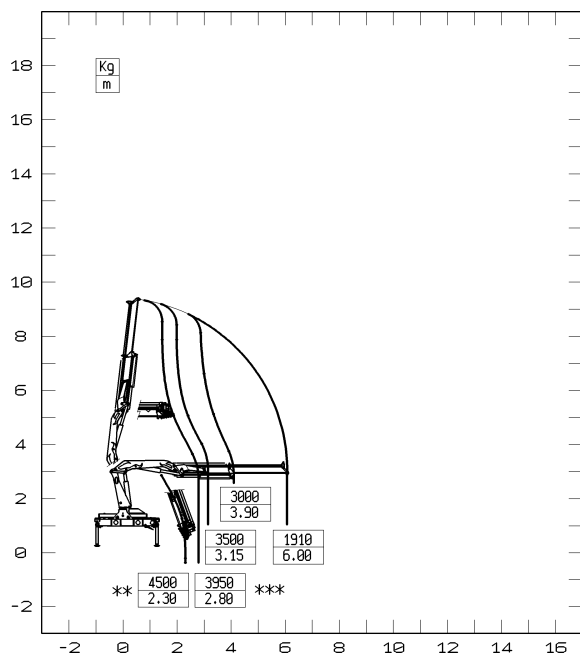
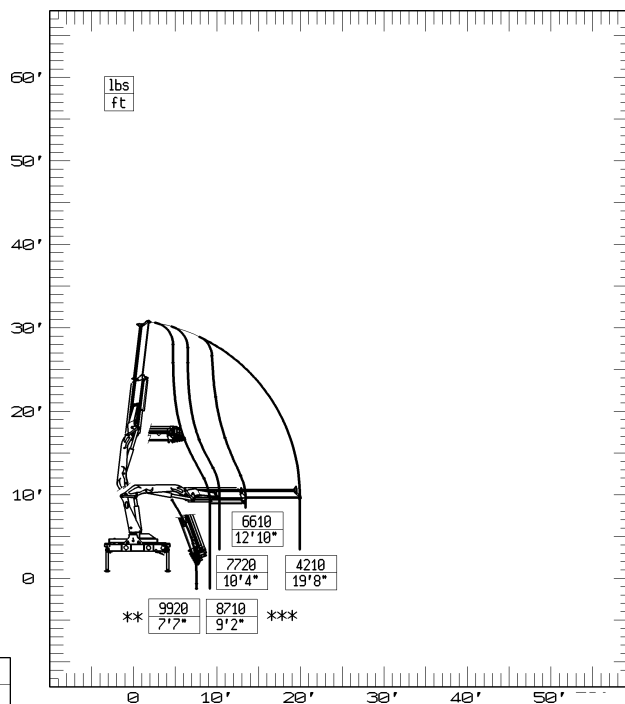
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12521 S LC

lbs
ft



kg
m

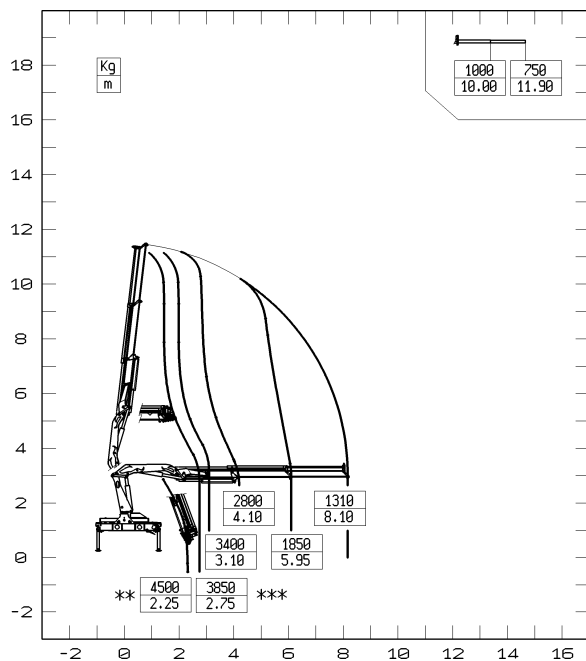
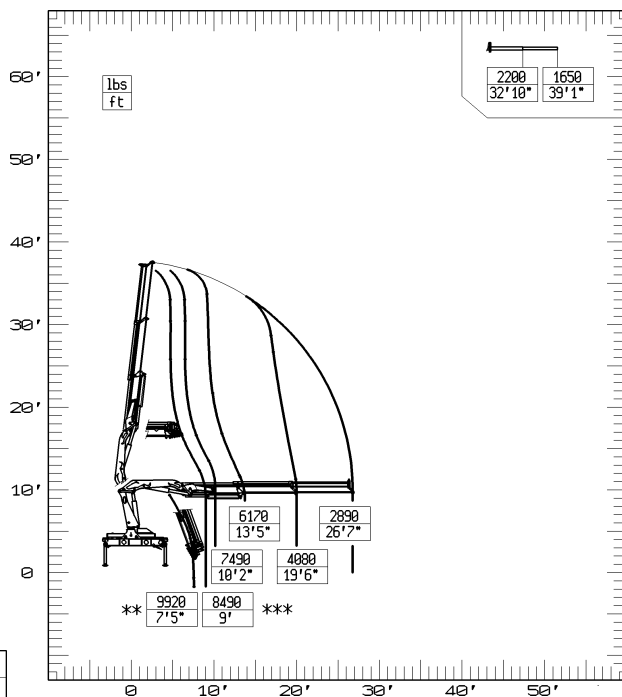
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12522 S LC

lbs
ft



kg
m

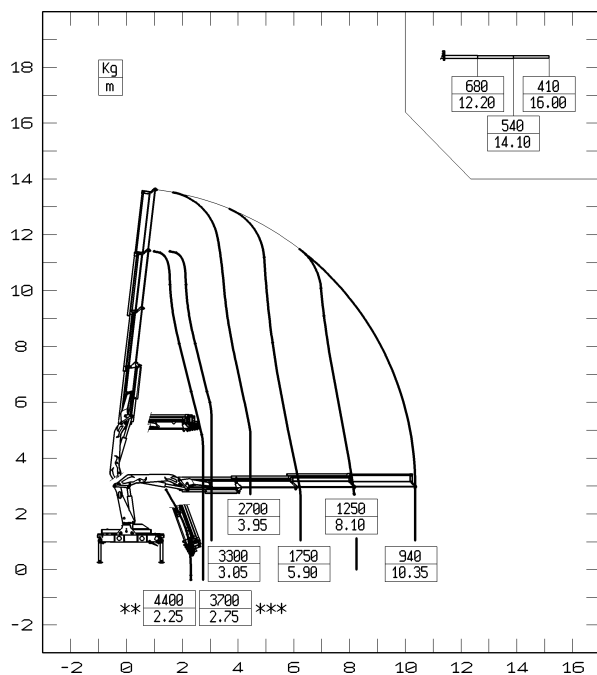
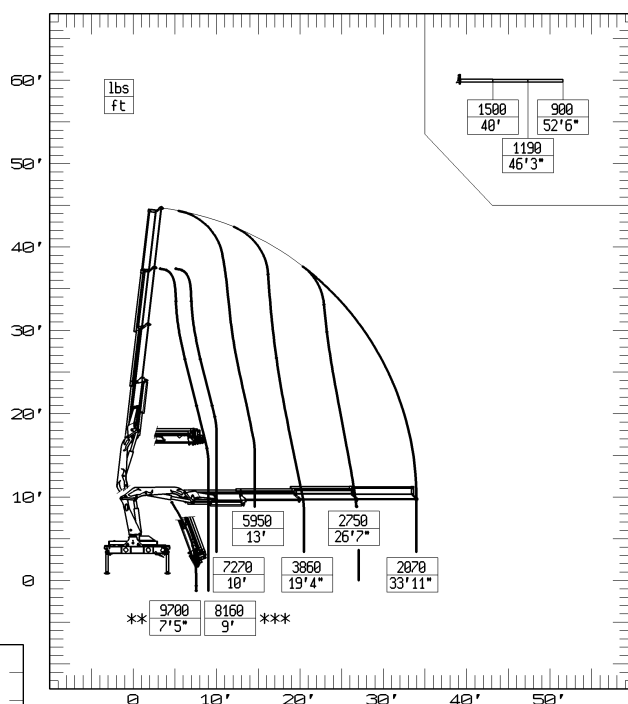
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12523 S LC

