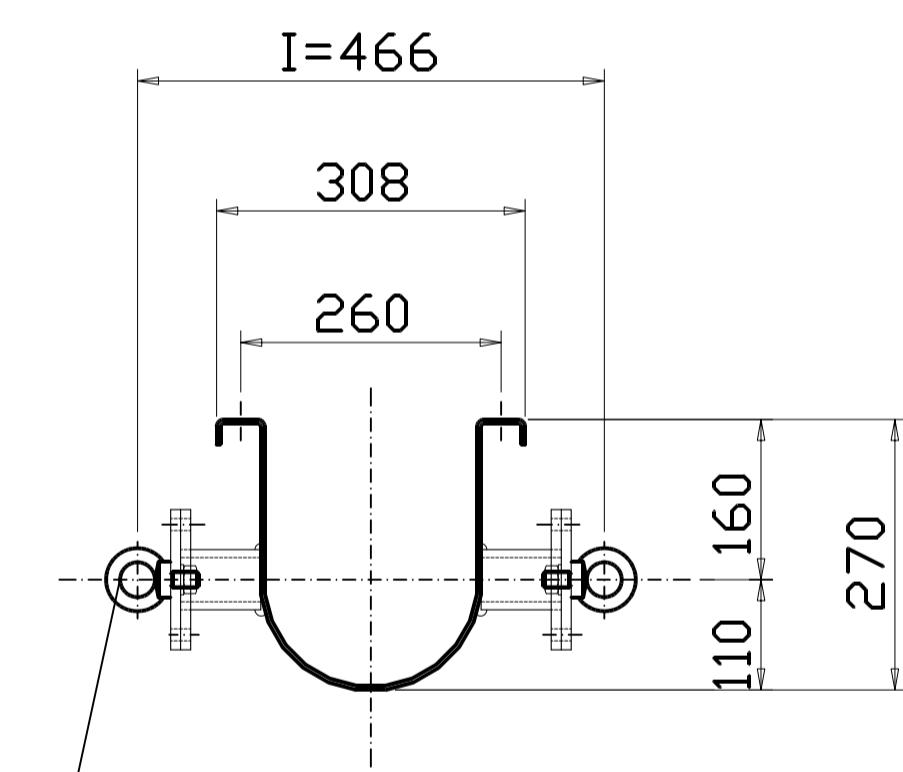
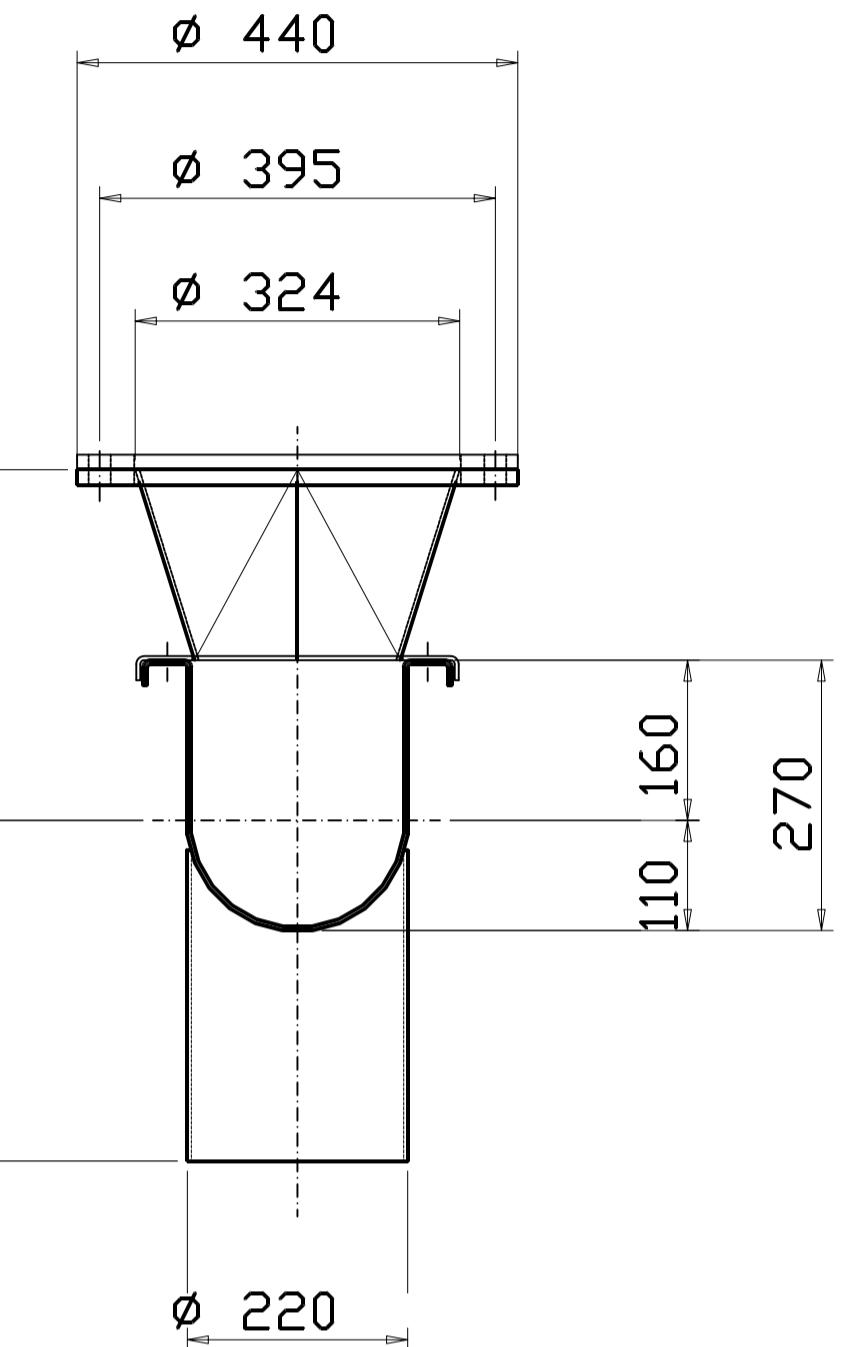
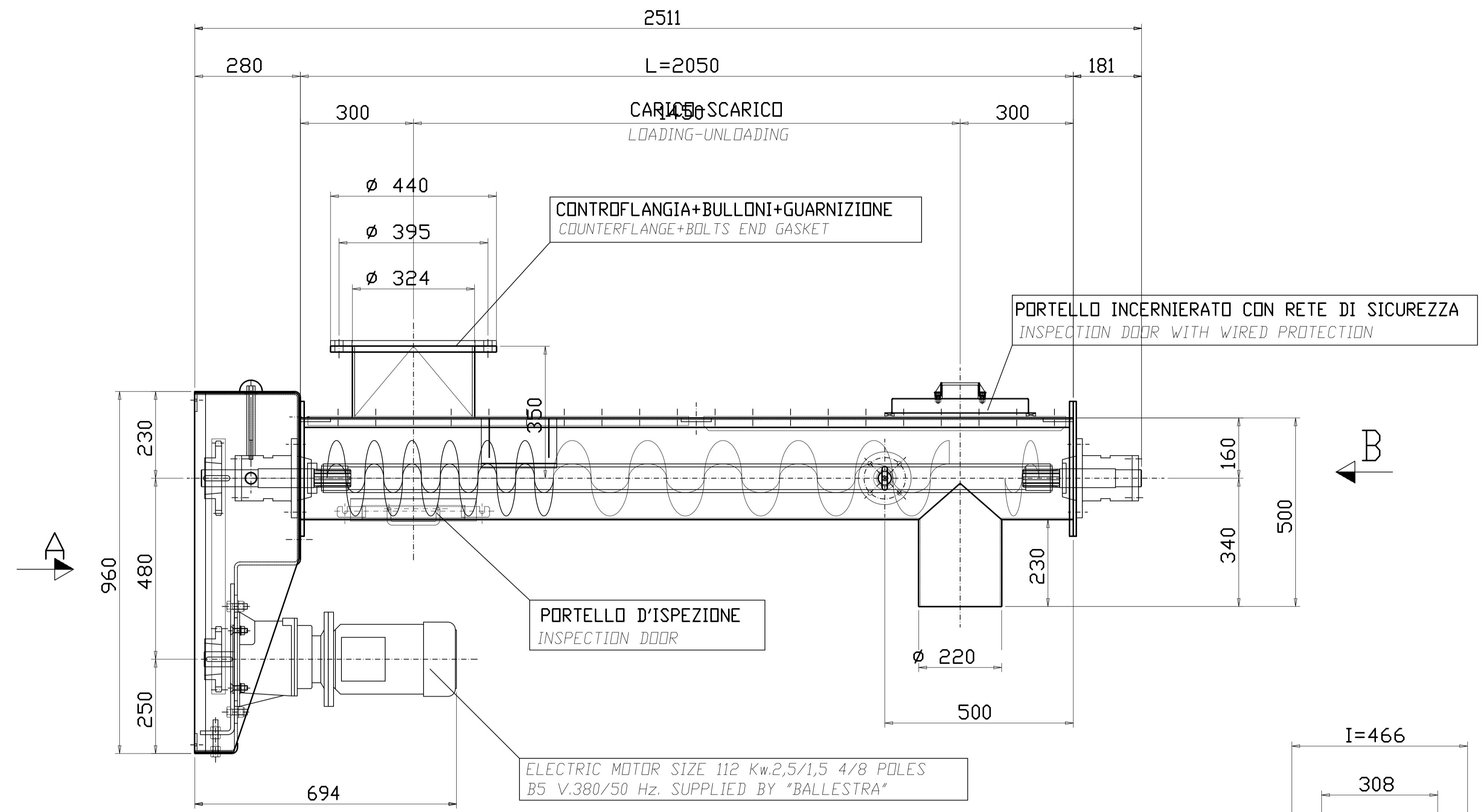
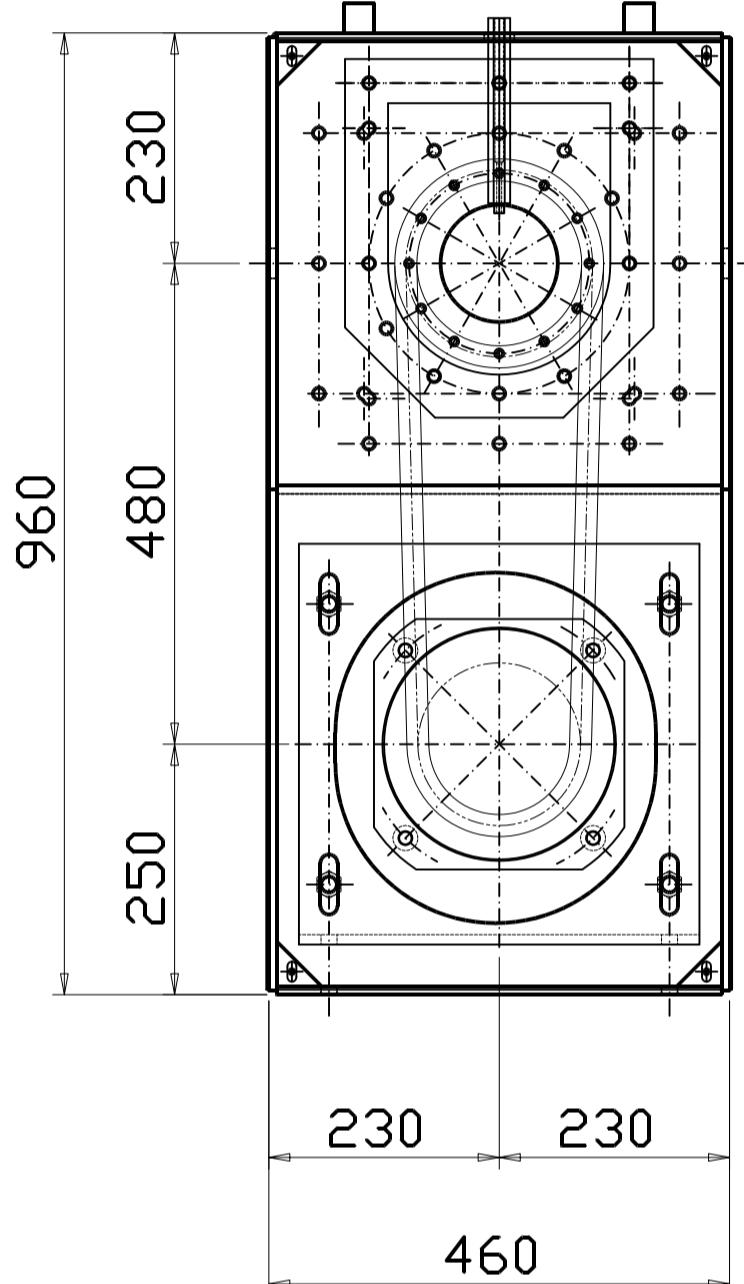
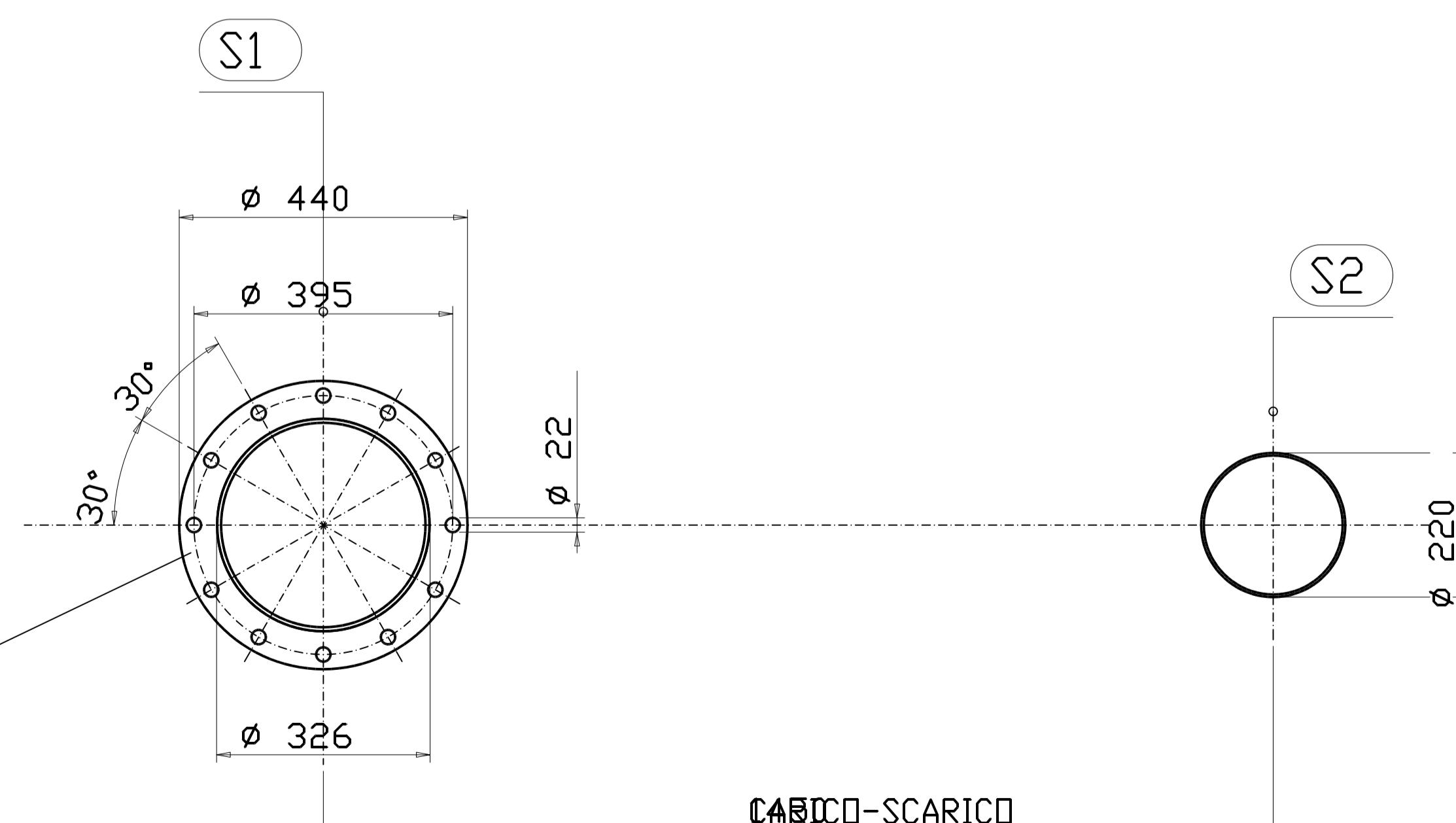