lbs
ft



kg
m

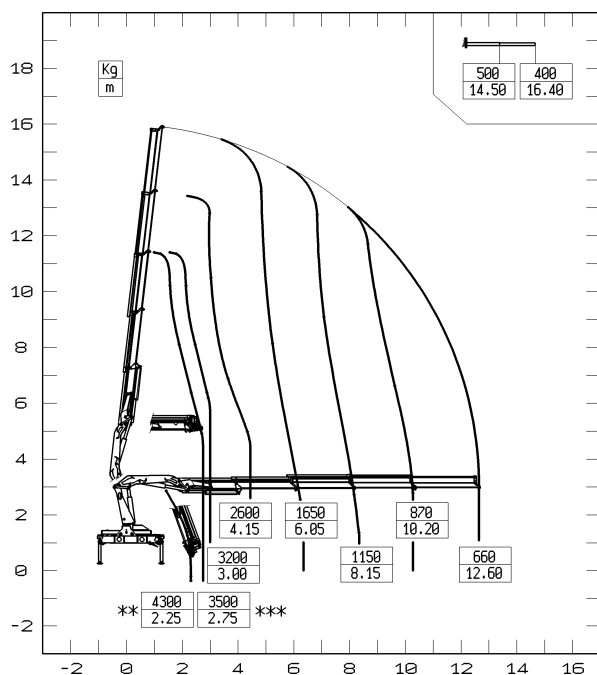
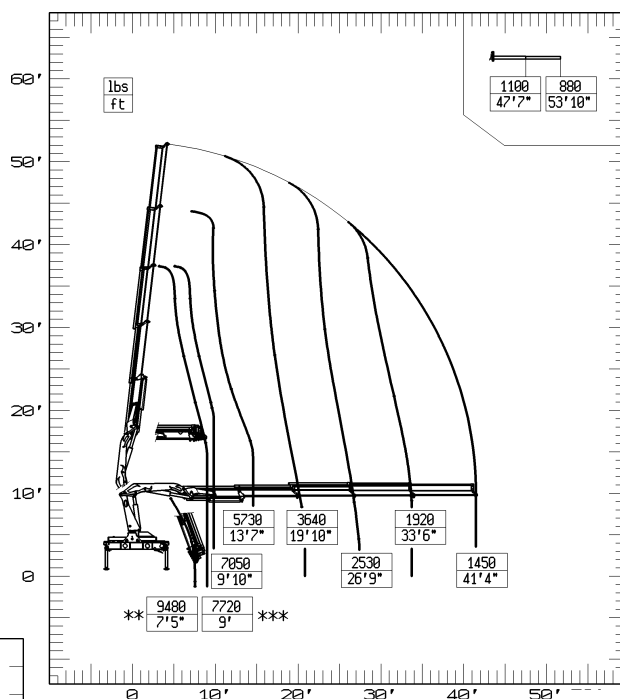
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12524 S LC

lbs
ft



kg
m

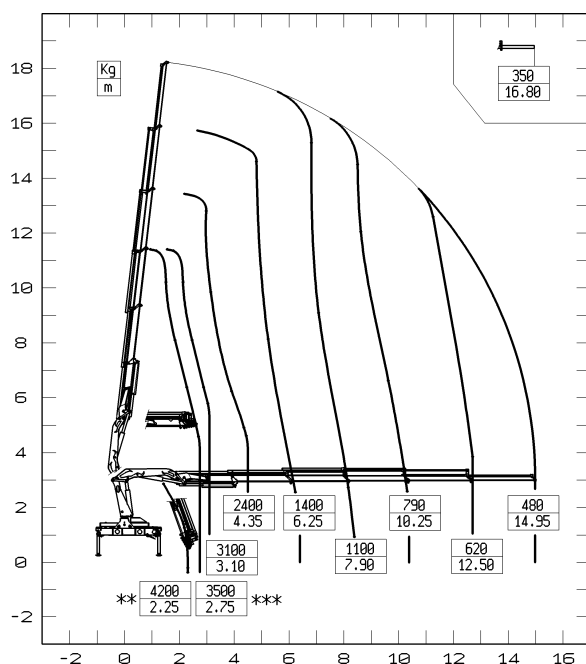
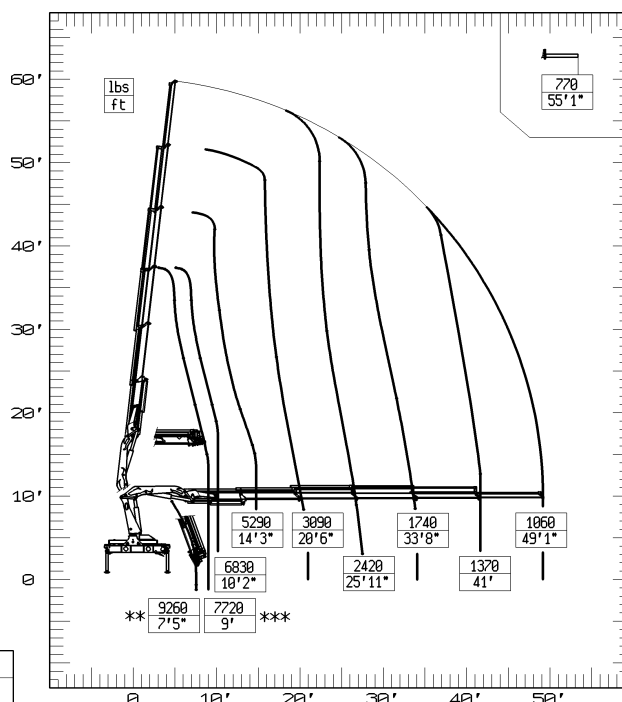
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

12525 S LC

lbs
ft



kg
m

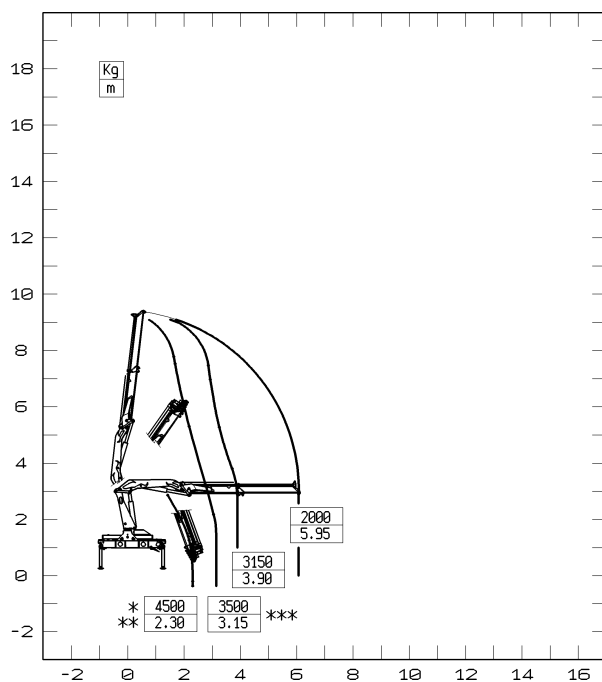
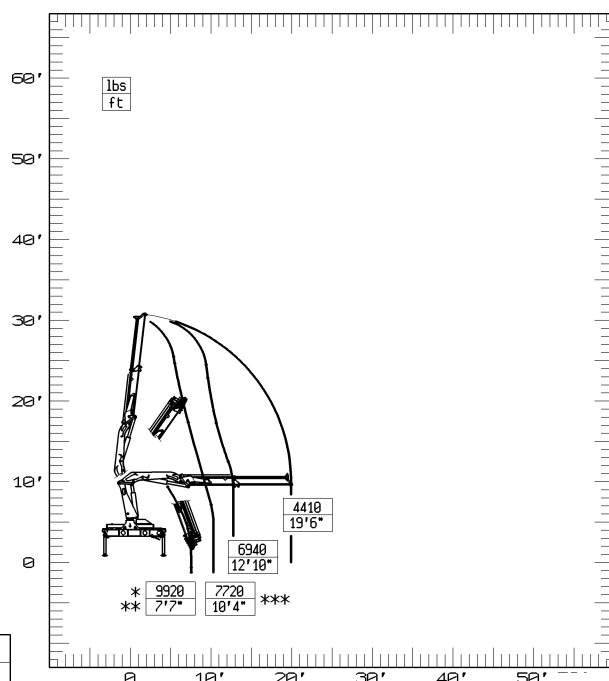
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13521 SP