VISTA DA  
VIEW FROM A



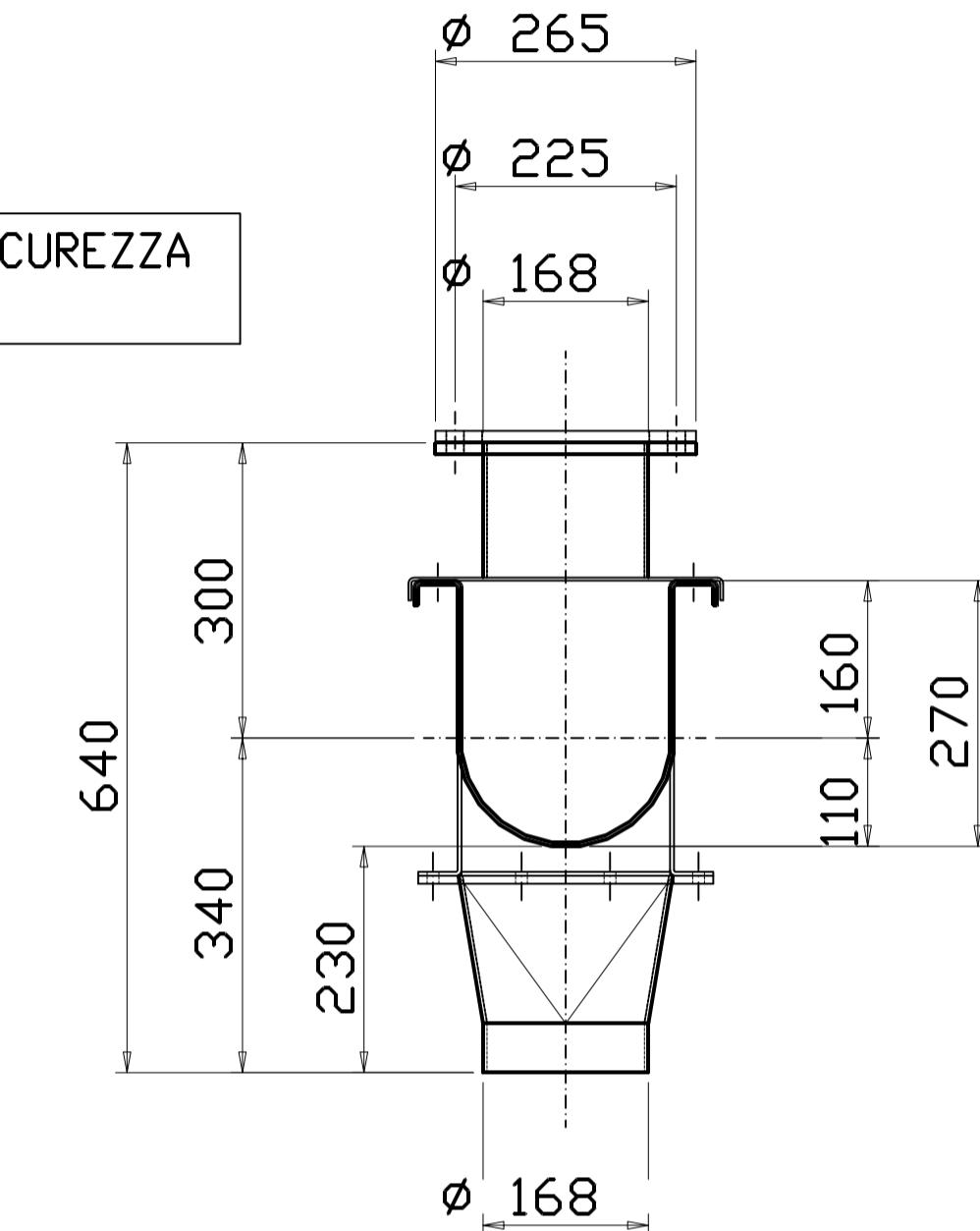
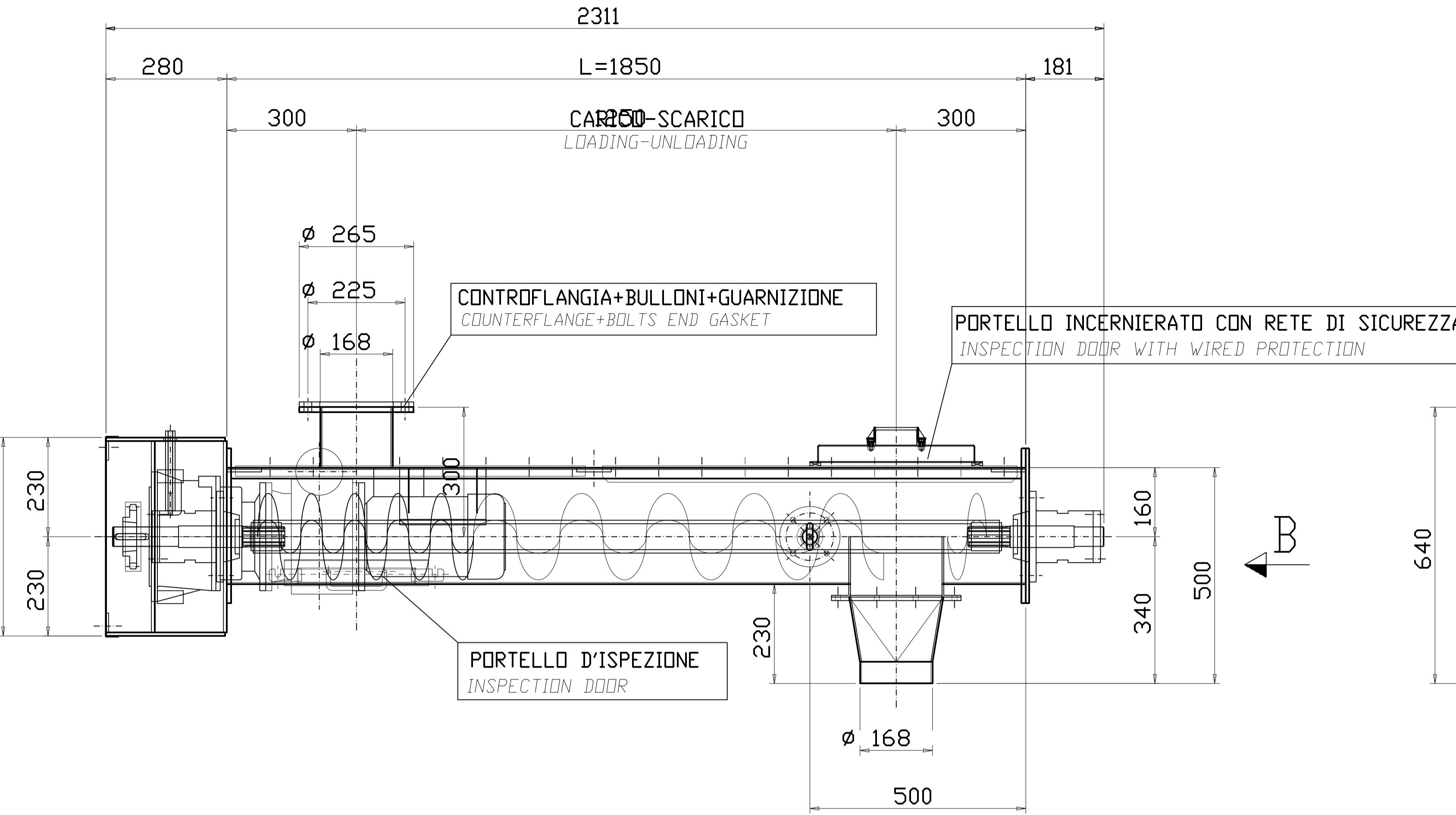
VISTA DA  
VIEW FROM B

FLANGIA DN 300 EN 1092 PN 2,5  
FLANGE

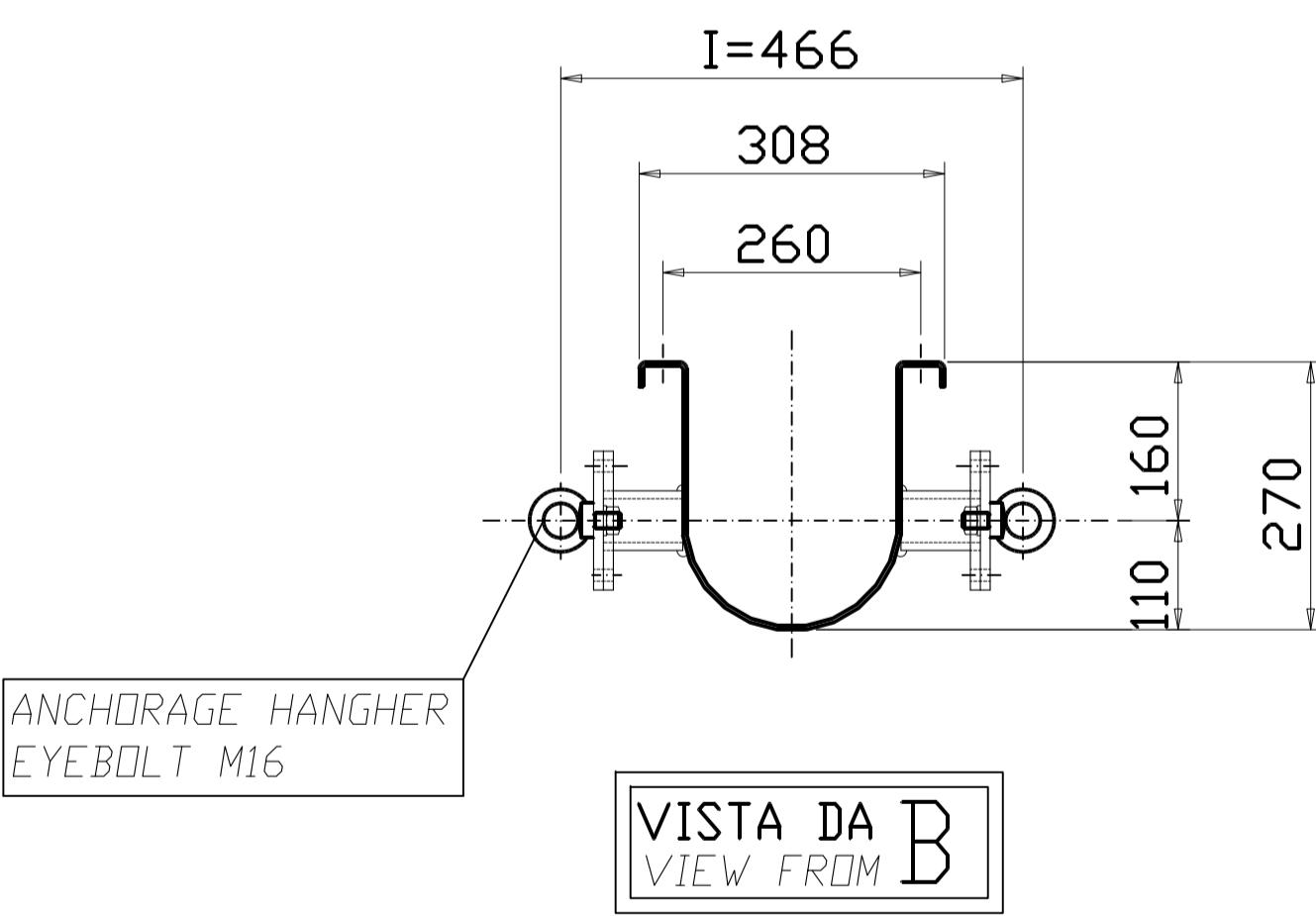
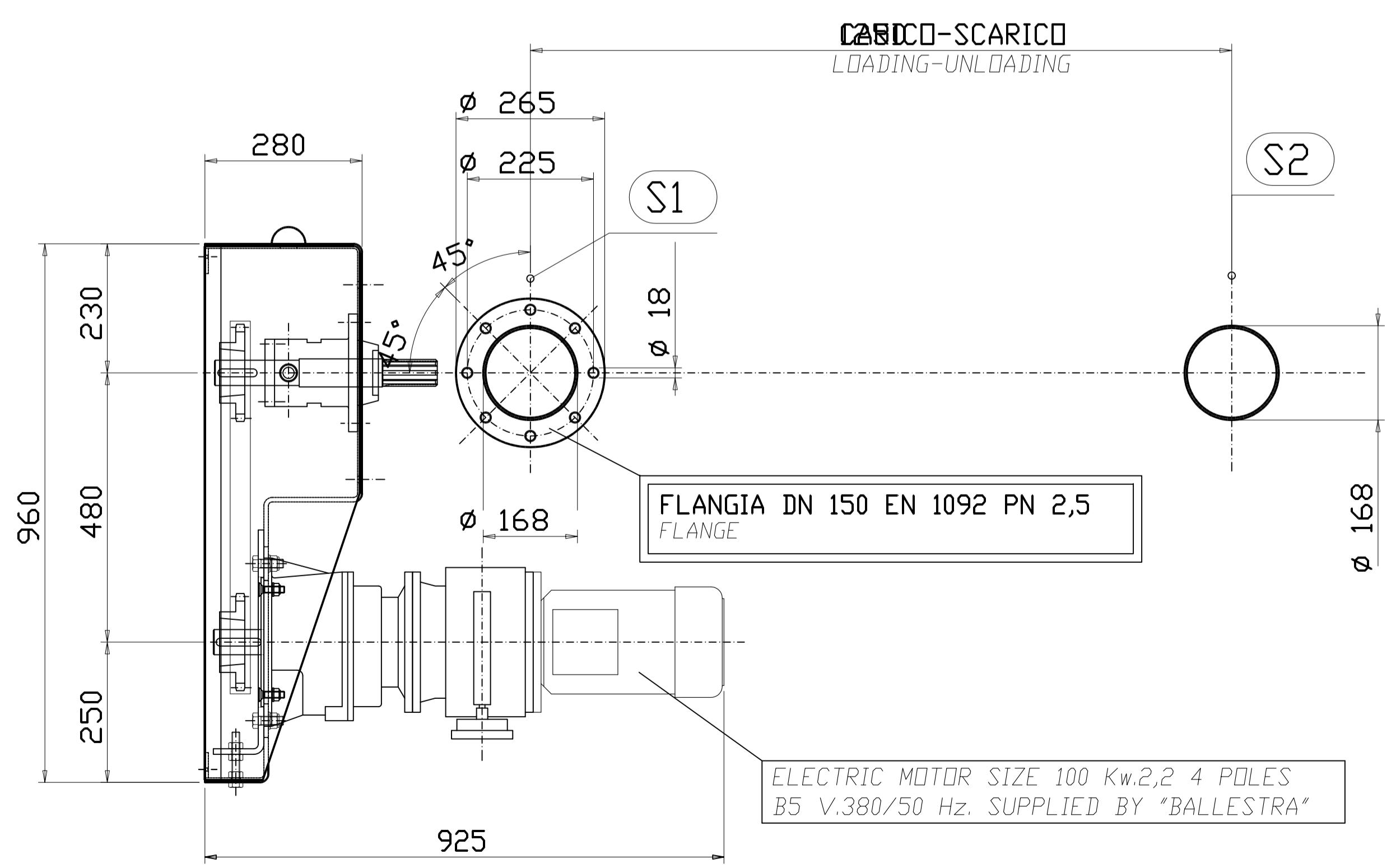
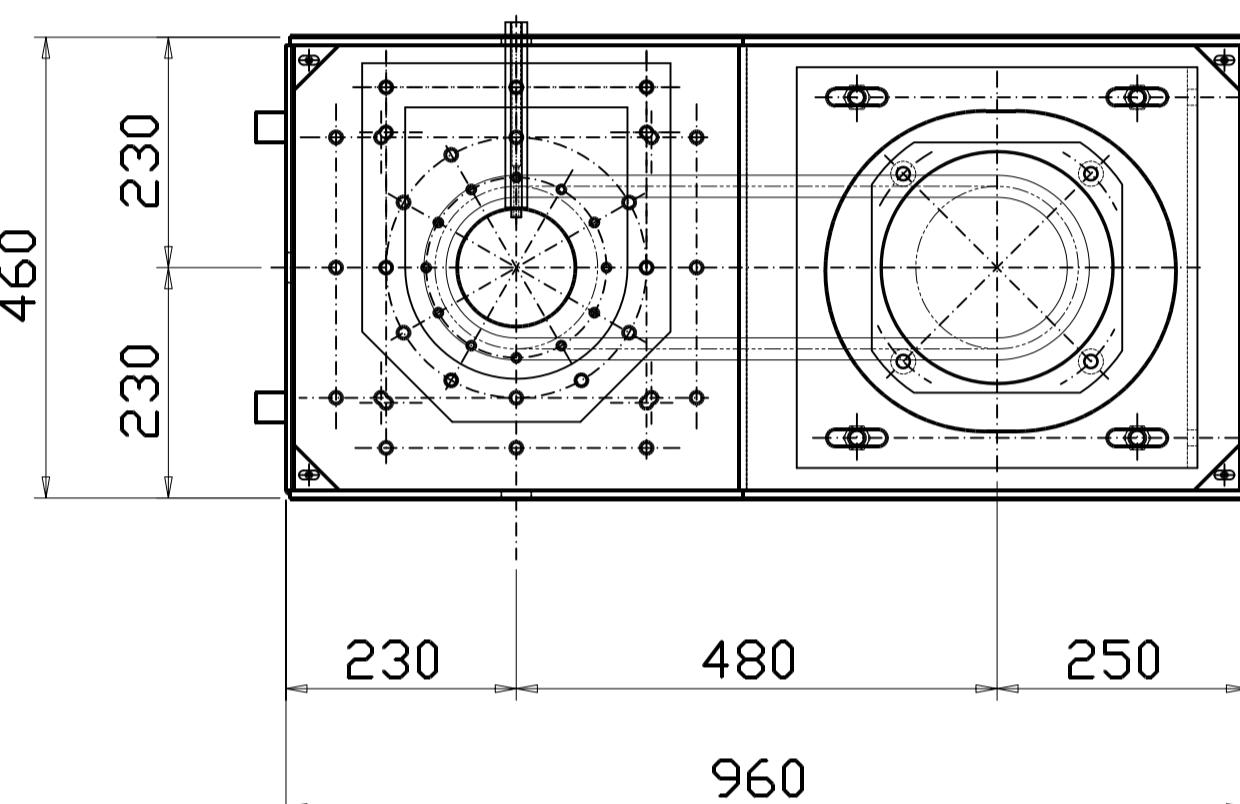


CARGO-SCARICO  
LOADING-UNLOADING

	400	1	VEDI PARTICOLARI	62CL4
	PESO KG. WEIGHT KG.	NPZ/PC	MATERIALE/MATERIAL	CODICE/CODE
COMM.	1E35Z		COSTRUZIONI MECCANICHE	DATA DATE 11-11-2010
JOB/N.			ITALY	DISEGN. DRAWN M.W.
SCALA SCALE	1:10			
TITOLO TITLE	COCLEA A CANALE CON ELICA Ø 200 L=2050 mm			
SOST.IL N°	097-010-142			
SOST.DAL N°			DISEGNO N° DRAWING N°	041-742-000
NOTE				I disegni sono di proprietà della ditta BARBIERI che ne vieta la riproduzione e divulgazione