lbs
ft



kg
m

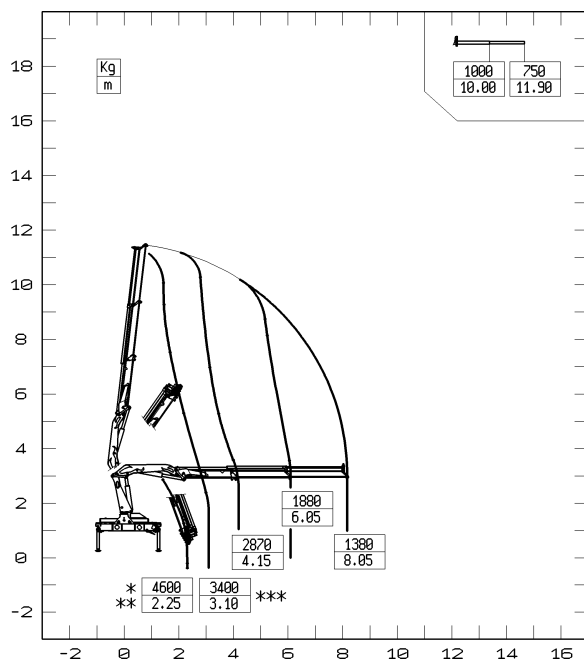
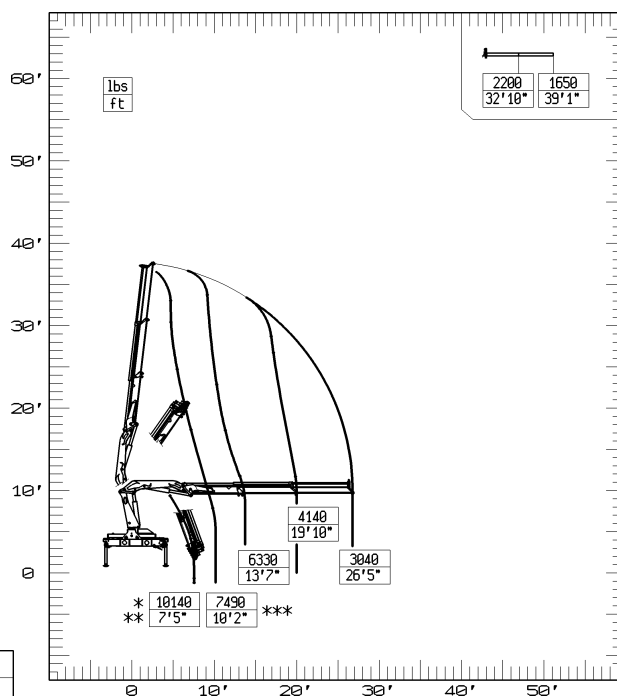
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13522 SP

lbs
ft



kg
m

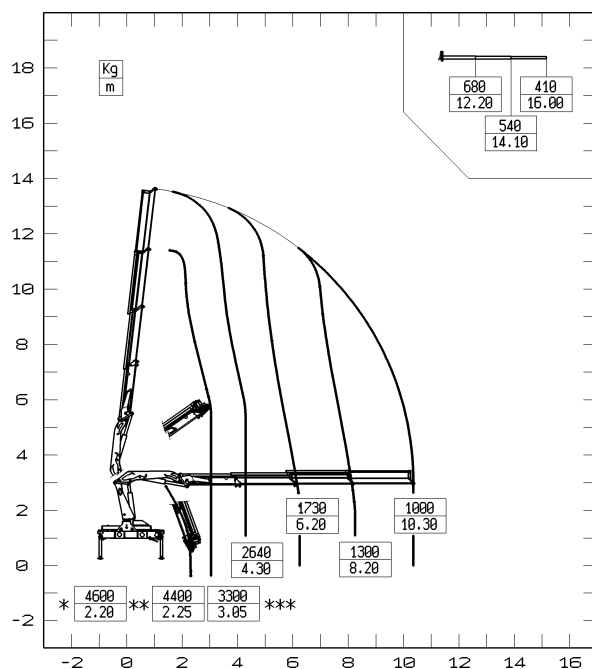
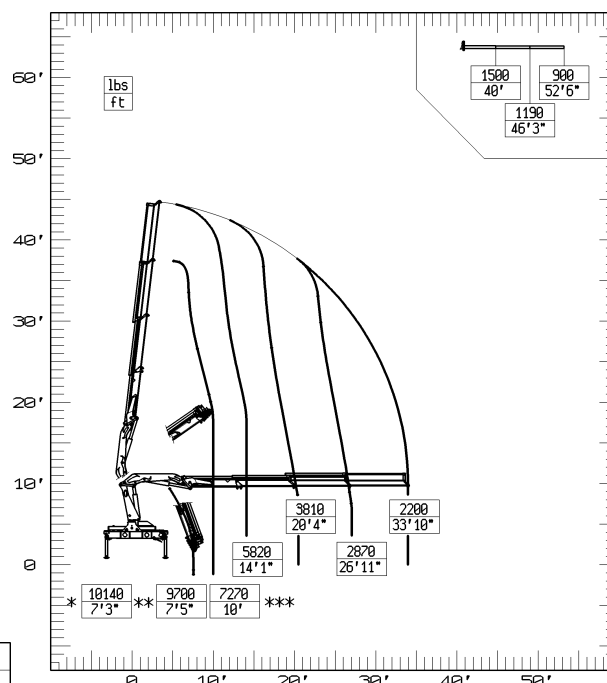
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NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13523 SP

lbs
ft



kg
m

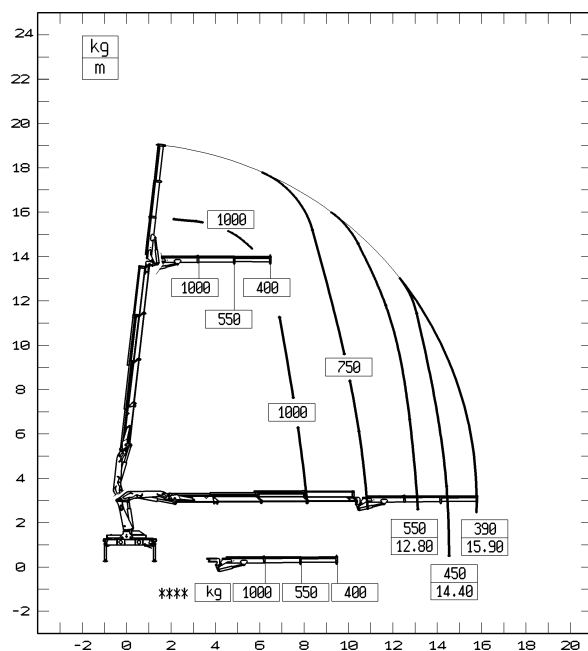
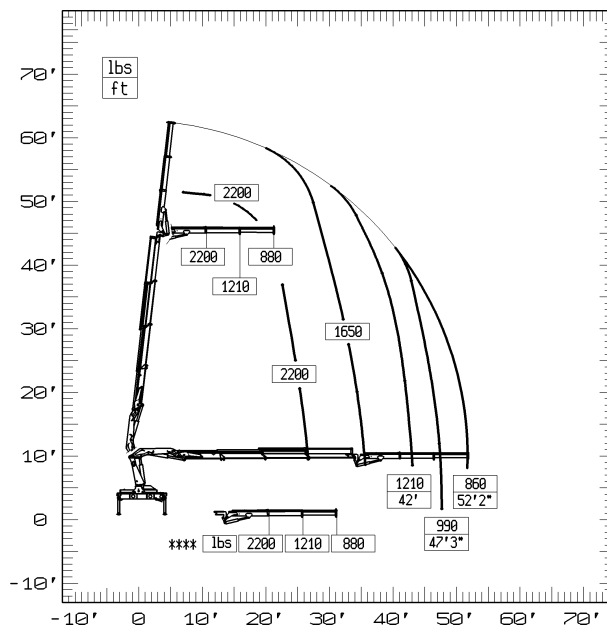
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13523 SP + J 252

lbs
ft



kg
m

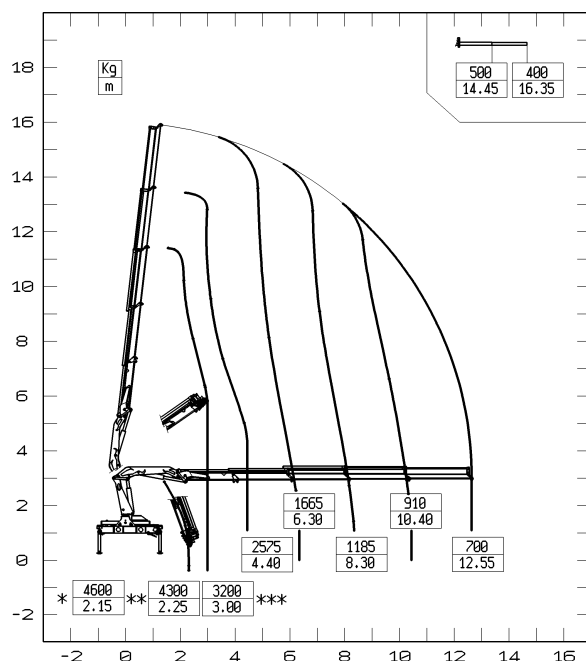
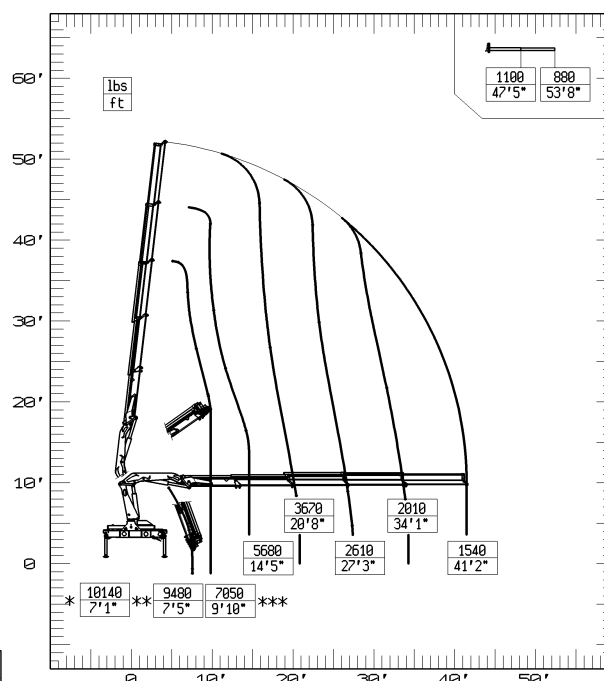
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NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13524 SP

lbs
ft



kg
m

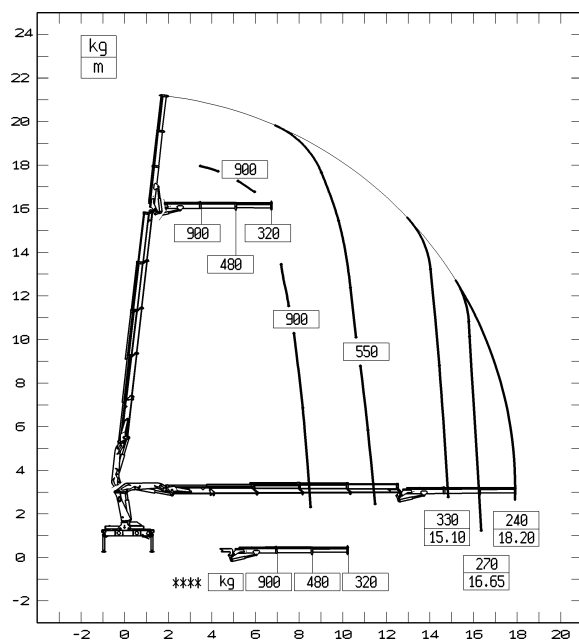
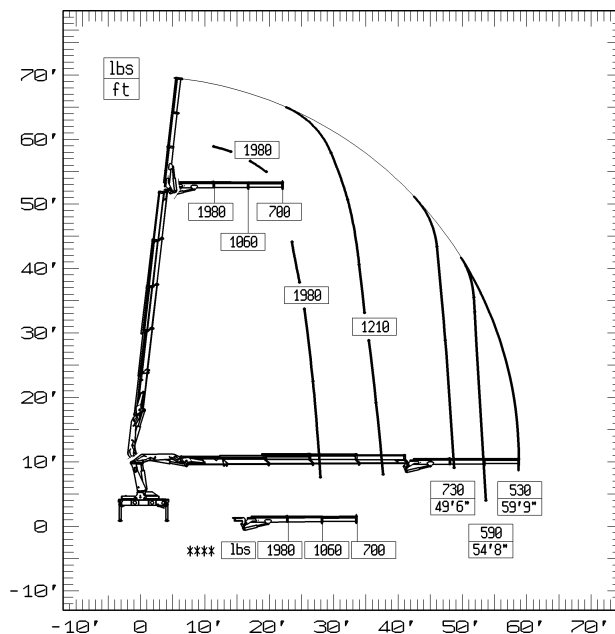
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MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13524 SP + J 252

lbs
ft



kg
m

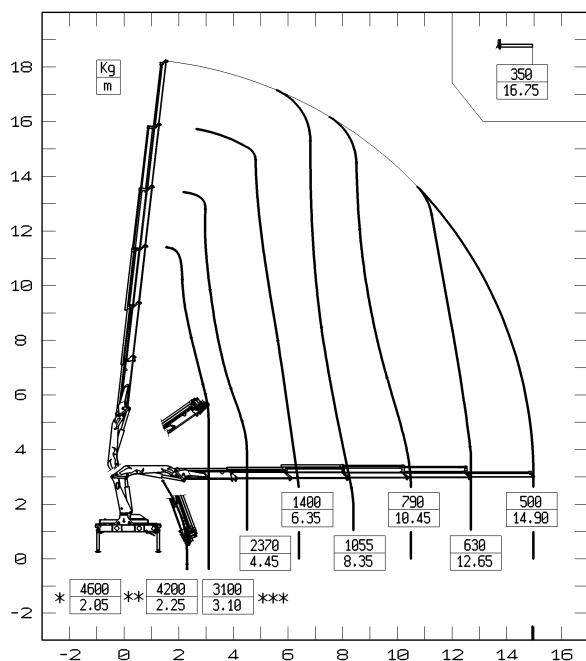
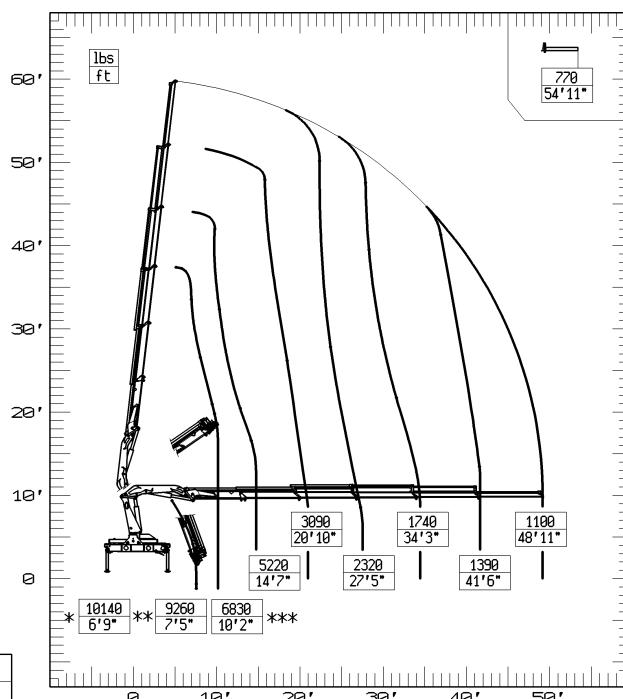
- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13525 SP