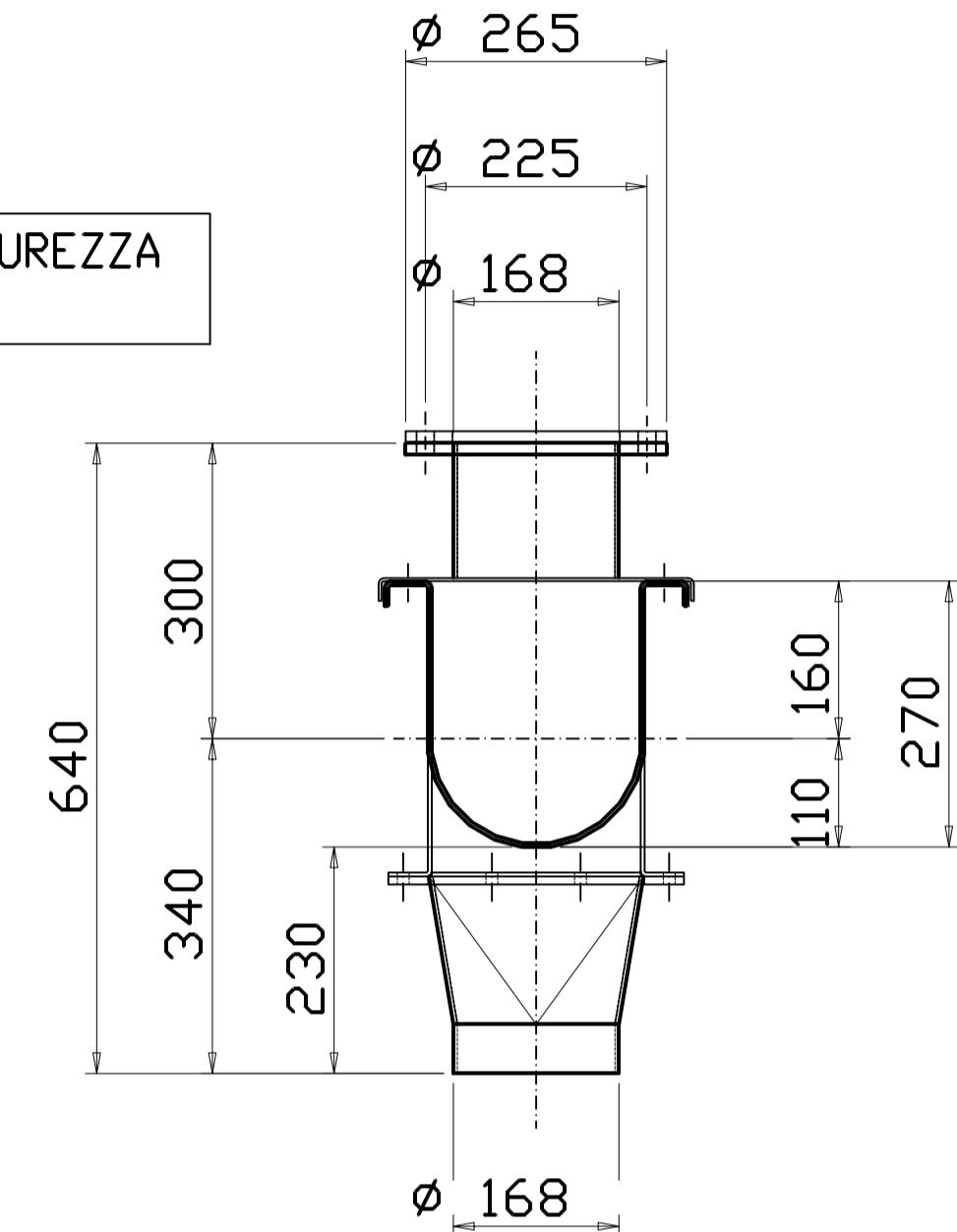
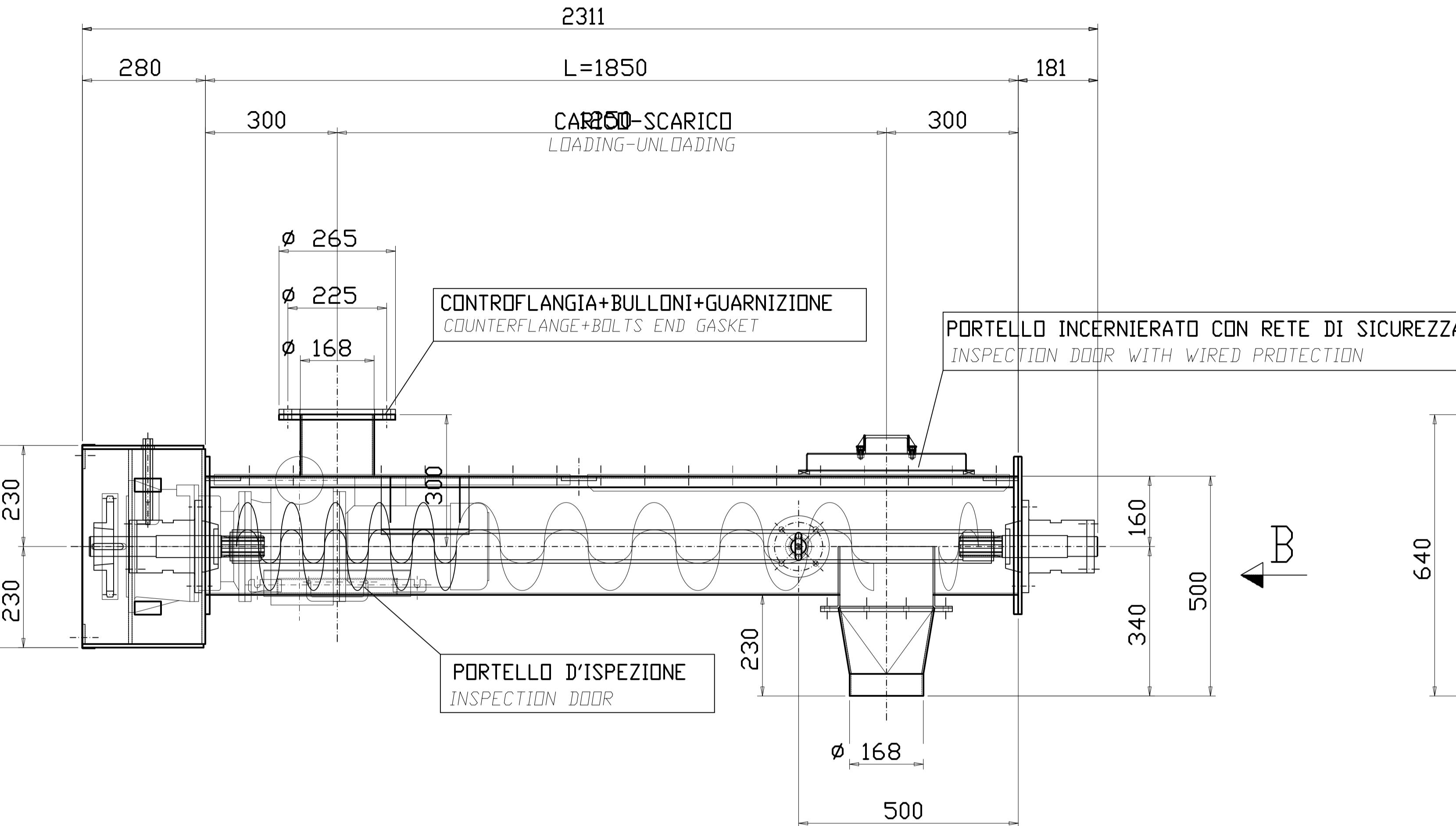
VISTA DA  
VIEW FROM A



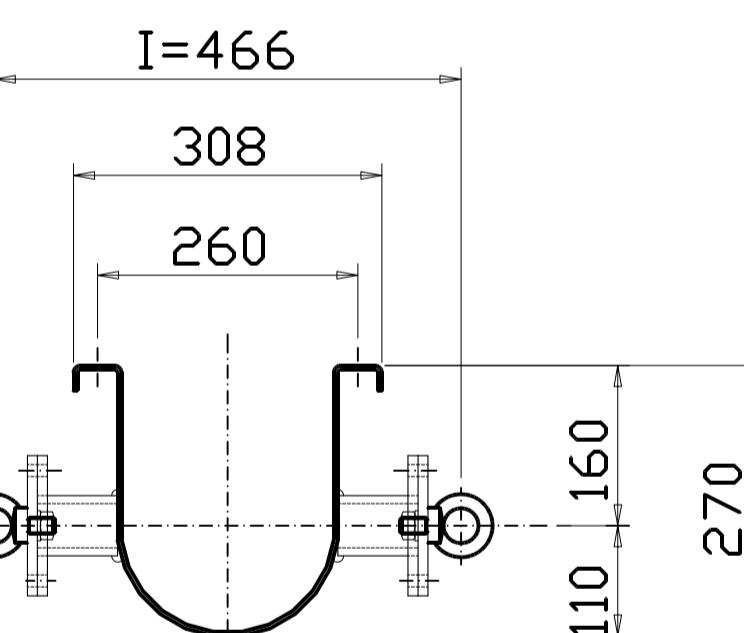
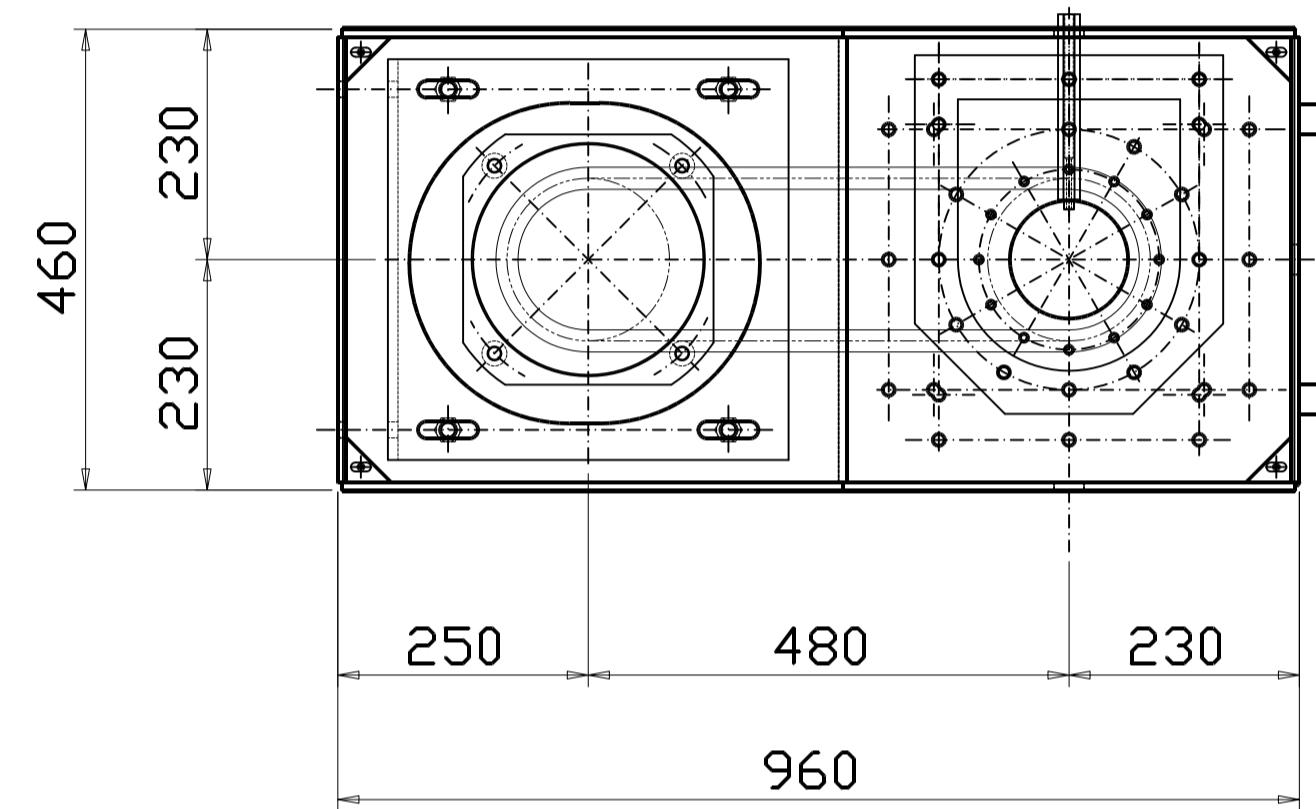
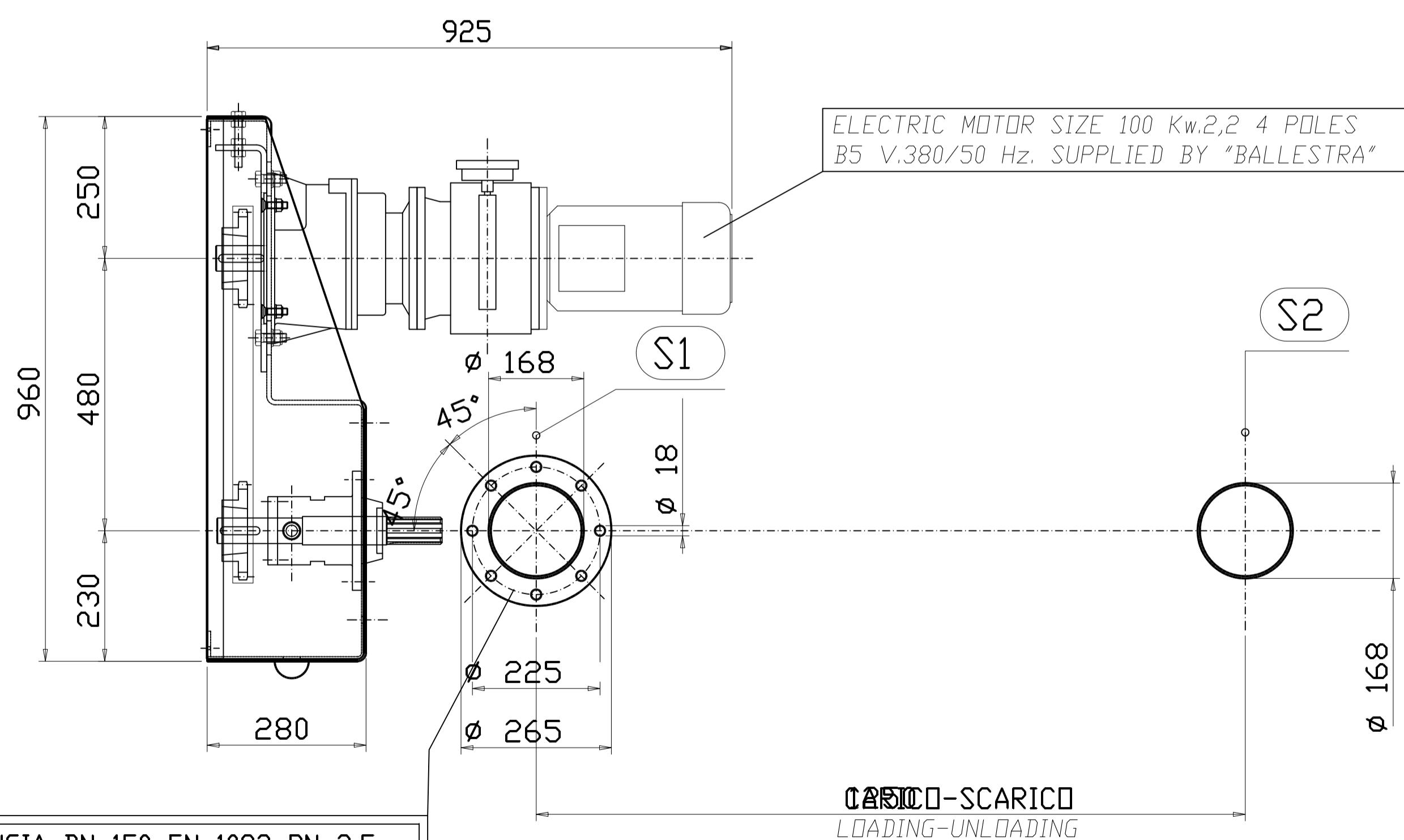
VISTA DA  
VIEW FROM B

FINAL ISSUE

NOTE	440	1	VEDI PARTICOLARI	62CL6A
	PESO KG. WEIGHT KG.	NPEZZI NPIECES	MATERIALE/MATERIAL	CODICE/CODE
COMM. JOB N°	1E35Z		COSTRUZIONI MODENA	DATA DATE 11-11-2010
SCALA SCALE	1:10		MECCANICHE ITALY	DISEGN. DRAWN M.W.
TITOLO TITLE	COCLEA A CANALE CON ELICA Ø 200 L=1850 mm			
SOST.IL N° SOST.DAL N°	097-010-144		DISEGNO N° DRAWING N°	041-745-000
				I disegni sono di proprietà della ditta BARBIERI che ne vieta la riproduzione e divulgazione