lbs
ft



kg
m

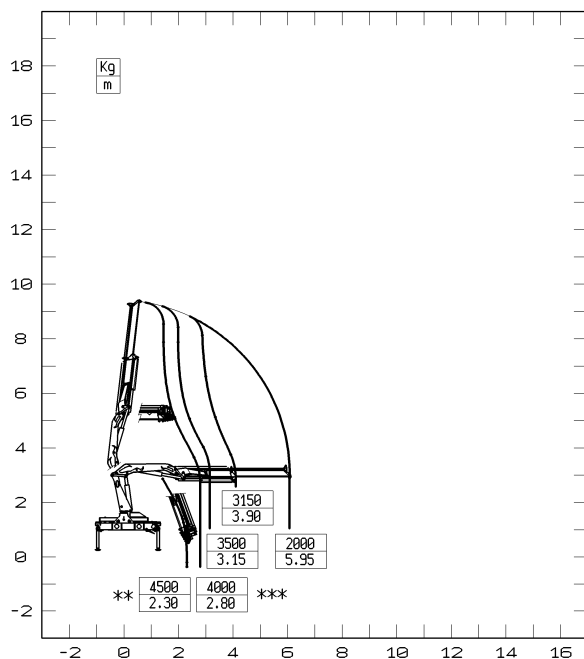
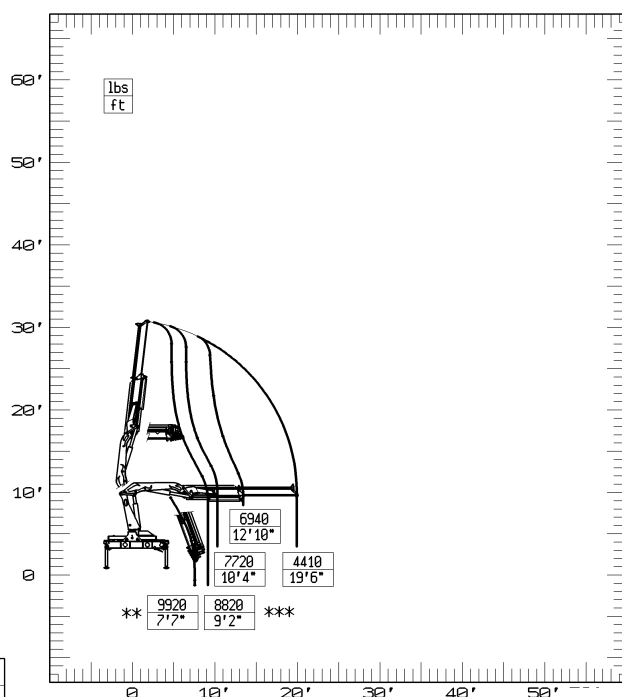
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MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13521 SP LC

lbs
ft



kg
m

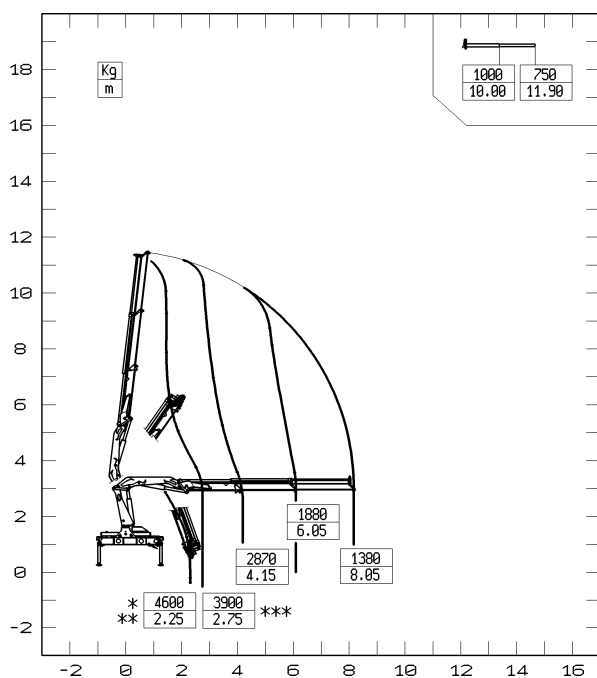
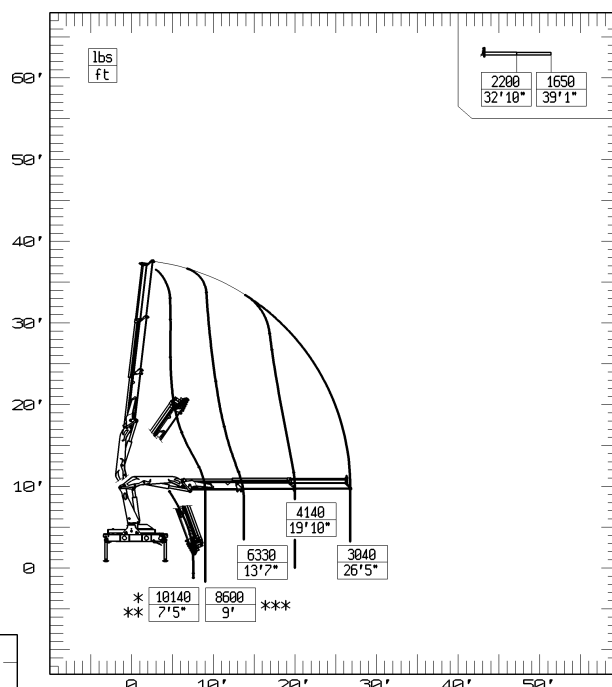
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MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13522 SP LC

lbs
ft



kg
m

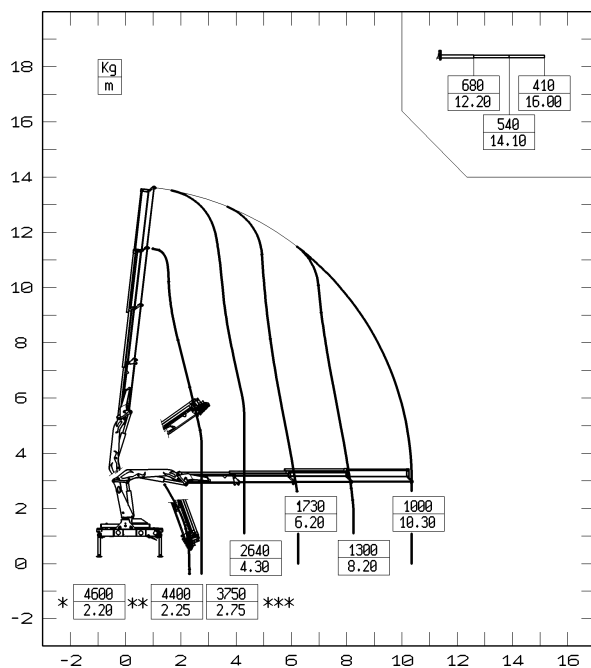
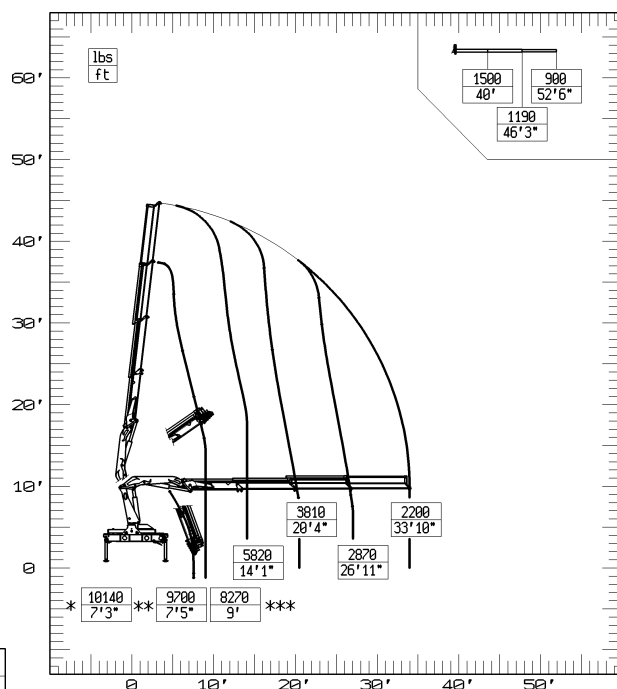
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MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13523 SP LC