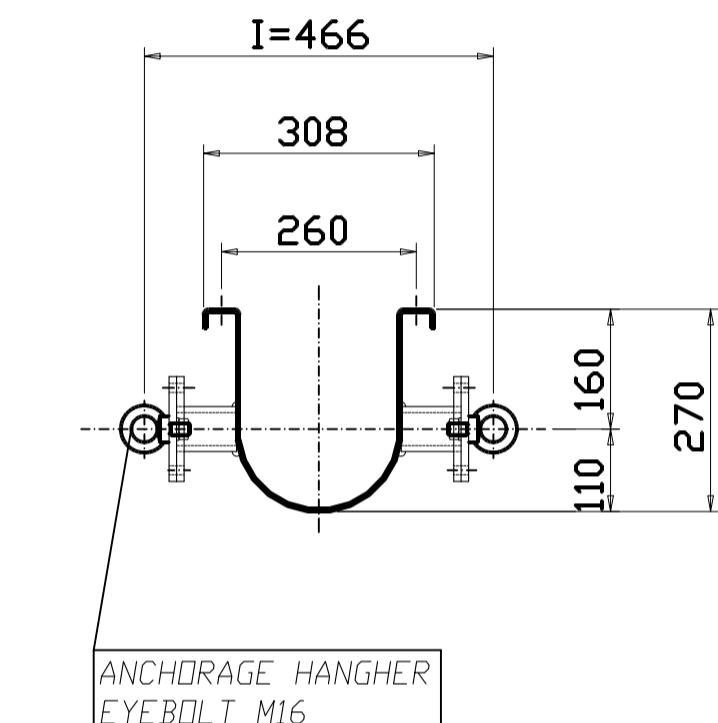
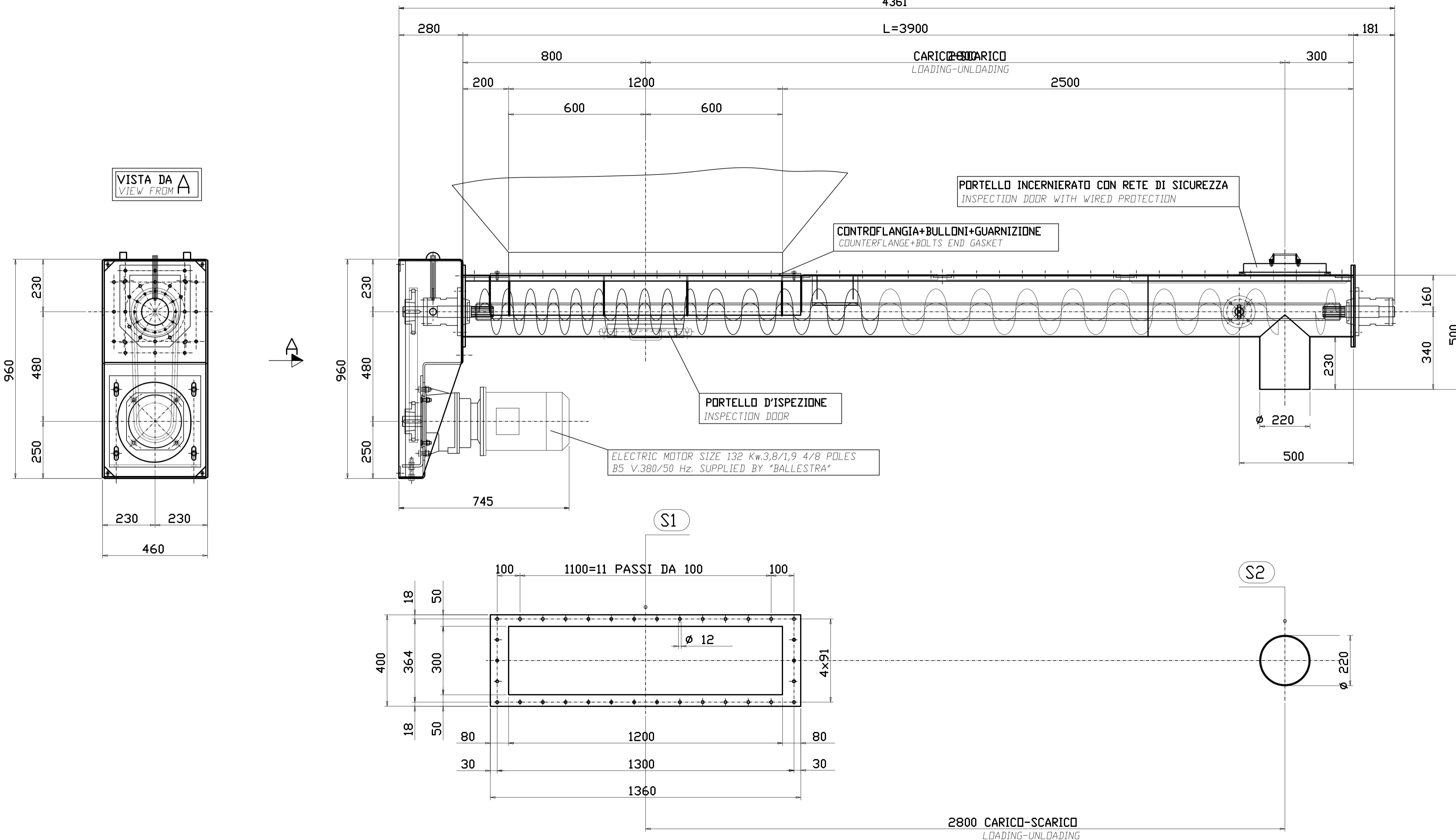
VISTA DA  
VIEW FROM A



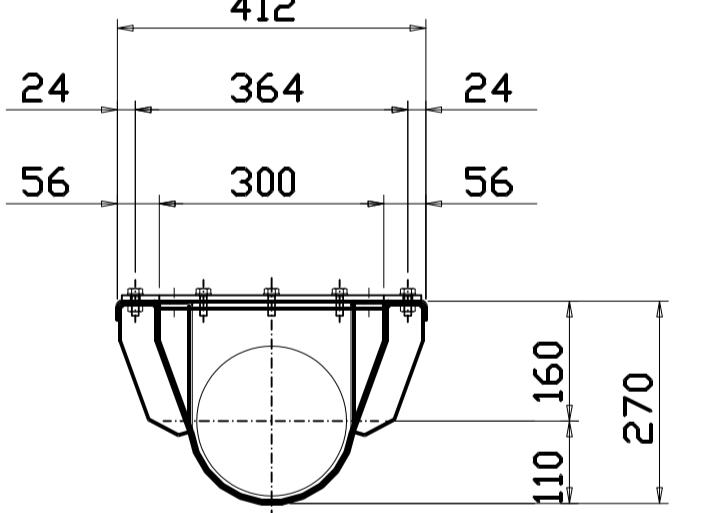
VISTA DA  
VIEW FROM B

FINAL ISSUE

440	1	VEDI PARTICOLARI	62CL6
PESO KG. WEIGHT KG.	NPEZZI NPIECES	MATERIALE/MATERIAL	CODICE/CODE
DATA DATE 11-11-2010	1E35Z	COSTRUZIONI MECCANICHE	
SCALA SCALE 1:10		ITALY	DISEGN. DRAWN M.W.
TITOLO TITLE SCREW CONVEYOR Ø 200 L=1850 mm			
SOST.IL N° SOST.DAL N°	097-010-144	DISEGNO N° DRAWING N°	041-744-000
I disegni sono di proprietà della ditta BARBIERI che ne vieta la riproduzione e divulgazione			



VISTA DA B  
VIEW FROM B



FINAL ISSUE

NOTE	PESO KG. WEIGHT KG.	1 VEDI PARTICOLARI PREZZI MATERIALI / MATERIAL CODICE / CODE	62CL5
		COD. 1E35Z SCALA 1:10	DATA 11-11-2010 COSTRUZIONI MECCANICHE ITALY DISEGN. M.W.
		TITOLO SCREWC CONVEYOR Ø 200 L=3900 mm TITLE SCREW CONVEYOR Ø 200 L=3900 mm	
		SIST. N° 097-010-143	DISEGNO N° 041-743-000
		SIST. DAL N°	DRAWING N°

I disegni sono di proprietà della ditta BARBIERI che ne vieta la riproduzione e divulgazione

		<h3 style="text-align: center;">SCREW SPECIFICATION SHEET</h3>			Doc. Nr. : 2C57-40-301 Customer Nr. : (1E35-40-1301)	
Commessa / Job: 2C57 / 1E35Z Impianto / Plant: SABIZ						
1	Item	Service				
2	62CL4	Additives Extraction Screws				
3						
4						
5						
6	PROCESS DATA					
7	SERVICE TYPE: DISCONTINUOUS			Nr. of UNITS/SPARE: 2 / 0		
8						
9	<b>TREATED SOLIDS</b>		Density, Kg/m3			
10	TYPE	Y/ N	Min	Max		
11	SODIUM CARBONATE				Max. rotation speed: approx. 100 rpm	
12	SODIUM SULPHATE				Design filling coefficient: 0.8	
13	SODIUM PERBORATE				Construction material: Carbon Steel	
14	SODIUM TRIPOLIPH.					
15	ZEOLITE					
16	ADDITIVES	Y	600			
17	ENZYMES					
18	DETERGENT POWDER					
19	AVERAGE MIXTURE DENSITY:					
20						
21						
22	Des. Flow at min / max dens., m3/h: 10				Min / Max weight flow rate, Kg/h: 6000	
23						
24						
25	<b>MANUFACTURER INFORMATION</b>					
26	Max. flow rate, m3/h: 12	Max. flow rate, l/15":			Rotation speed, rpm: 80/40	
27	Filling coefficient, %:	Propeller diameter, mm: 200			Propeller pitch, mm: 100/200	
28	Casing material: C.S.	Rotor material: C.S.				
29	<b>UTILITIES DATA:</b>	Electr. power: Volts: 380			Hertz: 50	Phases: 3
30	Instrument air press., Bar(G):	Auxil. power: Volts:			Type:	
31		MOTOR	GEAR-BOX	GEAR-MOTOR	SPEED VARIATOR	
32	Manufacturer:					
33	Model:					
34	Order Nr.:					
35	Order date:					
36	Delivery date:					
37	Power, KW:	2,2 / 1,2				
38	Speed, rpm:	1420 / 710				
39	Poles:	4/8				
40	Shape:	B5				
41	Protection:	iPSS				
42	Weight, Kg:					
43	<b>ADDITIONAL MOTOR INFO</b>	Self-brake motor (Y/N):		Electric current (AC / DC):		
44	Insul. class:	Start:		Tropicalization: Y		
45	Make request for spare parts offer:	For Nr. years				
46	When ordering make request for Nr.	manuals in language, and Nr.		in italian language		
47	<b>NOTES:</b> Case Type : "U" Shape					
48	Foresee Double Step Speed Motor 4/8 Poles					
49	Foresee Oversize Motor to have Margin to Increase the Screw Speed up to 20%					
50						
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		<h3 style="text-align: center;">SCREW SPECIFICATION SHEET</h3>				Doc. Nr. : 2C57-40-301 Customer Nr. : (1E35-40-1301)	
Commessa / Job: 2C57 / 1E35Z Impianto / Plant: SABIZ							
1							
2	Item	Service					
3	62CL-S	Additives Extraction Screws					
4							
5							
6							
<b>PROCESS DATA</b>							
7	SERVICE TYPE: DISCONTINUOUS				Nr. of UNITS/SPARE: 2 / 0		
8							
9	<b>TREATED SOLIDS</b>		Y/N	Density, Kg/m3			
10	TYPE		Y/N	Min	Max		
11	SODIUM CARBONATE					Max. rotation speed: approx. 100 rpm	
12	SODIUM SULPHATE					Design filling coefficient: 0.8	
13	SODIUM PERBORATE					Construction material: Carbon Steel	
14	SODIUM TRIPOLIPH.						
15	ZEOLITE						
16	ADDITIVES		Y	600			
17	ENZYMES						
18	DETERGENT POWDER						
19	AVERAGE MIXTURE DENSITY:						
20							
21							
22	Des. Flow at min / max dens., m3/h: 10			Min / Max weight flow rate, Kg/h:			6000
23							
24							
25	<b>MANUFACTURER INFORMATION</b>						
26	Max. flow rate, m3/h: 12		Max. flow rate, l/15":		Rotation speed, rpm:		80/40
27	Filling coefficient, %:		Propeller diameter, mm: 200		Propeller pitch, mm:		100/200
28	Casing material: C-S.		Rotor material: C-S.				
29	<b>UTILITIES DATA:</b>		Electr. power: Volts: 380		Hertz: 50	Phases: 3	
30	Instrument air press., Bar(G):		Auxil. power: Volts:		Type:		
31			MOTOR	GEAR-BOX	GEAR-MOTOR	SPEED VARIATOR	
32	Manufacturer:						
33	Model:						
34	Order Nr.:						
35	Order date:						
36	Delivery date:						
37	Power, KW: 3.3/1.8						
38	Speed, rpm: 1420/710						
39	Poles: 4/8						
40	Shape: BS						
41	Protection: IP55						
42	Weight, Kg:						
43	<b>ADDITIONAL MOTOR INFO</b>		Self-brake motor (Y/N):		Electric current (AC / DC):		
44	Insul. class:		Start:		Tropicalization: Y		
45	Make request for spare parts offer:		For Nr. years				
46	When ordering make request for Nr. manuals in				language, and Nr.		in italian language
47	<b>NOTES:</b> Case Type : "U" Shape						
48	Foresee Double Step Speed Motor 4/8 Poles						
49	Foresee Oversize Motor to have Margin to Increase the Screw Speed up to 20%						
50							
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		<h3 style="text-align: center;">SCREW SPECIFICATION SHEET</h3>				Doc. Nr. : 2A09-40-128 Customer Nr. : (1E35-40-1128)	
Commessa / Job: 2A09 / 1E35 Z Impianto / Plant: SABIZ							
1							
2	Item		Service				
3	62CL6		Optical "1" brightener extraction screw				
4							
5							
6							
7	PROCESS DATA						
8	SERVICE TYPE: DISCONTINUOUS						Nr. of UNITS/SPARE: 1 / 0
9	<b>TREATED SOLIDS</b> TYPE SODIUM CARBONATE SODIUM SULPHATE SODIUM PERBORATE SODIUM TRIPOLIPH. ZEOLITE ADDITIVES ENZYMES DETERGENT POWDER OPTICAL BLEACH		Density, Kg/m <sup>3</sup>				
10			Y/ N	Min	Max		
11							
12							
13							
14							
15							
16							
17							
18							
19		570					
20	AVERAGE MIXTURE DENSITY:						
21							
22	Des. Flow at min / max dens., m <sup>3</sup> /h: 1,5				Min / Max weight flow rate, Kg/h:		855
23							
24							
25	MANUFACTURER INFORMATION						
26	Max. flow rate, m <sup>3</sup> /h:		Max. flow rate, l/15":		Rotation speed, rpm:		9-45
27	Filling coefficient, %:		Propeller diameter, mm:		Propeller pitch, mm:		100/200
28	Casing material: C-S.		Rotor material: C-S.				
29	<b>UTILITIES DATA:</b>		Electr. power:	Volts: 380	Hertz: 50	Phases: 3	
30	Instrument air press., Bar(G):		Auxil. power:	Volts:	Type:		
31			MOTOR	GEAR-BOX	GEAR-MOTOR	SPEED VARIATOR	
32	Manufacturer:						
33	Model:						
34	Order Nr.:						
35	Order date:						
36	Delivery date:						
37	Power, KW: 2,2						
38	Speed, rpm: 1420						
39	Poles: 4						
40	Shape: BS						
41	Protection: IP55						
42	Weight, Kg:						
43	<b>ADDITIONAL MOTOR INFO</b>		Self-brake motor (Y/N):		Electric current (AC / DC):		
44	Insul. class:		Start:		Tropicalization: Y		
45	Make request for spare parts offer:		For Nr.:		years		
46	When ordering make request for Nr.:		manuals in		language, and Nr. in italian language		
47	<b>NOTES:</b> Case Type : "U" Shape						
48							
49							
50							
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		SCREW SPECIFICATION SHEET				Doc. Nr. : 2C57-40-304 Customer Nr. : (1E35-40-1304)	
		Commessa / Job: 2C57 / 1E35Z Impianto / Plant: SABIZ					
1	Item	Service					
2	62CL6A	Optical Brightener Extraction Screw					
3							
4							
5	PROCESS DATA						
6	SERVICE TYPE: DISCONTINUOUS				N. of UNITS/SPARE: 1 / 0		
7							
8	<b>TREATED SOLIDS</b>		Y/N	Density, Kg/m <sup>3</sup>			
9	TYPE	Y/N	Min	Max			
10	SODIUM CARBONATE				Max. rotation speed: approx. 100 rpm		
11	SODIUM SULPHATE				Design filling coefficient: 0.8		
12	SODIUM PERBORATE				Construction material: Carbon Steel		
13	SODIUM TRIPOLIPH.						
14	ZEOLITE						
15	ADDITIVES						
16	ENZYME						
17	OPTICAL BLEACH	Y	600				
18	AVERAGE MIXTURE DENSITY:						
19							
20							
21							
22	Des. Flow at min / max dens., m <sup>3</sup> /h: 4				Min / Max weight flow rate, Kg/h:	2400	
23							
24							
25	<b>MANUFACTURER INFORMATION</b>						
26	Max. flow rate, m <sup>3</sup> /h:	Max. flow rate, l/15":			Rotation speed, rpm: 20 - 100		
27	Filling coefficient, %:	Propeller diameter, mm: 200			Propeller pitch, mm: 100/200		
28	Casing material: C.S.	Rotor material: C.S.					
29	<b>UTILITIES DATA:</b>	Electr. power:	Volts: 380	Hertz: 50	Phases: 3		
30	Instrument air press., Bar(G):	Auxil. power:	Volts:	Type:			
31	MOTOR	GEAR-BOX	GEAR-MOTOR	SPEED VARIATOR			
32	Manufacturer:						
33	Model:						
34	Order Nr.:						
35	Order date:						
36	Delivery date:						
37	Power, KW: 2,2						
38	Speed, rpm: 1420						
39	Poles: 4						
40	Shape: BS						
41	Protection: IP55						
42	Weight, Kg:						
43	<b>ADDITIONAL MOTOR INFO</b>	Self-brake motor (Y/N):	Electric current (AC / DC):				
44	Insul. class: Start:		Tropicalization: Y				
45	Make request for spare parts offer:		For Nr.	years			
46	When ordering make request for Nr.	manuals in		language, and Nr. in Italian language			
47	<b>NOTES:</b>	Case Type : "U" Shape					
48							
49							
50							
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**QUALITY SYSTEM  
PROCEDURE**

**IOQ-010**

Rev. 04

Page 1 of 1

**Section 14**

**Screw Conveyors**

**ITEM 62CL4 – 62CL5 – 62CL6 – 62CL6A**

**(job 1E35Z) – Ord. 101659**

Step	Description	Reference Documents	Inspection				Notes
			Manufacturer Test	Manufacturer Report	Ballestra Attend	Third Party Report	
1	Construction Drawing Approval	Equipment specification Data sheet	26/11		H	MAC	
2	Review of mill certificates	Design Code Ballestra Material Requisition	02/12		R		
3	Visual and dimensional check of reassembled machine	Erection drawings Data sheet	09/12	Yes	H	COL	
4	Fabricate parts identification marks (if any)	Erection drawings		Yes	H	COL	Not applicable
5	Functional test / Running test	Manufacturer procedure	22/12	Yes	H	COL	
6	Current Absorption check	Motor nameplate/Data Sheet	22/12	Yes	W	COL	
7	Surfaces treatment/ Painting check	Manufacturer specification Ballestra Material Requisition	22/12	Yes	W	COL	
8	Nameplate Check	Ballestra Material Requisition	22/12		H	COL	"CE" marking if required
9	Accessories and Spare Parts check	Ballestra Material Requisition	22/12	Yes	SW	COL	
10	Documents review	Applicable code Ballestra Material Requisition	22/12	Yes	R	MAC	

**BARBIERI**  
MODENA

COSTRUZIONI  
MECCANICHE  
ITALY

**SCHEDA DI CONTROLLO DIMENSIONALE  
E PROVA DI FUNZIONAMENTO**

DIMENSIONAL CONTROL DATA SHEET AND TEST ACCORDING:

DIS. N° 041-742-000  
DRW. N°

CLIENTE DESMET BALLESTRA  
CLIENT

COMMESSA N° 1 E 352 ..... ITEM 68CL4 .....  
JOB

TIPO COCLEA A CANALA Ø 200 L 2050 .....  
SCREW CONVEYOR TYPE

MATRICOLA COCLEA 10243 .....  
SCREW CONVEYOR CODE

MOTORE : MARCA BROOK ..... MATRICOLA DK 325685 .....  
MOTOR : BRAND WD4112 M4/8 CODE

POTENZA : KW 2,4 / 1,3 ..... POLI N° ..... V= 1400 Hz 50.  
POWER POLES

ASSORBIMENTO MAX TARGA COS.Ø=..... A 70 / 40.  
LABEL ABSORBED CURRENT

RIDUTTORE TIPO VARMEC ..... R= 1:15,37 ..... MATRICOLA / .....  
REDUCER TYPE RV 352 MFR CODE

VARIATORE TIPO / ..... MATRICOLA / .....  
VARIATOR TYPE CODE

**TEST DATA - DATI RILEVATI**

ASSORB. AMPERE : CON COCLEA A VUOTO N 3,5 ..... A / 7,8 ..... A  
ABSORBED CONVEYOR EMPTY B 3,5 ..... A / 7,8 ..... A  
M 3,6 ..... A / 8,0 ..... A

ASSORB. AMPERE : SPUNTO COCLEA A VUOTO 49 / 11,2 A (V. 380 / 50)  
ABSORBED CONVEYOR

VELOCITÀ RILEVATA GIRI/1' 41 ..... Vel.min. 41 ..... Vel.max 84 .....

LUNGHEZZA RILEVATA 2040 ..... DIAMETRO ELICA 200x100x700 Ø 76 DX  
ACTUAL LENGTH SCREW DIAMETER

VERIFICA DIMENSIONALE effettuata  non effettuata   
DIMENSIONAL TEST

DATA 14/12/2010

FIRMA Locoforba

**BARBIERI**  
MODENA

COSTRUZIONI  
MECCANICHE  
ITALY

**SCHEDA DI CONTROLLO DIMENSIONALE  
E PROVA DI FUNZIONAMENTO**

DIMENSIONAL CONTROL DATA SHEET AND TEST ACCORDING:

DIS. N° 041-743-000  
DRW. N°

CLIENTE DESMET BALLESTRA  
CLIENT

COMMESSE N° 1E35Z ITEM 62CLS  
JOB

TIPO COCLEA A CANALE 200 φ 3900  
SCREW CONVEYOR TYPE

MATRICOLA COCLEA 10294  
SCREW CONVEYOR CODE

MOTORE : MARCA BROOK MATRICOLA T06030971  
MOTOR : BRAND TDA 132 Hq/18 CODE

POTENZA : KW 3,15 ... POLE N° ..... V= .... / 400 HZ ...  
POWER POLES

ASSORBIMENTO MAX TARGA COS.Ø = 0,83 A 7,5 / 12  
LABEL ABSORBED CURRENT

RIDUTTORE TIPO VARHEC R= 1: 45,83 MATRICOLA .....  
REDUCER TYPE RCV 452 FR CODE

VARIATORE TIPO ..... MATRICOLA .....  
VARIATOR TYPE CODE

**TEST DATA - DATI RILEVATI**

	<u>Vel.min.</u>	<u>Vel.max</u>
ASSORB. AMPERE : CON COCLEA A VUOTO	N <u>3,6</u> A / <u>6,2</u> A	
ABSORBED CONVEYOR EMPTY	B <u>3,6</u> A / <u>6,6</u> A	
	H <u>3,6</u> A / <u>6,6</u> A	

ASSORB. AMPERE : SPUNTO COCLEA A VUOTO 12,7 / 55,1 A (V. 380 / 50)  
ABSORBED CONVEYOR

	<u>Vel.min.</u>	<u>Vel.max</u>
VELOCITÀ RILEVATA GIRI/1'	<u>40</u>	<u>81</u>
ACTUAL SPEED		

LUNGHEZZA RILEVATA 3300 ... DIAMETRO ELICA 200x100x200 φ 76 DX  
ACTUAL LENGTH SCREW DIAMETER

VERIFICA DIMENSIONALE effettuata  non effettuata   
DIMENSIONAL TEST

DATA 14/12/2010

FIRMA Recuperata

**BARBIERI**  
MODENA

COSTRUZIONI  
MECCANICHE  
ITALY

**SCHEDA DI CONTROLLO DIMENSIONALE  
E PROVA DI FUNZIONAMENTO**

DIMENSIONAL CONTROL DATA SHEET AND TEST ACCORDING:

DIS. N° 061-766-000  
DRW. N° 061-766-000

CLIENTE DESHET... BALLETTA.....  
CLIENT

COMMESA N° 1E 35 Z ITEM 62 C 6  
JOB

TIPO COCLEA ... A CANALE 200 φ 1850  
SCREW CONVEYOR TYPE

MATRICOLA COCLEA 10245  
SCREW CONVEYOR CODE

MOTORE : MARCA RROOK MATRICOLA 100 B 691  
MOTOR : BRAND BOA 100 LA - PTG CODE

POTENZA : KW 2,2 POLI N° 4 V = 230/1.400 Y Hz 50  
POWER POLES

ASSORBIMENTO MAX TARGA COS.Φ = 0,81 A 8,55 / 4,92  
LABEL ABSORBED CURRENT

RIDUTTORE TIPO BCV 952 F R = 1:19,99 MATRICOLA 100 B 691  
REDUCER TYPE VARMEC CODE

VARIATORE TIPO BONFIGLIOLI MATRICOLA VE 1400 0610001  
VARIATOR TYPE V 3,5 F D 28 P 112 CODE

**TEST DATA - DATI RILEVATI**

	<u>Vel.min.</u>	<u>Vel.max</u>
ASSORB. AMPERE : CON COCLEA A VUOTO	N <u>3,8</u> ... A / <u>4,2</u> ... A	
ABSORBED CONVEYOR EMPTY	B <u>3,7</u> ... A / <u>4,2</u> ... A	
	M <u>3,7</u> ... A / <u>4,2</u> ... A	

ASSORB. AMPERE : SPUNTO COCLEA A VUOTO 12,84 ... A (V. 350/50)  
ABSORBED CONVEYOR

	<u>Vel.min.</u>	<u>Vel.max</u>
VELOCITÀ RILEVATA GIRI/1'	<u>9 G.H.</u>	<u>49 G.H.</u>
ACTUAL SPEED	..	
LUNGHEZZA RILEVATA	<u>1550</u>	DIAMETRO ELICA <u>200x400x200 φ 76 DX</u>
ACTUAL LENGTH		SCREW DIAMETER

VERIFICA DIMENSIONALE effettuata  non effettuata   
DIMENSIONAL TEST

DATA 13/12/2010

FIRMA Macchia Luca

**BARBIERI**  
MODENA

COSTRUZIONI  
MECCANICHE  
ITALY

**SCHEDA DI CONTROLLO DIMENSIONALE  
E PROVA DI FUNZIONAMENTO**

DIMENSIONAL CONTROL DATA SHEET AND TEST ACCORDING:

DIS. N° 041-745-000  
DRW. N°

CLIENTE DESMET...BALVISTRA...  
CLIENT

COMMESSA N° 1.E.352 ..... ITEM 62 CL6 A .....  
JOB

TIPO COCLEA A.CAMALE 200 Ø L 1850 .....  
SCREW CONVEYOR TYPE

MATRICOLA COCLEA 10246 .....  
SCREW CONVEYOR CODE

MOTORE : MARCA B.Roo.K ..... MATRICOLA 100 B. 692 .....  
MOTOR : BRAND BDA 100 CA - PTG CODE

POTENZA : KW 2,2 ... POLI N° 4 ... V= 230/400 HZ 50 ...  
POWER POLES

ASSORBIMENTO MAX TARGA COS.Ø= 0,81 ... A 8,77/4,92  
LABEL ABSORBED CURRENT

RIDUTTORE TIPO VARMEC R= 1:10,18 MATRICOLA / ....  
REDUCER TYPE Rev 352 NF 250 CODE

VARIATORE TIPO BONFIGLIOLI ..... MATRICOLA VE 199058 10001  
VARIATOR TYPE V.S.S.F.D 28 P 112 CODE

**TEST DATA - DATI RILEVATI**

	<u>Vel.min.</u>	<u>Vel.max</u>
ASSORB. AMPERE : CON COCLEA A VUOTO	<u>N 3,9 A</u>	<u>3,8 A</u>
ABSORBED CONVEYOR EMPTY	<u>B 4,1 A</u>	<u>4,2 A</u>
	<u>M 3,9 A</u>	<u>4,1 A</u>

ASSORB. AMPERE : SPUNTO COCLEA A VUOTO 17,2 A (V 380/30)  
ABSORBED CONVEYOR

<u>Vel.min.</u>	<u>Vel.max</u>
<u>18</u>	<u>98</u>

VELOCITÀ RILEVATA GIRI/1' ACTUAL SPEED 1850 DIAMETRO ELICA 200x100x200 Ø 76 DX  
ACTUAL LENGTH SCREW DIAMETER

VERIFICA DIMENSIONALE effettuata  non effettuata   
DIMENSIONAL TEST

DATA 13/12/2010

FIRMA Mecan. Luca

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e N.° 00178890364  
Partita I.V.A.



S.R.L. - Cap. soc. € 95.000,00

22 dicembre 2010

SPETT.

DESMET BALLESTRA S.P.A.  
Via P. Portaluppi, 17  
20138 MILANO

Rif: Vs. ordine n° 101659 del 15-09-2010

Si certifica che il trasportatore a coclea ITEM 62CL4 commessa 1E35Z è stato collaudato a vuoto, con esito positivo, presso il nostro stabilimento e che i materiali impiegati per la costruzione sono idonei a tale impiego.

We certify the screw conveyor ITEM 62CL4 job 1E35Z has been positively tested without material at our factory.

We further certify that all the materials used for this conveyor are suitable for the use.

  
BARBIERI COSTRUZIONI MECCANICHE  
MODENA

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e  
Partita I.V.A. N.º 00178890364



S.R.L. - Cap. soc. € 95.000,00

22 dicembre 2010

SPETT.

**DESMET BALLESTRA S.P.A.**  
Via P. Portaluppi, 17  
20138 MILANO

Rif: Vs. ordine n° 101659 del 15-09-2010

Si certifica che il trasportatore a coclea ITEM 62CL5 commessa 1E35Z è stato collaudato a vuoto, con esito positivo, presso il nostro stabilimento e che i materiali impiegati per la costruzione sono idonei a tale impiego.

We certify the screw conveyor ITEM 62CL5 job 1E35Z has been positively tested without material at our factory.

We further certify that all the materials used for this conveyor are suitable for the use.

  
**BARBIERI COSTRUZIONI  
MECCANICHE**  
G. Barbieri

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
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e-mail: info@barbieri-cm.it  
  
REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e  
Partita I.V.A. N.º 00178890364



S.R.L. - Cap. soc. € 95.000,00

22 dicembre 2010

SPETT.

**DESMET BALLESTRA S.P.A.**  
Via P. Portaluppi, 17  
20138 MILANO

Rif: Vs. ordine n° 101659 del 15-09-2010

Si certifica che il trasportatore a coclea ITEM 62CL6 commessa 1E35Z è stato collaudato a vuoto, con esito positivo, presso il nostro stabilimento e che i materiali impiegati per la costruzione sono idonei a tale impiego.

We certify the screw conveyor ITEM 62CL6 job 1E35Z has been positively tested without material at our factory.

We further certify that all the materials used for this conveyor are suitable for the use.

BARBIERI COSTRUZIONI  
MECCANICHE  
S.p.A.  
MODENA

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e  
Partita I.V.A. N.º 00178890364



S.R.L. - Cap. soc. € 95.000,00

22 dicembre 2010

SPETT.

DESMET BALLESTRA S.P.A.  
Via P. Portaluppi, 17  
20138 MILANO

Rif: Vs. ordine n° 101659 del 15-09-2010

Si certifica che il trasportatore a coclea ITEM 62CL6A commessa 1E35Z è stato collaudato a vuoto, con esito positivo, presso il nostro stabilimento e che i materiali impiegati per la costruzione sono idonei a tale impiego.

We certify the screw conveyor ITEM 62CL6A job 1E35Z has been positively tested without material at our factory.

We further certify that all the materials used for this conveyor are suitable for the use.

BARBIERI COSTRUZIONI  
MECCANICHE  
S.p.A.  
MODENA

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e N.° 00178890364  
Partita I.V.A.



S.R.L. - Cap. soc. € 95.000,00

## DECLARATION OF CONFORMITY

The undersigned **BARBIERI COSTRUZIONI MECCANICHE S.R.L.**  
Via Morane, 264 - 41125 MODENA (ITALY) TEL. 059/300018 - FAX 059/300095

Herewith declares that:

THE SCREW CONVEYOR ITEM 62CL4

Job : 1E35Z

MANUFACTURING YEAR: 2010

SERIES No: 10243

Is in conformity with the provisions of the MACHINERY DIRECTIVE (Directive 2006/42/CE)

### HARMONIZED STANDARDS:

EN 12100-1  
EN 12100-2

(SAFETY OF MACHINERY)  
(SAFETY OF MACHINERY)

IT IS NOT ALLOWED TO PUT THE SCREW CONVEYOR INTO SERVICE UNTIL THE MACHINERY INTO WHICH IT IS TO BE INCORPORATED HAS BEEN FOUND AND DECLARED TO BE IN CONFORMITY WITH THE PROVISIONS OF DIRECTIVE.

Legal representative  
**Alberto Barbieri**

Modena, 14 December 2010

A handwritten signature in black ink, appearing to read "Alberto Barbieri". It is placed over a horizontal dashed line.

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO:  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28695/09

Codice Fiscale e N.° 00178890364  
Partita I.V.A.



S.R.L. - Cap. soc. € 95.000,00

## DECLARATION OF CONFORMITY

The undersigned **BARBIERI COSTRUZIONI MECCANICHE S.R.L.**  
Via Morane, 264 - 41125 MODENA (ITALY) TEL. 059/300018 - FAX 059/300095

Herewith declares that:

### THE SCREW CONVEYOR ITEM 62CL5

Job : 1E35Z

MANUFACTURING YEAR: 2010

SERIES No: 10244

Is in conformity with the provisions of the MACHINERY DIRECTIVE (Directive 2006/42/CE)

#### HARMONIZED STANDARDS:

EN 12100-1  
EN 12100-2

(SAFETY OF MACHINERY)  
(SAFETY OF MACHINERY)

IT IS NOT ALLOWED TO PUT THE SCREW CONVEYOR INTO SERVICE UNTIL THE MACHINERY INTO WHICH IT IS TO BE INCORPORATED HAS BEEN FOUND AND DECLARED TO BE IN CONFORMITY WITH THE PROVISIONS OF DIRECTIVE.

Legal representative  
**Alberto Barbieri**

Modena, 14 December 2010



**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09.

Codice Fiscale e  
Partita I.V.A. N.º 00178890364



S.R.L. - Cap. soc. € 95.000,00

## DECLARATION OF CONFORMITY

The undersigned **BARBIERI COSTRUZIONI MECCANICHE S.R.L.**  
Via Morane, 264 - 41125 MODENA (ITALY) TEL. 059/300018 - FAX 059/300095

Herewith declares that:

### THE SCREW CONVEYOR ITEM 62CL6

Job : 1E35Z

MANUFACTURING YEAR: 2010

SERIES No: 10245

Is in conformity with the provisions of the MACHINERY DIRECTIVE (Directive 2006/42/CE)

#### HARMONIZED STANDARDS:

EN 12100-1	(SAFETY OF MACHINERY)
EN 12100-2	(SAFETY OF MACHINERY)

IT IS NOT ALLOWED TO PUT THE SCREW CONVEYOR INTO SERVICE UNTIL THE MACHINERY INTO WHICH IT IS TO BE INCORPORATED HAS BEEN FOUND AND DECLARED TO BE IN CONFORMITY WITH THE PROVISIONS OF DIRECTIVE.

Legal representative  
**Alberto Barbieri**

Modena, 14 December 2010

A handwritten signature in black ink, appearing to read "Alberto Barbieri". It is positioned above a horizontal dashed line.

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e N.° 00178890364  
Partita I.V.A.



S.R.L. - Cap. soc. € 95.000,00

## DECLARATION OF CONFORMITY

The undersigned **BARBIERI COSTRUZIONI MECCANICHE S.R.L.**  
Via Morane, 264 - 41125 MODENA (ITALY) TEL. 059/300018 - FAX 059/300095

Herewith declares that:

THE SCREW CONVEYOR ITEM 62CL6A

Job : 1E35Z

MANUFACTURING YEAR: 2010

SERIES No: 10246

Is in conformity with the provisions of the MACHINERY DIRECTIVE (Directive 2006/42/CE)

### HARMONIZED STANDARDS:

EN 12100-1  
EN 12100-2

(SAFETY OF MACHINERY)  
(SAFETY OF MACHINERY)

IT IS NOT ALLOWED TO PUT THE SCREW CONVEYOR INTO SERVICE UNTIL THE MACHINERY INTO WHICH IT IS TO BE INCORPORATED HAS BEEN FOUND AND DECLARED TO BE IN CONFORMITY WITH THE PROVISIONS OF DIRECTIVE.

Legal representative  
**Alberto Barbieri**

A handwritten signature in black ink, appearing to read "Alberto Barbieri". It is positioned above a horizontal line.