lbs
ft



kg
m

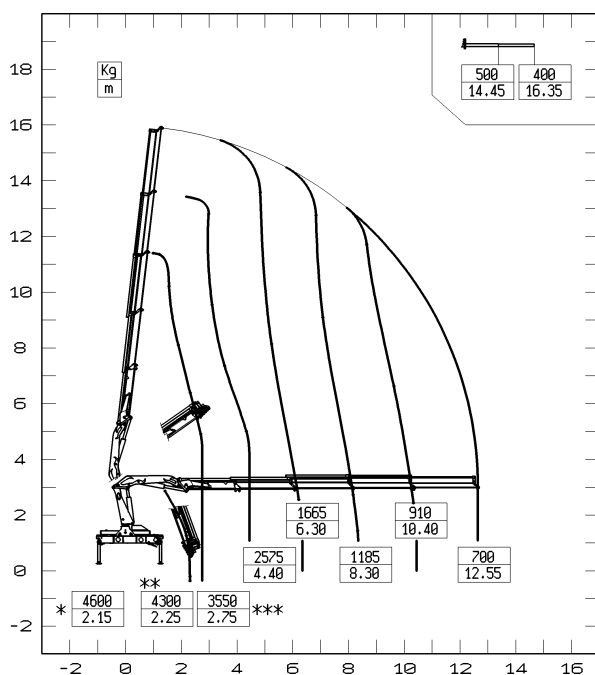
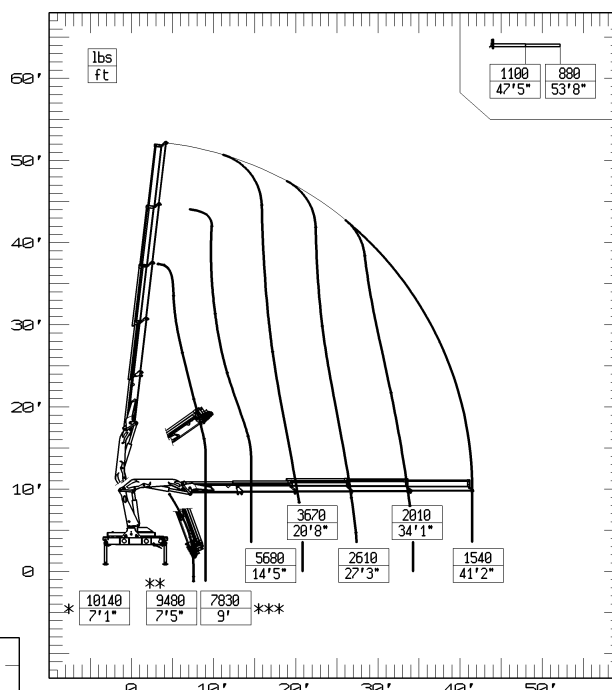
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MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13524 SP LC

lbs
ft



kg
m

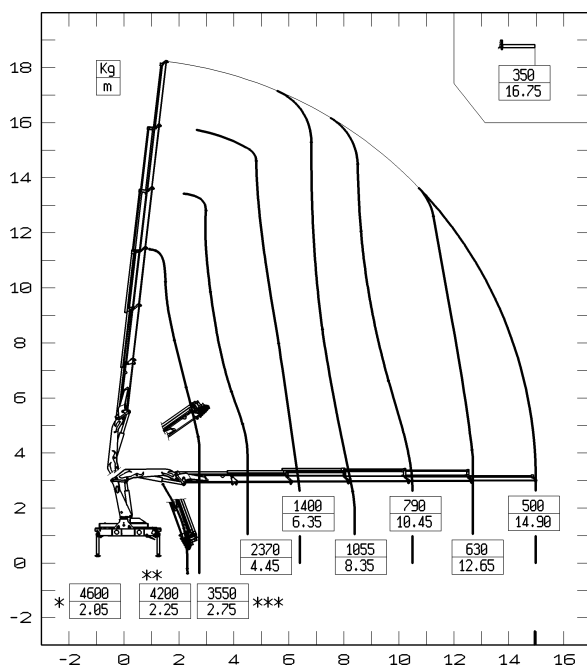
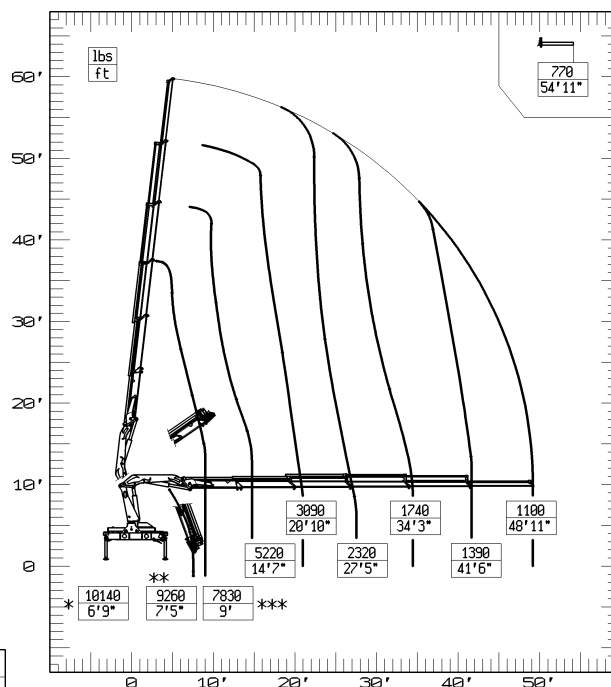
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- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCI PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

13525 SP LC

lbs
ft



kg
m

- * PORTATA MAX NOMINALE AL GANCIO FISSO
MAX CAPACITY AT FIXED HOOK
- ** PORTATA MAX AL GANCIO MOBILE
MAX CAPACITY AT MOBILE HOOK
- *** PORTATA MASSIMA PASSANTE PER L'ORIZZONTALE
MAX CAPACITY FROM HORIZONTAL TO VERTICAL

NB: LE PRESTAZIONI INDICATE SI OTTENGONO CON BRACCIO PRINCIPALE A 0°

NOTE: THE STATED PERFORMANCES CAN BE OBTAINED WITH 0° INCLINATED MAIN BOOM.

5: NOTIZIE TECNICHE

Qui di seguito elenchiamo, con breve commento tecnico, le nuove soluzioni e le migliorie che abbiamo introdotto sulle gru della serie 12.5 - 12.5 S-13.5 SP.

DISTRIBUTORE DI COMANDO, ad elementi componibili (che consente l'aggiunta di elementi supplementari per l'azionamento di accessori). E' dotato di cursori speciali che consentono la massima sensibilità e gradualità dei movimenti. Oltre al distributore standard sensibilizzato (Hydrocontrol) è disponibile come optional un distributore proporzionale (Hawe) normalmente abbinato al radiocomando.

IL POSIZIONAMENTO DEL DISTRIBUTORE (ORIZZONTALE SUL BASAMENTO) fa sì che le leve di manovra si vengano a trovare ad un'altezza da terra di circa 1.40 - 1.60 m consentendo un comodo utilizzo da parte dell'operatore.

IL SERBATOIO DELL'OLIO IDRAULICO con capacità massima di 80 litri integrato nella gru, favorisce la visibilità dell'operatore durante il lavoro. In materiale plastico, di peso ridotto, resistente agli urti, alla temperatura e agli agenti atmosferici non è necessario rimuoverlo nel caso di montaggio del posto di manovra in piedi. Inoltre risulta facilmente accessibile per le operazioni di manutenzione/pulizia filtro. Le superfici esterne sono esposte all'aria in modo da migliorarne la capacità di scambio termico verso l'esterno per il raffreddamento dell'olio idraulico.

SISTEMA DI SFILAMENTO DEI BRACCI GRU realizzato con martinetti ad un solo stadio accoppiati tra di loro per le varie versioni. I collegamenti tra i vari martinetti sono realizzati in parte internamente al martinetto stesso ed in parte esternamente con tubi metallici, ubicati in posizioni protette da eventuali urti esterni.

LA VALVOLA RIGENERATIVA STANDARD montata sui bracci della gru permette di raggiungere elevate velocità di sfilo dei bracci.

TUBI IN GOMMA DI COLLEGAMENTO tra il distributore di comando ed i martinetti sono stati inseriti quasi totalmente all'interno della carpenteria (colonna/mensola) allo scopo di migliorare l'estetica della macchina e per proteggere le tubazioni da possibili urti. Sull'estremità inferiore, dove vengono collegati con il distributore, sono stati inseriti i raccordi rotanti allo scopo di evitare l'attorcigliamento dei tubi durante le manovre di rotazione.

5: TECHNICAL NEWS

We inform you about new solutions and improvements adopted on crane serie 12.5 - 12.5 S-13.5 SP.

CONTROL VALVE BLOCK, with modular design (which enables additional elements to be added to actuate accessories). It is equipped with special cursors that enable maximum sensitivity and gradual movement. In addition to the standard sensitised control valve block (Hydrocontrol), a proportional control valve block is available (Hawe) that is normally radio controlled.

CONTROL VALVE BLOCK POSITION. Its position, horizontal on the basement, let to have the control levers at 1,40 - 1,60 m (4'7"-5'3") from the floor, in this way the operator has a comfortable use of them.

HYDRAULIC OIL TANK has maximum 80-litre capacity and is built into the crane. It increases operator visibility during operation. The lightweight shockproof plastic resists extreme temperatures and atmospheric agents and does not need to be removed in the event of assembly of the standing operating position. In addition, it can easily be accessed for maintenance/cleaning the filter. The outer surfaces are exposed to the air so as to improve heat-exchange capacity with the exterior to cool hydraulic oil.