Modena, 14 December 2010

**BARBIERI COSTRUZIONI MECCANICHE s.r.l.**  
SEDE AMMINISTRATIVA E STABILIMENTO  
41100 MODENA - ITALIA - VIA MORANE, 264  
TEL. 059 30.00.18 - 059 30.00.23  
TELEFAX 059 30.00.95  
e-mail: info@barbieri-cm.it

REGISTRO IMPRESE TRIB. DI MODENA N. 3190  
ALBO NAZIONALE COSTRUTTORI N. 28895/09

Codice Fiscale e  
Partita I.V.A. N.º 00178890364



S.R.L. - Cap. soc. € 95.000,00

### DECLARATION

To Whom It May Concern

The undersigned Barbieri Alberto in his capacity as legal representative at Barbieri Costruzioni Meccaniche srl a company having its registered office at Modena – Via Morane 264, hereby declares that the goods described on the your order:

- n° 101659 dated 15-09-2010

are not included on the list of dual use items and technologies referred to in the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 (setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items); are not, directly or indirectly, in full or in part, military nor originally designed as component of any weapon, instrument or supply for military use.

Barbieri Alberto  
(Legal Representative)

Modena, 22 December 2010

**BARBIERI**COSTRUZIONI  
MECCANICHE  
MODENA ITALY**TABLE N° SRI-041-745-1**

JOB N° 1E35Z

**ITEM 62CL6A**

CODE 10246

ORD.N° 101659

**SCREW CONVEYOR MOD. CC 200/1,850**

POS.	DESCRIPTION	Q.TY	CODE
1	KEY	1	400.629
2	SUPPORT CUP	2	400.623
3	LUBRICATOR	2	11.278
4	SEAL RING	2	11.378
5	HELICAL SPRING	2	122.839
6	SCREW SUPPORT	2	229.239
7	S.S. PROTECTION		
8	FELT		
9	RING	2	400.624
10	WASHER	2	400.627
11	SCREW SHAFT	1	
12	RING STOP	2	400.628
13	FELT		
14	INTERMEDIATE SUPPORT		
15	DRIVE HUB		
16	DRIVE SHAFT	1	400.604
17	SEAL RING	2	11.388
18	BUSHING		
19	THRUST BALL BEARING	1	400.625
20	BALL BEARING	3	400.626
21	RING STOP	2	16.438
22	WASHER	4	122.879
23	FELT	8	14.738
24	KEY		
25	CONVEYOR FRAME		
26	INTERMEDIATE SHAFT		
27	KEY		
28	SEAL RING		
29	FLIGHT		
30	SPACER		

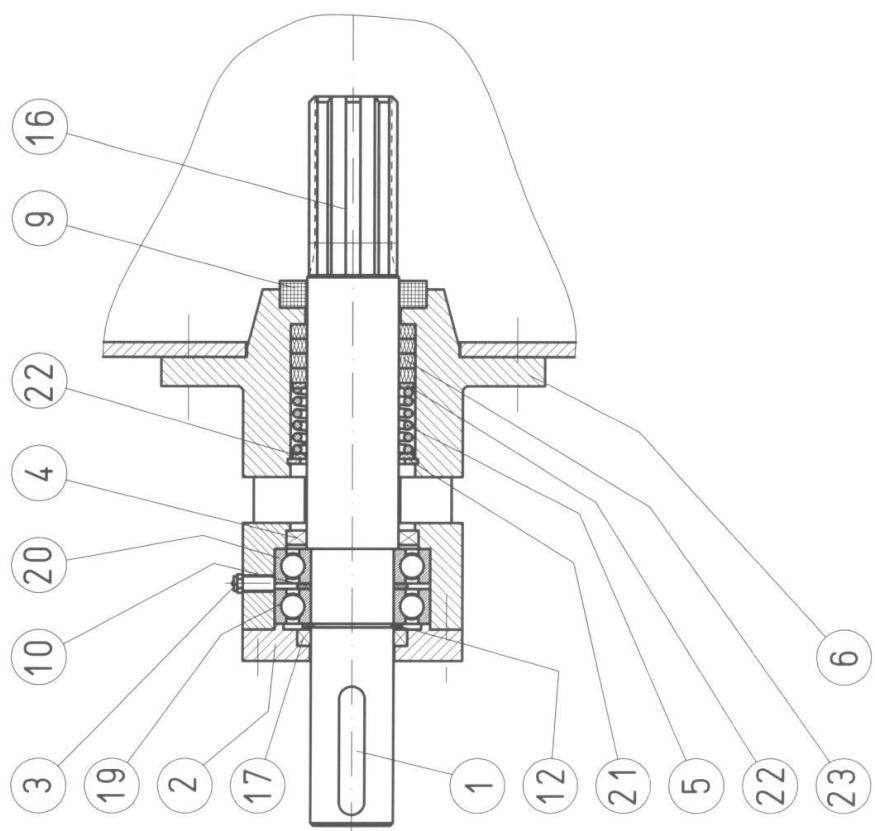
DATE 10-12-2010

ISSUED BY M.W.

SHEET N° 1

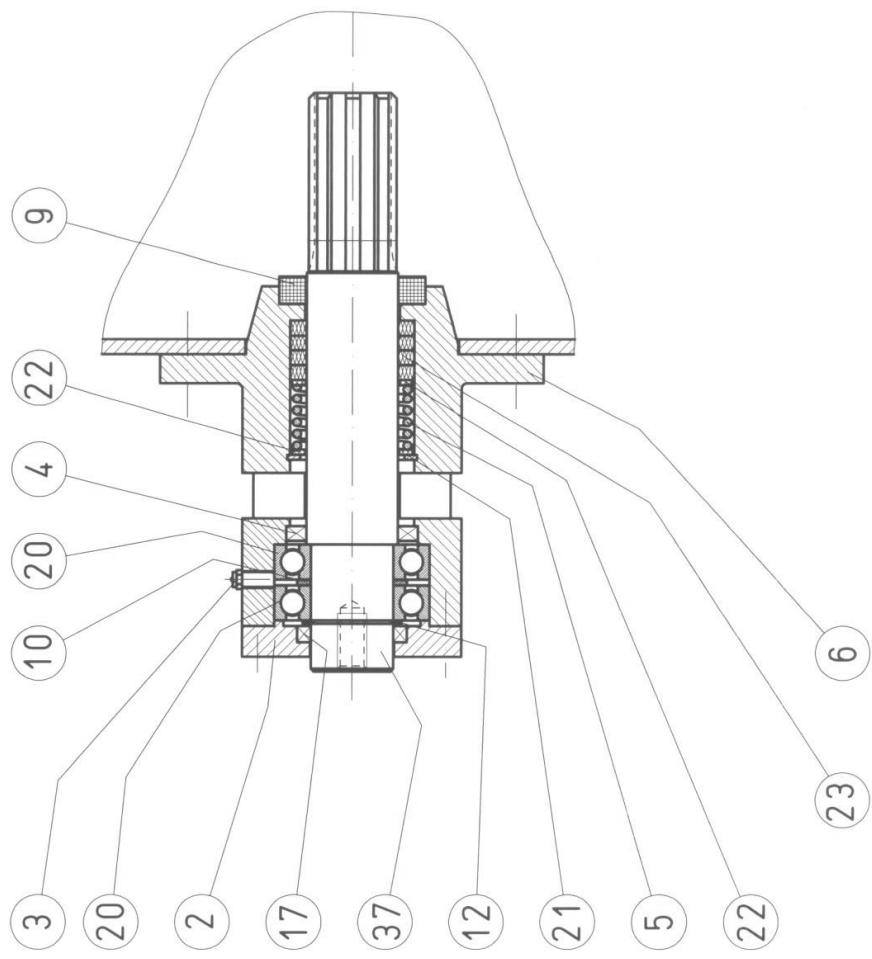
**BARBIERI**COSTRUZIONI  
MECCANICHE  
MODENA ITALY**TABLE N° SRI-041-745-2**JOB N° 1E35Z  
CODE 10246ITEM 62CL6A  
ORD.N° 101659**SCREW CONVEYOR MOD. CC 200/1,850**

POS.	DESCRIPTION	Q.TY	CODE
31	ELECTRIC MOTOR	1	116.668
32	SPROCKET	1	127.789
33	CHAIN	1	233.519
34	SPROCKET	1	127.799
35	REDUCER	1	402.223
36	VARIATOR	1	402.222
37	DRIVEN SHAFT	1	400.605
38	FIXING SCREW		
39	STUFFING DEVICE		
40	SCREW SUPPORT FOR STUFFING DEVICE		
41	ELASTIC COUPLING		
42	CHAIN TAKE-UP WHEEL WITH BEARINGS		
43			
44			
45			
46			
47			
48			
49			
50			



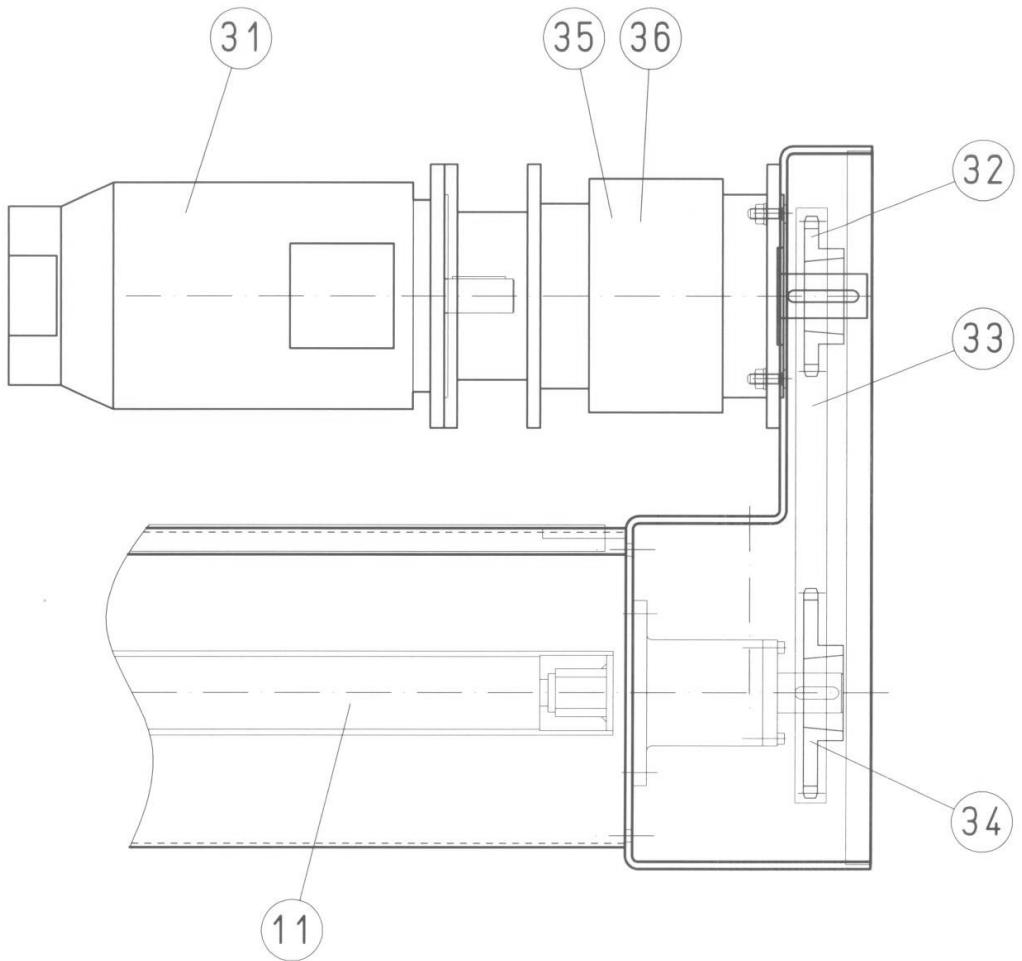
R-04.1.545-002

**BARBIERI**  
COSTRUZIONI  
MECCANICHE  
ITALY  
MODENA



R - 041.545.001  
**BARBIERI**  
COSTRUTTI  
MECCANICHE  
ITALY  
MODENA

**BARBIERI**  
MODENA      COSTRUZIONI  
                  MECCANICHE  
                  ITALY



**BARBIERI**COSTRUZIONI  
MECCANICHE  
MODENA ITALY**TABLE N° SRI-041-744-1**

JOB N° 1E35Z

**ITEM 62CL6**

CODE 10245

ORD.N° 101659

**SCREW CONVEYOR MOD. CC 200/1,850**

POS.	DESCRIPTION	Q.TY	CODE
1	KEY	1	400.629
2	SUPPORT CUP	2	400.623
3	LUBRICATOR	2	11.278
4	SEAL RING	2	11.378
5	HELICAL SPRING	2	122.839
6	SCREW SUPPORT	2	229.239
7	S.S. PROTECTION		
8	FELT		
9	RING	2	400.624
10	WASHER	2	400.627
11	SCREW SHAFT	1	
12	RING STOP	2	400.628
13	FELT		
14	INTERMEDIATE SUPPORT		
15	DRIVE HUB		
16	DRIVE SHAFT	1	400.604
17	SEAL RING	2	11.388
18	BUSHING		
19	THRUST BALL BEARING	1	400.625
20	BALL BEARING	3	400.626
21	RING STOP	2	16.438
22	WASHER	4	122.879
23	FELT	8	14.738
24	KEY		
25	CONVEYOR FRAME		
26	INTERMEDIATE SHAFT		
27	KEY		
28	SEAL RING		
29	FLIGHT		
30	SPACER		

DATE 10-12-2010

ISSUED BY M.W.

SHEET N° 1

**BARBIERI**

MODENA ITALY

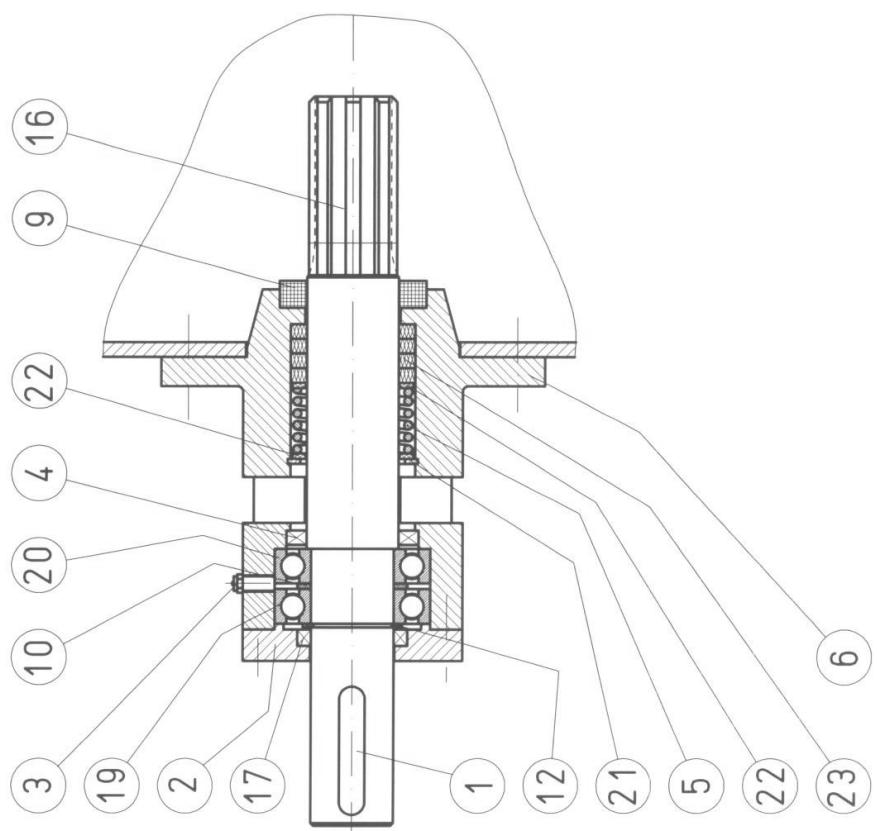
COSTRUZIONI  
MECCANICHE**TABLE N° SRI-041-744-2**JOB N° 1E35Z  
CODE 10245ITEM 62CL6  
ORD.N° 101659**SCREW CONVEYOR MOD. CC 200/1,850**

<b>POS.</b>	<b>DESCRIPTION</b>	<b>Q.TY</b>	<b>CODE</b>
31	ELECTRIC MOTOR	1	116.668
32	SPROCKET	1	127.799
33	CHAIN	1	233.519
34	SPROCKET	1	127.799
35	REDUCER	1	402.221
36	VARIATOR	1	402.222
37	DRIVEN SHAFT	1	400.605
38	FIXING SCREW		
39	STUFFING DEVICE		
40	SCREW SUPPORT FOR STUFFING DEVICE		
41	ELASTIC COUPLING		
42	CHAIN TAKE-UP WHEEL WITH BEARINGS		
43			
44			
45			
46			
47			
48			
49			
50			

DATE 10-12-2010

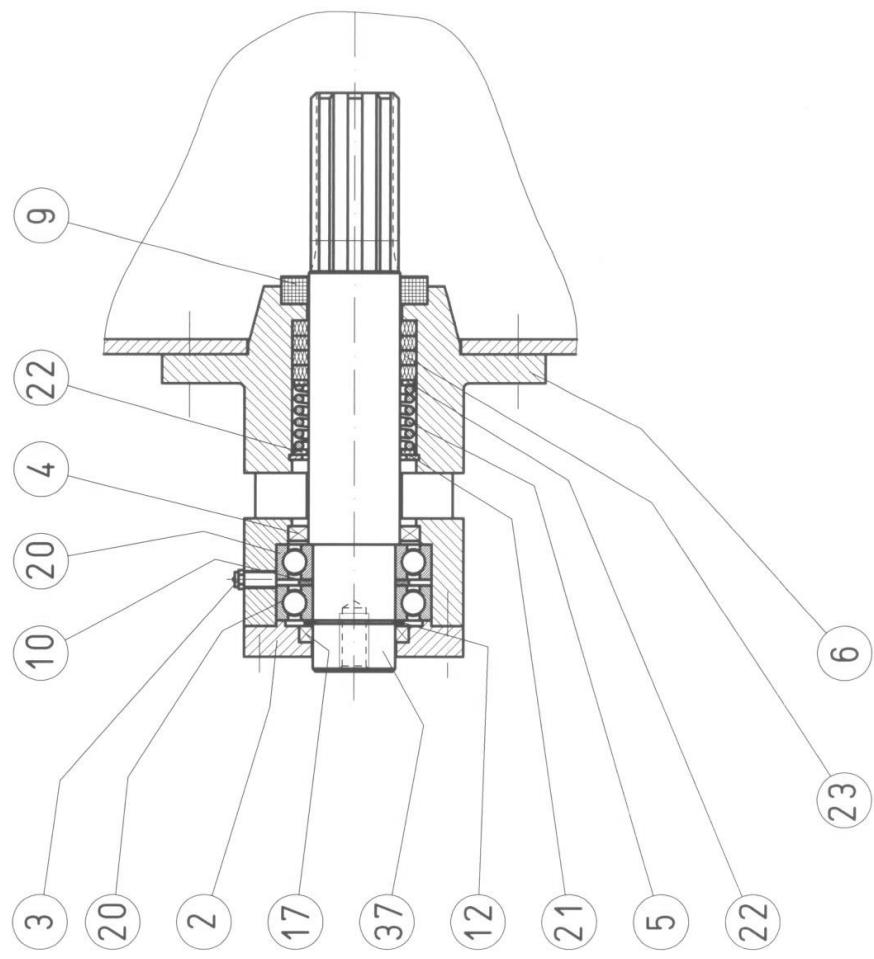
ISSUED BY M.W.

SHEET N° 2



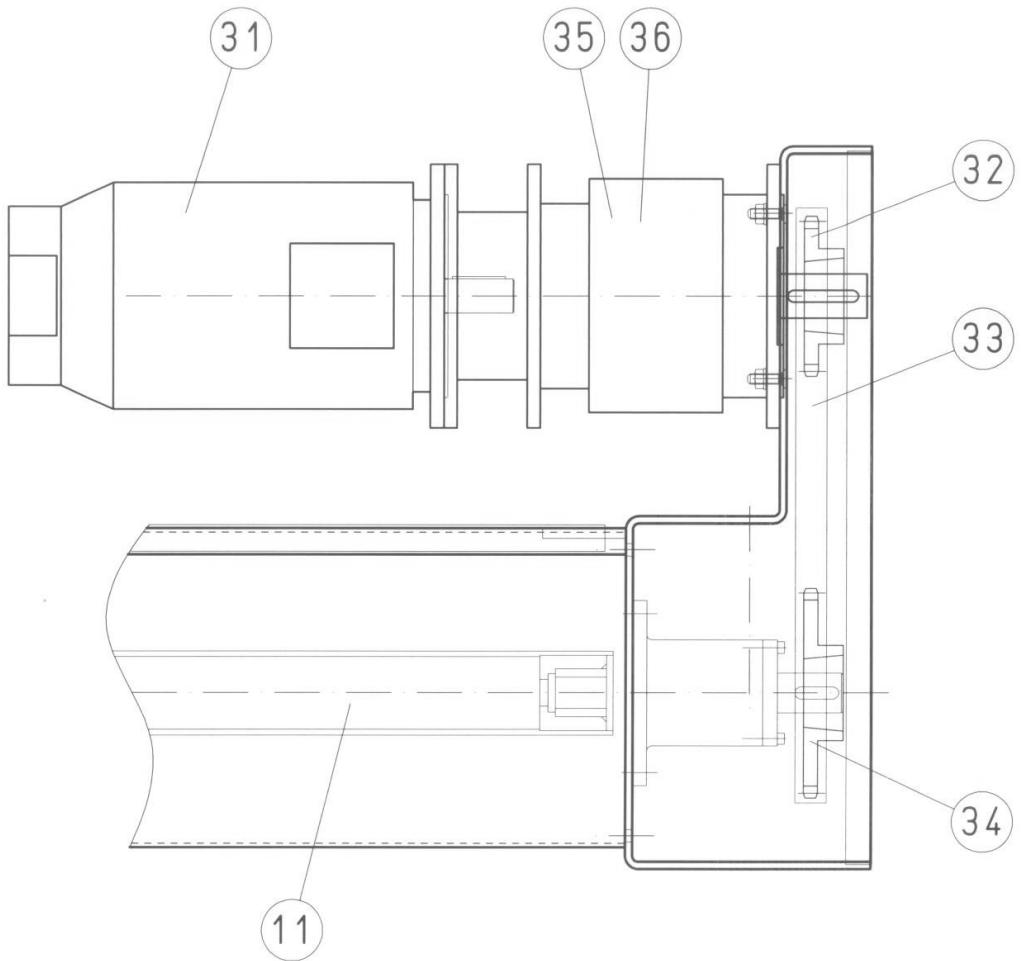
R-04.1.545-002

<b>BARBIERI</b>	COSTRUZIONI MECCANICHE
MODENA	ITALY



R - 041, 545, 001  
**BARBIERI**  
COSTRUTZIONI  
MECCANICHE  
ITALY  
MODENA

**BARBIERI**  
MODENA      COSTRUZIONI  
                  MECCANICHE  
                  ITALY



<b>BARBIERI</b>		COSTRUZIONI MECCANICHE MODENA ITALY	TABLE N° <b>SRI-041-743-1</b>	
			JOB N° 1E35Z	ITEM 62CL5
			CODE 10244	ORD.N° 101659
<b>SCREW CONVEYOR MOD. CC 200/3,90</b>				
POS.	DESCRIPTION	Q.TY	CODE	
1	KEY	1	400.629	
2	SUPPORT CUP	2	400.623	
3	LUBRICATOR	2	11.278	
4	SEAL RING	2	11.378	
5	HELICAL SPRING	2	122.839	
6	SCREW SUPPORT	2	229.239	
7	S.S. PROTECTION			
8	FELT			
9	RING	2	400.624	
10	WASHER	2	400.627	
11	SCREW SHAFT	1		
12	RING STOP	2	400.628	
13	FELT			
14	INTERMEDIATE SUPPORT			
15	DRIVE HUB			
16	DRIVE SHAFT	1	400.604	
17	SEAL RING	2	11.388	
18	BUSHING			
19	THRUST BALL BEARING	1	400.625	
20	BALL BEARING	3	400.626	
21	RING STOP	2	16.438	
22	WASHER	4	122.879	
23	FELT	8	14.738	
24	KEY			
25	CONVEYOR FRAME			
26	INTERMEDIATE SHAFT			
27	KEY			
28	SEAL RING			
29	FLIGHT			
30	SPACER			
DATE	10-12-2010	ISSUED BY M.W.	SHEET N° 1	

**BARBIERI**

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MECCANICHE

MODENA

ITALY

**TABLE N° SRI-041-743-2**

JOB N° 1E35Z

**ITEM 62CL5**

CODE 10244

ORD.N° 101659

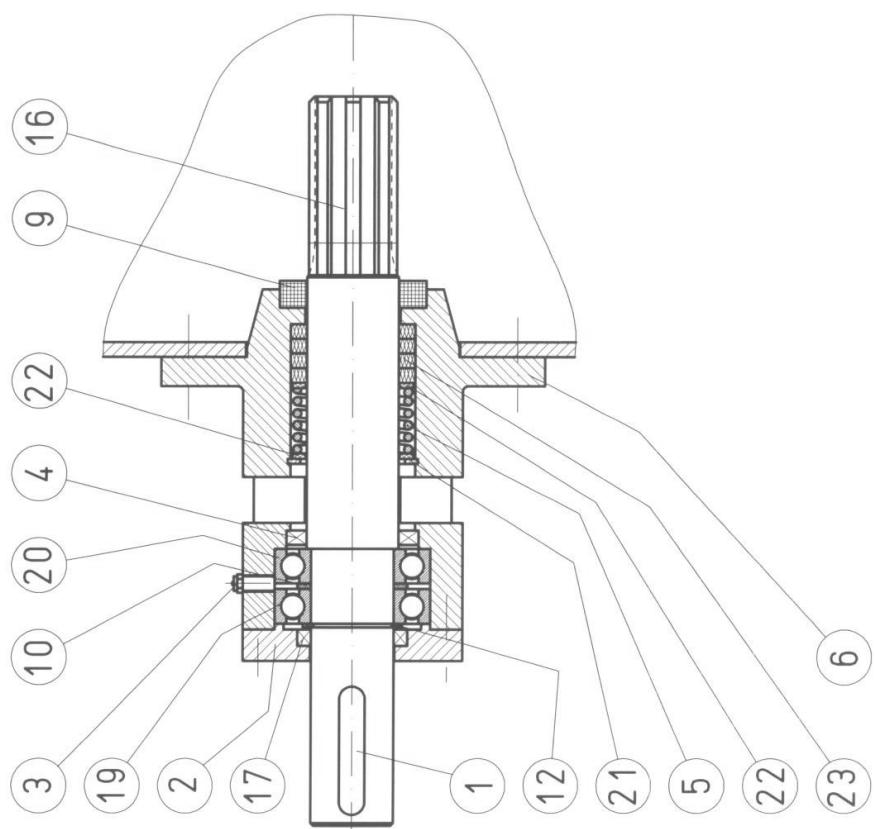
**SCREW CONVEYOR MOD. CC 200/3,90**

POS.	DESCRIPTION	Q.TY	CODE
31	ELECTRIC MOTOR	1	401.317
32	SPROCKET	1	127.799
33	CHAIN	1	233.519
34	SPROCKET	1	137.009
35	REDUCER	1	401.087
36	VARIATOR		
37	DRIVEN SHAFT	1	400.605
38	FIXING SCREW		
39	STUFFING DEVICE		
40	SCREW SUPPORT FOR STUFFING DEVICE		
41	ELASTIC COUPLING		
42	CHAIN TAKE-UP WHEEL WITH BEARINGS		
43			
44			
45			
46			
47			
48			
49			
50			

DATE 10-12-2010

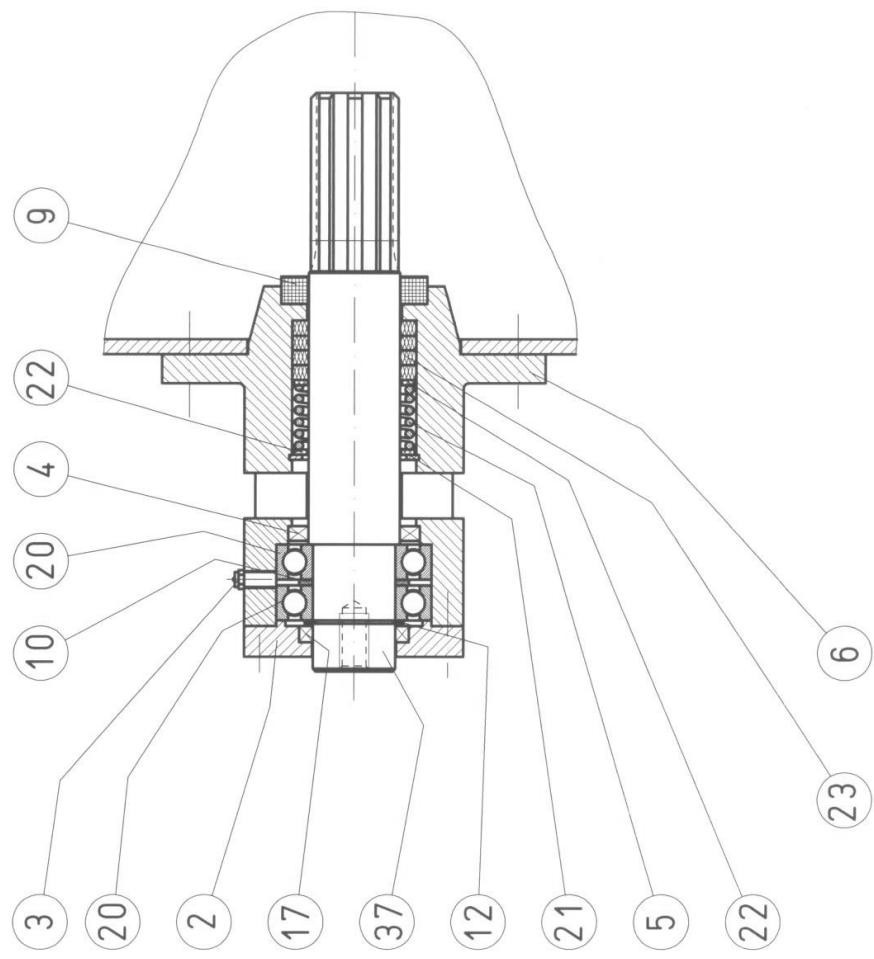
ISSUED BY M.W.

SHEET N° 2



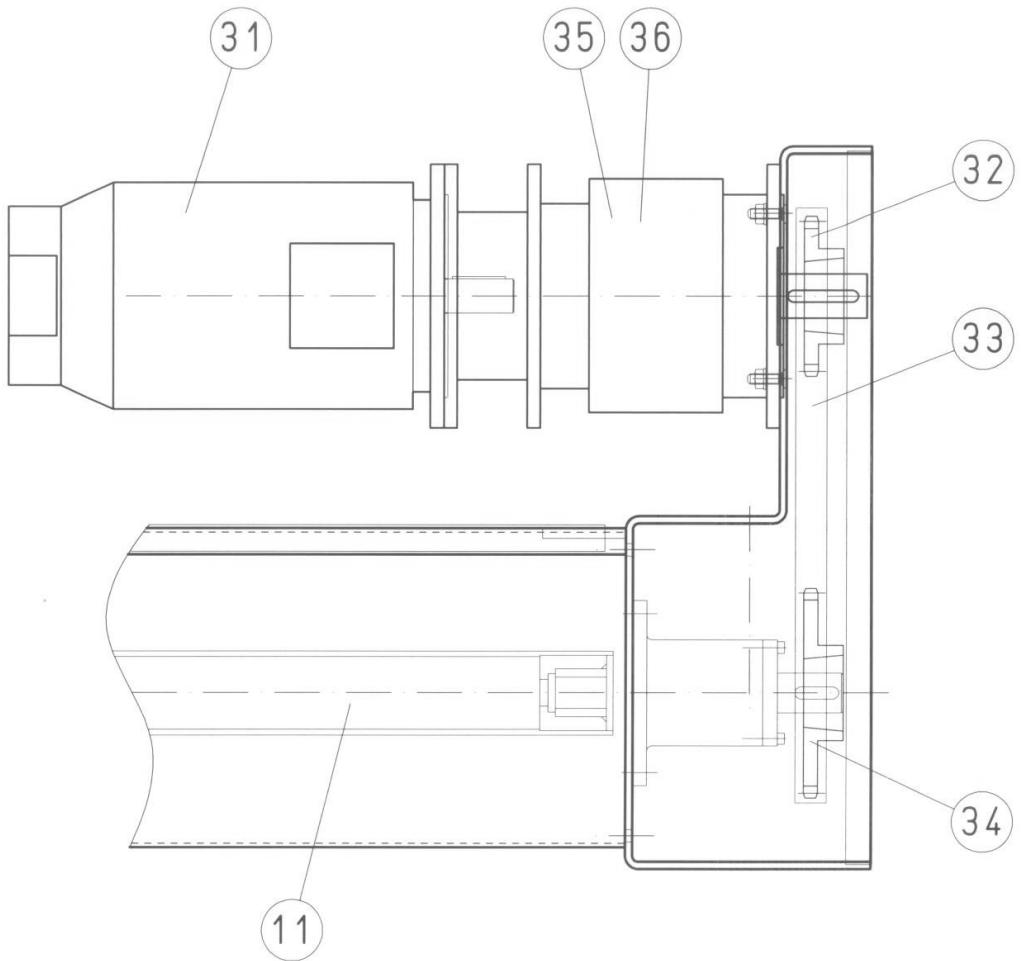
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MECCANICHE ITALY



**BARBIERI**COSTRUZIONI  
MECCANICHE  
MODENA ITALY**TABLE N° SRI-041-742-1**

JOB N° 1E35Z

**ITEM 62CL4**

CODE 10243

ORD.N° 101659

**SCREW CONVEYOR MOD. CC 200/2,050**

POS.	DESCRIPTION	Q.TY	CODE
1	KEY	1	400.629
2	SUPPORT CUP	2	400.623
3	LUBRICATOR	2	11.278
4	SEAL RING	2	11.378
5	HELICAL SPRING	2	122.839
6	SCREW SUPPORT	2	229.239
7	S.S. PROTECTION		
8	FELT		
9	RING	2	400.624
10	WASHER	2	400.627
11	SCREW SHAFT	1	
12	RING STOP	2	400.628
13	FELT		
14	INTERMEDIATE SUPPORT		
15	DRIVE HUB		
16	DRIVE SHAFT	1	400.604
17	SEAL RING	2	11.388
18	BUSHING		
19	THRUST BALL BEARING	1	400.625
20	BALL BEARING	3	400.626
21	RING STOP	2	16.438
22	WASHER	4	122.879
23	FELT	8	14.738
24	KEY		
25	CONVEYOR FRAME		
26	INTERMEDIATE SHAFT		
27	KEY		
28	SEAL RING		
29	FLIGHT		
30	SPACER		