SYSTEM FOR EXTENSION OF CRANE BOOMS consisting of single-stage cylinders that are connected together for the different versions. The connections between the different cylinders are partially inside the cylinders and partly outside them, consisting of metal pipes that are located in positions that are protected from any external blows.

STANDARD REGENERATIVE VALVE fitted to the booms of the crane enables high boom extension speed to be obtained.

RUBBER CONNECTING HOSES between the control valve block and the cylinders have been inserted almost entirely inside the structural work (column/shelf) in order to improve the appearance of the machine and to protect the pipes from blows. At the bottom end, where they are connected to the control valve block, the rotating fittings have been inserted so that the hoses do not get twisted during rotation manoeuvres.

SISTEMA DI FILTRAZIONE DELL'OLIO IDRAULICO realizzato con un filtro sul ritorno immerso nel serbatoio (10 micron). Con distributore proporzionale è presente anche un filtro addizionale sulla mandata della pompa (15 micron).

INDICATORE DEL GRADO DI INTASAMENTO DEL FILTRO, posto sul filtro stesso.

PACCO BRACCI CON PROFILI DI SEZIONE ESAGONALE, realizzati con un'unica saldatura effettuata sul lato inferiore.

POMELLI DELLE LEVE DI MANOVRA con sagomatura "anatomica" per una comoda e sicura impugnatura ed utilizzo da parte dell'operatore.

CONSOLLE/CARTER DI PROTEZIONE dei comandi sono state sistemate le targhette (in materiale plastico) per la corretta individuazione dei comandi.

BIELLE posizionate sulle articolazioni della macchina permettono di raggiungere prestazioni elevate durante la fase di sollevamento: solo tra mensola e pacco bracci sulla serie 12.5, anche tra colonna e mensola su serie 12.5 S - 13.5 SP.

REGISTRAZIONE PATTINO DELLA ROTAZIONE permette di eliminare i giochi tra pattino e cremagliera a favore di una migliore funzionalità delle manovre in rotazione.

MARTINETTI STABILIZZATORI ROTANTI (MANUALI) consentono la massima flessibilità in relazione agli allestimenti in quanto possono essere posizionati manualmente su angoli di 15°, 45°, 90°, 180°.

ATTIVAZIONI IDRAULICHE con canaline raccoglirubino esterne nelle versioni 022, 023, 024, con avvolgitubo ed interne al pacco bracci nelle versioni 021 e 022.

POSTO DI MANOVRA IN PIEDI installabile senza dover rimuovere il serbatoio è dotato di tiranti rigidi per una maggiore affidabilità dei comandi anche in condizioni di basse temperature. E' inoltre dotato di un sistema di protezioni mobili che consentono sia la protezione dell'operatore durante il lavoro, sia un comodo utilizzo.

SYSTEM FOR FILTERING THE HYDRAULIC OIL consisting of a filter on the return submerged in the tank (10 micron). The proportional control valve block also contains an additional filter on the pump delivery (15 micron).

FILTER OBSTRUCTION INDICATOR, as a manometer, fitted on the cover of the deliver filter itself

BOOMS WITH PROFILES OF ESAGONAL SECTION, made by a single welding on the inferior side.

CRANE MANOEUVRE CONTROL LEVER KNOB with ergonomic antislip handgrip.

PLASTIC INSTRUCTION PLATE, for the use of the crane, are placed near each crane control lever:

CONNECTING RODS located on the joints of the crane enable high performance to be obtained during the lifting phase: only between shelf and boom unit on the 12.5 series, also between column and main boom on the 12.5 S - 13.5 SP series.

ADJUSTMENT OF SLEWING SYSTEM SLIDING PADS enables play between runner and frame to be eliminated to increase efficiency of rotation movements.

ROTATING OUTRIGGER CYLINDERS (MANUAL) enable maximum flexibility in relation to priming inasmuch as they can be positioned manually at angles of 15°, 45°, 90°, 180°.

HYDRAULIC ACTUATION with external hose pathways in the versions 022, 023, 024, with tube cladding and inside the boom unit in the versions 021 and 022.

STANDING OPERATING POSITION can be installed without having to remove the tank and is fitted with stiff tierods for greater reliability of controls even in low temperatures. It is also fitted with a system of mobile guards that both protect the operator during use and are easy to use.

IMPIANTISTICA ELETTROIDRAULICA Per gru con sbraccio minore di 12 m e non accessoriate (compreso le prolunghe meccaniche) l'impianto è completamente idraulico. Per gru accessoriate (prolunghe meccaniche, argano, antenna, ecc) è presente l'impianto elettrico.

BRACCI STABILIZZATORI Disponibili sia in versione standard (4510 mm) con sfilamento manuale o idraulico, sia in versione extralarga (5670 mm) con sfilamento idraulico.

ELECTRIC-HYDRAULIC SYSTEMS for cranes with a range of less than 12 m that have no accessories (including mechanical extensions) the system is completely hydraulic.

For cranes with accessories (mechanical extensions, winch, antenna, etc) there is an electrical system.

OUTRIGGER BOOMS Available both in the standard version (4510 mm) with manual or hydraulic extension and in the extra wide version (5670 mm) with hydraulic extension.

6: ACCESSORI

6.1 PROLUNGHE MANUALI

-PM 12522 - PM 12522 LC-PM 12522 S - PM 12522 S LC - PM 13522 SP - PM 13522 SP LC

2 prolunghe manuali, da applicare all'ultimo braccio della macchina, per portare lo sbraccio orizzontale a mt. 11.90 dall'asse colonna di rotazione.

Tutte le prolunghe sono dotate di attacco gancio (fisso o mobile), di fine corsa a massimo sfilamento e quando non sono utilizzate possono essere ricoverate all'interno dell'ultimo braccio della gru.

-PM 12523 - PM 12523 LC-PM 12523 S - PM 12523 S LC - PM 13523 SP - PM 13523 SP LC

3 prolunghe manuali, da applicare all'ultimo braccio della macchina, per portare lo sbraccio orizzontale a mt. 16.00 dall'asse colonna di rotazione.

Tutte le prolunghe sono dotate di attacco gancio (fisso o mobile), di fine corsa a massimo sfilamento e quando non sono utilizzate possono essere ricoverate all'interno dell'ultimo braccio della gru.

-PM 12524 - PM 12524 LC-PM 12524 S - PM 12524 S LC - PM 13524 SP - PM 13524 SP LC

2 prolunghe manuali, da applicare all'ultimo braccio della macchina, per portare lo sbraccio orizzontale a mt. 16.40 dall'asse colonna di rotazione.

Tutte le prolunghe sono dotate di attacco gancio (fisso o mobile), di fine corsa a massimo sfilamento e quando non sono utilizzate possono essere ricoverate all'interno dell'ultimo braccio della gru.

-PM 12525 - PM 12525 LC-PM 12525 S - PM 12525 S LC - PM 13525 SP - PM 13525 SP LC

1 prolunga manuale, da applicare all'ultimo braccio della macchina, per portare lo sbraccio orizzontale a mt. 16.80 dall'asse colonna di rotazione.

Tutte le prolunghe sono dotate di attacco gancio (fisso o mobile), di fine corsa a massimo sfilamento e quando non sono utilizzate possono essere ricoverate all'interno dell'ultimo braccio della gru.

6 : ACCESSORIES

6.1 MANUAL EXTENSIONS

-PM 12522 - PM 12522 LC-PM 12522 S - PM 12522 S LC - PM 13522 SP - PM 13522 SP LC

2 manual extensions to be fastened to last hydraulic boom of the crane are available for extending the horizontal reach of the boom at 11.90 m (39'1") from the slewing column axis.

All the manual extensions are supplied with a hooking device and when not used, they can be folded into the last hydraulic boom of the crane.

-PM 12523 - PM 12523 LC-PM 12523 S - PM 12523 S LC - PM 13523 SP - PM 13523 SP LC

3 manual extensions to be fastened to last hydraulic boom of the crane are available for extending the horizontal reach of the boom at 16.00 m (52'6") from the slewing column axis.

All the manual extensions are supplied with a hooking device and when not used, they can be folded into the last hydraulic boom of the crane.

-PM 12524 - PM 12524 LC-PM 12524 S - PM 12524 S LC - PM 13524 SP - PM 13524 SP LC

2 manual extensions to be fastened to last hydraulic boom of the crane are available for extending the horizontal reach of the boom at 16.40 m (53'10") from the slewing column axis.

All the manual extensions are supplied with a hooking device and when not used, they can be folded into the last hydraulic boom of the crane.

-PM 12525 - PM 12525 LC-PM 12525 S - PM 12525 S LC - PM 13525 SP - PM 13525 SP LC

1 manual extensions to be fastened to last hydraulic boom of the crane are available for extending the horizontal reach of the boom at 16.80 m (55'1") from the slewing column axis.

All the manual extensions are supplied with a hooking device and when not used, they can be folded into the last hydraulic boom of the crane.

6.2 LIMITATORE DI MOMENTO IDRAULICO

Su questo modello di macchina, abbiamo adottato il limitatore di momento di tipo idraulico con un gruppo integrato che contiene la quasi totalità dei componenti, riducendo sensibilmente il numero delle tubazioni esterne.

In tale modo oltre a semplificare notevolmente il lavoro di montaggio ed a ridurre le possibilità di perdite di olio abbiamo ottenuto anche un funzionamento sicuro ed affidabile.

E' dotato del nuovo dispositivo di esclusione "doppia manovra", per evitare il movimento contemporaneo di riarmo e discesa del martinetto colonna.

6.2 MOMENT CONTROL DEVICE

On this model of the crane we have installed the hydraulic moment control device.

It consists of the group containing nearly all the components, thus reducing the amount of external hoses.

With this system assembling is much easier and possibility of the oil loss is considerably reduced.

6.3 VERRICELLO(Fig. 6.1)

Verricello idraulico tipo P 9 con capacità di tiro massimo sul tratto di fune (al 4° strato) di 900 daN posizionato sotto il 1° braccio della gru

Caratteristiche:

- Tiro max sul tratto di fune (4° strato): 900daN
- Peso proprio totale: 70 kg
- Tamburo liscio, diametro primitivo: 203 mm
- Fune: diametro 8 mm / lunghezza 50 m
- Motore idraulico orbitale: cilindrata 160 cm³/giro
- Riduttore epicicloidale: rapporto di riduzione 1:5,04
- Freno a dischi multipli con molle di richiamo in chiusura e comando oleodinamico in apertura
- Valvola idropilotata contro il trascinarsi del motore e di blocco in caso di rottura delle tubazioni
- Velocità (con fune a tiro diretto) al 4° strato: 24 m/min con portata di 30 l/min

6.3 WINCH(Fig. 6.1)

Hydraulic winch with maximum pulling on cable section (4th layer) of 900 daN (1985 lbs) placed under the first boom of the crane

Characteristics :

- Maximum draw capacity on cable section (at 4th layer): 900 daN(1985lbs)
- Total weight(without rope): 70 kg (154lbs)
- Smooth drum, original diam.: 203 mm (8")
- Cable diameter: 8 mm(5/16") ength: 50m(164')
- Orbital hydraulic motor with a 160 cm³/rev.
- Epicycloidal reduction gear with reduction radio 1:5,04
- Multiple disk brake with closing return spring and opening hydraulic control
- Hydropiloted lock valve to avoid motoring over and to block in case of breaking hoses
- Speed (with cable at direct pull) at 4th layer: 24 m/min with capacity of 30 l/min (78'9"/min with capacity of 8 US gals/min)

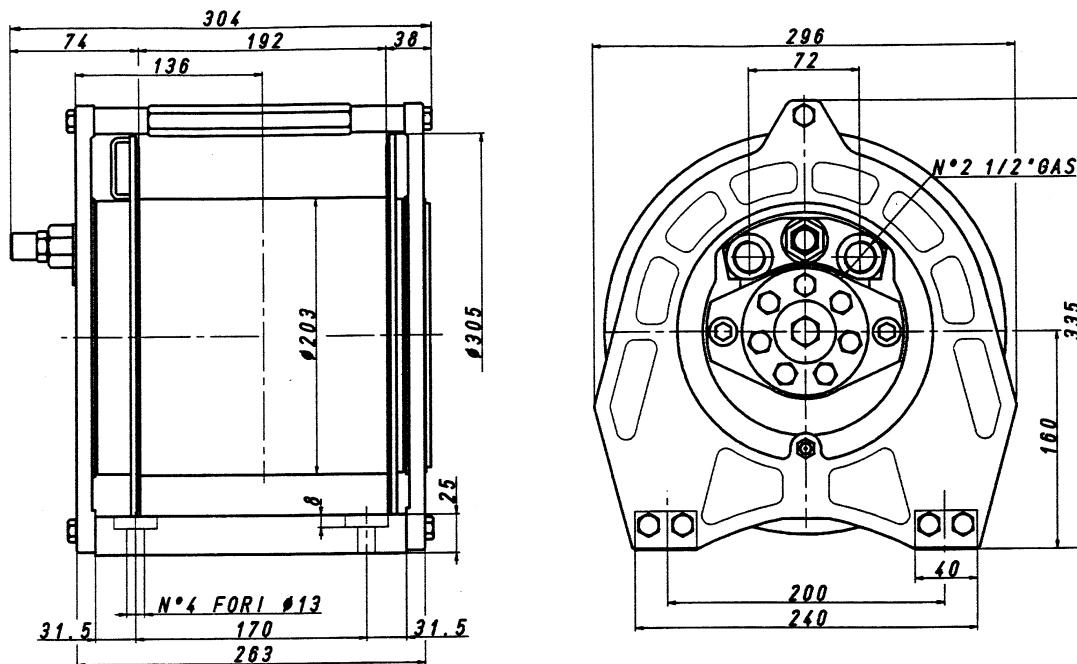


Fig.6-1

6.4 BRACCI STABILIZZATORI EXTRALARGHI (Fig. 6.2)

Coppia di bracci stabilizzatori, che al posto di quelli standard permettono di allargare l'interasse di stabilizzazione da 4510mm a 5670 mm a tutto vantaggio della stabilità del complesso gru/veicolo in fase di lavoro.

6.4 OUTRIGGERS BOOMS IN EXTRA LARGE VERSION (Fig. 6.2)

Couple of special outriggers booms can be installed in alternative to the outriggers booms in std version. They give a wheel base of 5670 mm (18'7") and this let a better stability of the truck.

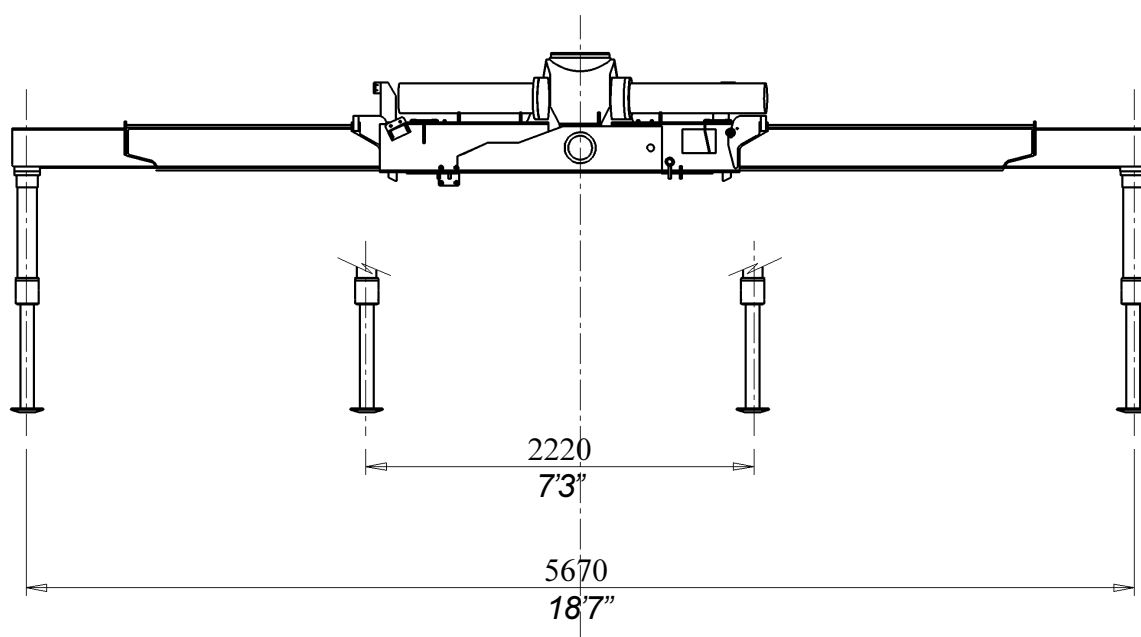


Fig.6-2