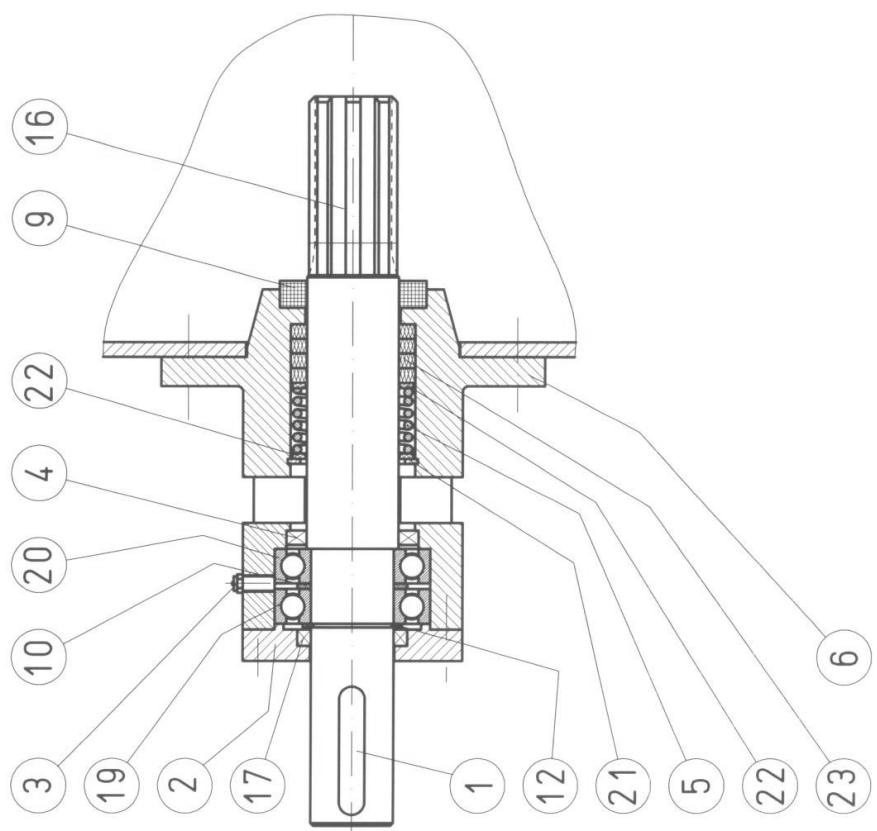
DATE 10-12-2010

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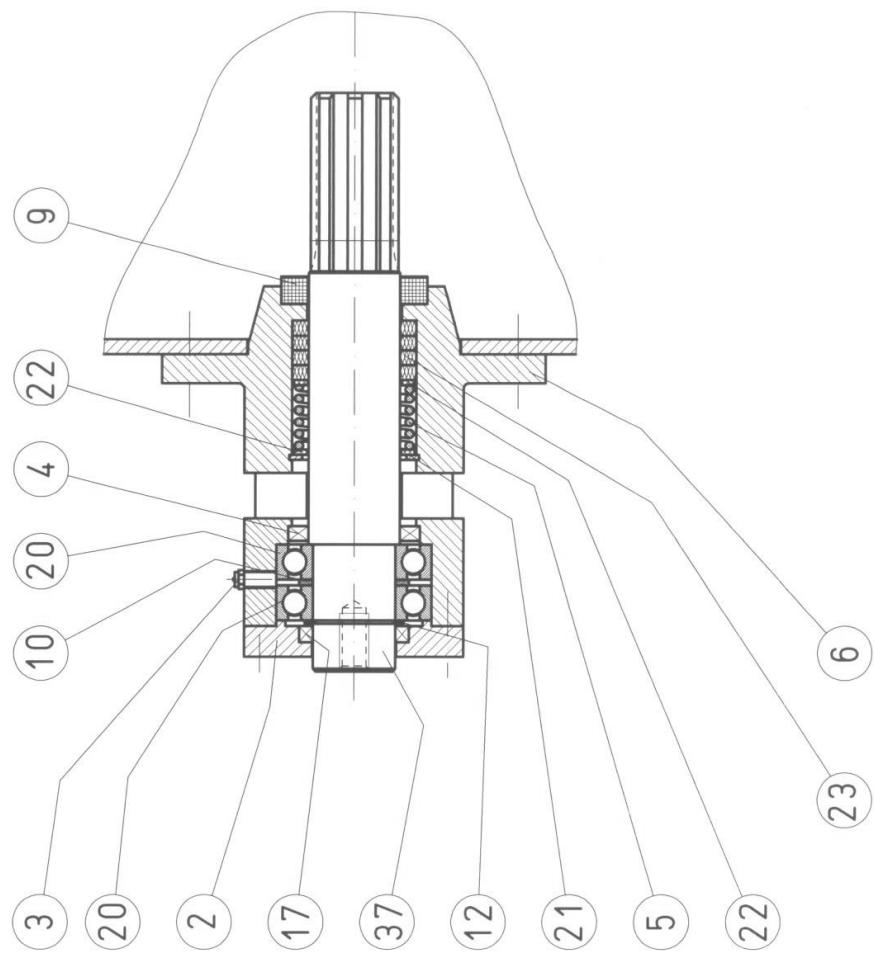
**BARBIERI**COSTRUZIONI  
MECCANICHE  
MODENA ITALYTABLE N° **SRI-041-742-2**JOB N° 1E35Z  
CODE 10243ITEM 62CL4  
ORD.N° 101659**SCREW CONVEYOR MOD. CC 200/2,050**

POS.	DESCRIPTION	Q.TY	CODE
31	ELECTRIC MOTOR	1	122.868
32	SPROCKET	1	127.789
33	CHAIN	1	233.519
34	SPROCKET	1	137.009
35	REDUCER	1	402.220
36	VARIATOR		
37	DRIVEN SHAFT	1	400.605
38	FIXING SCREW		
39	STUFFING DEVICE		
40	SCREW SUPPORT FOR STUFFING DEVICE		
41	ELASTIC COUPLING		
42	CHAIN TAKE-UP WHEEL WITH BEARINGS		
43			
44			
45			
46			
47			
48			
49			
50			



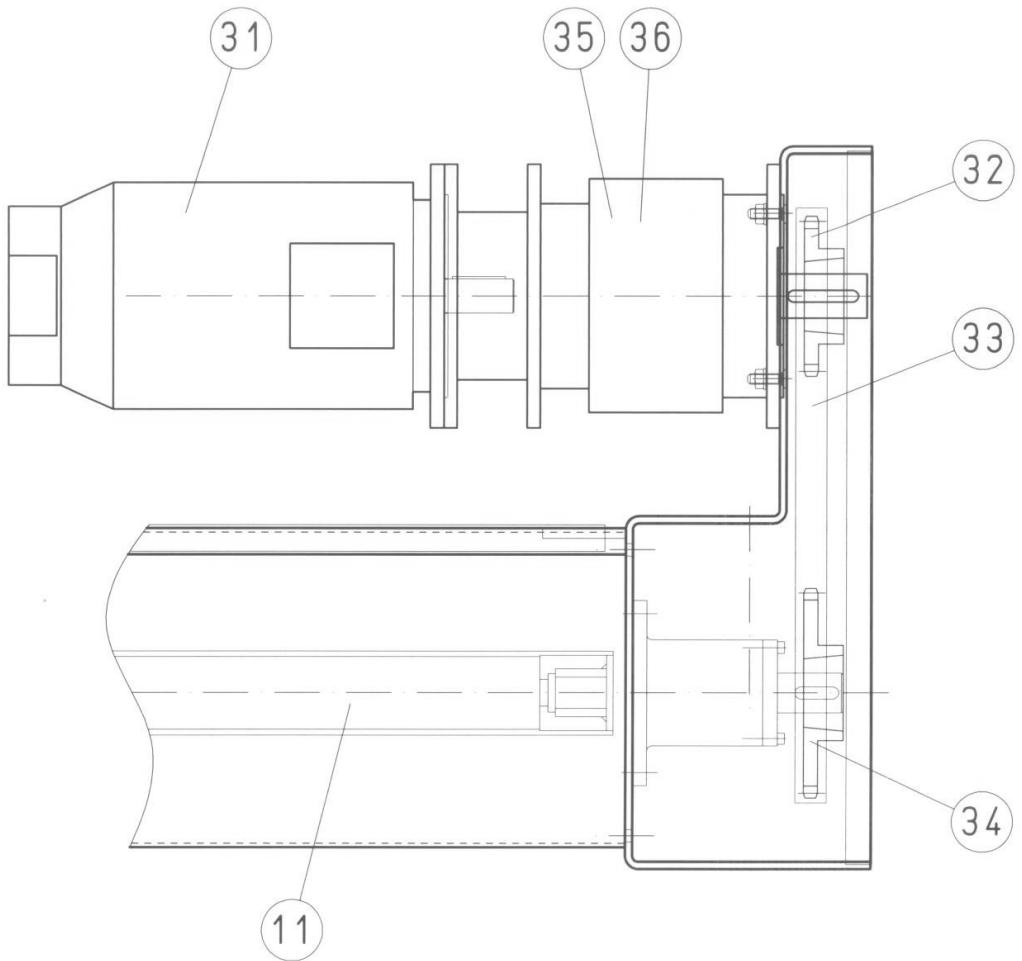
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MODENA

**BARBIERI**  
MODENA      COSTRUZIONI  
                  MECCANICHE  
                  ITALY



# **MANUAL FOR ERECTION AND MAINTENANCE**

## **SCREW CONVEYOR**

Manufacturer:      BARBIERI COSTRUZIONI MECCANICHE S.r.l.  
                         via Morane 264 - 41125 Modena  
                         tel.    059 - 300018 - 300023  
                         fax    059 - 300095  
                         e-mail info@barbieri-cm.it  
                         web    www.barbieri-cm.it

Client:              DESMET BALLESTRA S.p.A.  
                         Via P. Portaluppi, 17  
                         20138 MILANO

Order n°              101659 dated 15-09-2010

Job n°                1E35Z

MACHINE SERIAL	DRAWING	ITEM	MANUF. YEAR
10243	041-742-000	62CL4	2010
10244	041-743-000	62CL5	2010
10245	041-744-000	62CL6	2010
10246	041-745-000	62CL6A	2010

## **INFORMATION**

- 1.1.3 - Notice to installer
- 1.1.4 - Purpose of machine
  - Improper use
  - Noise level
- 1.1.5 - General characteristics
- 1.1.7 - Oils chart
- 1.1.8 - Supplied with the machine
- 1.1.9 - Technical assistance and maintenance
- 1.1.10 - Keep the manual

## **SAFETY**

- 1.2.1 - Safety norms
- 1.2.2 - Introduction
- 1.2.6 - List of safety device on machine
- 1.2.7 - Notes

## **INSTALLATION**

- 1.3.1 - Lifting and transport
  - Storage
- 1.3.2 - Overall dimension and foundation
  - Cleaning
  - Packing disposal
- 1.3.3 - Machine indicator plates
- 1.3.4 - Erection marks on machine

## **OPERATION**

- 2.2.1 - Erection
- 2.2.2 - Electric connection
  - General check to be carried out before turning the machine on
  - Oil supply in the machine
- 2.2.3 - Preliminary operation
- 2.2.4 - Start-up
- 2.2.5 - Starting with material
- 2.2.6 - Operation

## **PERIODICAL MAINTENANCE**

- 3.1.1 - Periodical maintenance
  - Maintenance
- 3.1.7 - Trouble shooting
- 3.1.8 - Demolition and waste disposal
- 3.1.9 - Set the machine temporarily out of service

### **1.1.3 NOTICE TO INSTALLER OR USER**

This machine cannot be used alone, but only connected and bolted to other machine. Never use the conveyor with bare inlet or outlet openings to avoid any possibility of access to rotating or dangerous parts; a further planning should be carried by the user to make the whole arrangement be in compliance with the safety rules. It will be care of client or user arrange for setting protection mechanical and electrical (safety barrier, screws, switches etc.) related to dangerous points after survey when the assembling will be at the end.

#### **IMPORTANT**

Upon the delivery of the machine, the consumer must make sure that all the devices indicated in the paragraph of the safety manual are present and working correctly. Furthermore, he must mount in conformity with the instructions indicated those devices which are not mounted at the time of delivery to facilitate transport.

#### **BE CAREFUL**

It is forbidden to operate this equipment before the equipment or the machine where this will be built in be declared in compliance to machine directive 2006/42/CE and subsequent modifications.

## **1.1.4 PURPOSE OF MACHINE**

This equipment has been designed to be used in industries to carry product in quantity and quality as stated in technical data.

Using it with any other material should be considered improper and forbidden. See what stated in chapter 1.1.3.

## **IMPROPER USE**

Improper uses, which may place operators in danger and for which the company declines all responsibility for injury or damage, are:

- use of the machine by operators who have not read and UNDERSTOOD this manual;
- use of the plant by unqualified operators;
- failure to maintain or inadequate maintenance and/or control of the plant;
- presence of the operator outside the walkway surfaces;
- walking on the belts, even if not in operation;
- filling up with materials of any kind with the plant in operation;
- operation of the plant without one or more safety devices (housings, limit switches, emergency buttons, parapets, etc.) installed.
- tampering with the safety devices.
- use of the plant for purposes other than those for which it was designed and constructed.
- see what stated in chapter 1.1.3.

## **SPECIFIC SAFETY PRECAUTIONS**

### ***ELECTRICAL RISKS***

- If work has to be done on live electrical parts, first disconnect the power supply, then insulate yourself from the ground by means of insulating clothing. Never work with wet hands and/or feet. There are many risks involved.
- Never allow wires to block passage ways and/or to be placed close to heat sources or corrosive substances.
- Check the insulation frequently and report any faults.
- Never remove the safety guards until the power supply has been disconnected.

### ***HYDRAULIC/PNEUMATIC CIRCUIT***

Protect your body when carrying out checks for leaks on the hydraulic/pneumatic circuit.

## **RISKS**

During the working time, the operator must NEVER put hands or use tools in the working area.

## **NOISE LEVEL**

When designing this machine, the company has adopted technical solutions intended to keep the level of noise generated as low as possible lower than 70 dB. In spite of this, for reasons not directly linked to its construction but to the features of the plant in which it is included, high noise levels may be reached during normal conditions of use.

Normally, the operator's working position is separated from the machine, and the constant presence of an operative is not required.

**CAUTION:** Daily personal exposure in excess of 85 dB(A) may lead to loss of hearing, which must be prevented using soundproof ear plugs and muffs.

## **HEAT RISK**

- In case during process it is conveyed hot material dangerous for contact are necessary signals or protective barrier a careful information to the workers about heat danger should be done.

## **1.1.5 GENERAL CHARACTERISTICS**

The screw conveyor consists of a steel pipe or trough with inside a rotating shaft with a spiral to convey the loaded product. The shaft is supported at its ends by bearings and supports.

Long screw conveyor are supplied in more bolted frames, with inside one or more intermediate supports electrical equipment excluded.

The conveyor drive unit is located at one end.

## **1.1.7 OILS CHART**

### **BEARINGS**

Use lithium grease (it guarantee the a broad service conditions)  
ESSO Beacon 2

### **SPEED REDUCER**

Use oil ISO Viscosity 220  
ESSO Spartan EP 220

### **TRANSMISSION CHAIN**

Use oil viscosity ISO VG 150 (for normal use)  
For special operating conditions consult the producer.

### **MECHANICAL VARIATOR**

(Disc type in oil bath)  
Use oil type "ESSO" A.T.F. Dexron  
Oil with viscosity 160  
Shell DONAX TA

### **BRONZE BUSHING OR SLIDING PARTS**

Use lithium grease

Equivalent oils or grease of different brands can be used.

Require security card from oil producer to be informed about specific risk.

### **1.1.8 SUPPLIED WITH THE MACHINE**

Instructions manual for erection operating and maintenance.

Test certificate (together with the instructions manual).

### **1.1.9 TECHNICAL ASSISTANCE AND MAINTENANCE**

For any information or request for repair work contact:

BARBIERI COSTRUZIONI MECCANICHE S.R.L.  
Via Morane n° 264  
41125 MODENA  
TEL. 059 / 300018 - 300023  
FAX 059 / 300095

We will provide all technical information or arrange for technical assistance on field.

### **1.1.10 WHERE TO KEEP MACHINE OPERATING MANUAL**

Keep this manual in safe place since it must accompany the machine throughout its long operating life.

### **1.2.1 SAFETY NORMS**

In preparing this chapter concerning safety, we have borne in mind the accident prevention laws in force and:

- ECC Directive n. 2006/42/CE and amendments  
To try to harmonise the member states' norms concerning machine-tools.

**EN12100-1 / 2**

**Safety of machinery**

Basic concepts - General principles for design.

Warning !!!

Strictly follow the safety norms highlighted below to ensure the correct use of the machine as regards the electrical fixtures and to prevent electrocutions, wounds, explosions and the outbreak of fires.

## **1.2.2 SAFETY**

### ***INTRODUCTION***

- Never start any repairs and/or maintenance unless the plant is switched off and the measures necessary to prevent it being started up accidentally during the maintenance work have been taken.
- Never start up the motors if staff are doing maintenance work on the machine.

There are two possible maintenance in progress situations:

***extraordinary maintenance***, during which the entire plant is shut down for reasons not directly linked to the plant's production process, but to allow operations such as cleaning, painting, etc.;

***routine maintenance***, during which the machines are activated in manual mode for operations such as adjustments, greasing, belt tensioning, etc.

To assure that hazardous situations do not arise, unless otherwise specified all maintenance operations should be carried out in the following conditions:

- warning that maintenance is in progress on the machine placed in a clearly visible position on the plant control panel;
- operating staff informed in advance;
- user control levers and/or switches turned to OFF/0;
- master switch on control panel turned off;
- plant operating in "local" mode, and control panel keys removed and consigned to the plant maintenance foreman, in order to prevent accidental start-up.

Depending on the work to be carried out, wear protective clothing such as:

safety helmet, sound-proof ear guards, safety goggles, dust mask, protective gloves, safety shoes, etc.

## **1.2.6 LIST OF SAFETY DEVICE ON SCREW CONVEYOR**

1. Protection carter on transmission
2. Bolted inspection doors
3. Protection carter of speed sensors (if supplied)
4. Security switch on inspection doors with quick opening device (if supplied)
5. Bolted cover on trough
6. See chapter 1.1.3

### **DEVICE TO BE ASSEMBLED BY INSTALLER OR USER**

- Protection panels depending from distance of dangerous point.
- Emergency push button and key switch for safety during maintenance.

## **1.2.7 NOTES**

This chapter outlining the safety devices and norms was drawn up bearing in mind the normal use of the machine as stated in the chapter on the use of the machine and the adequate preparation of the operators as regards the specific risks linked to the operation of the machine.

If the machine is not used according to instruction given in the "PURPOSE OF MACHINE" chapter in this manual, the manufacturer is not responsible for any damage caused to people and things.

Furthermore, the manufacturer is not responsible for any damage to people and things resulting from the non-compliance with the following warnings:

- a) adopt all the necessary precautions during the calibration, part replacement, cleaning, reparation or maintenance operations prevent someone else from turning the machine on.
- b) do not tamper with the safety devices and guards on the machine.
- c) do not remove any of the safety devices and guards on the machine.
- d) always make sure that the safety devices and guards have been remounted after their temporary removal for technical reasons ordered by the boss.

### **1.3.1 LIFTING AND TRANSPORT**

Attention: the machine must only be shifted by skilled personnel (sling, trolley or crane operators, etc.) with lifting equipment (cranes, lifttruck, etc.) of suitable size.

The lifting and transport shall take place through anchorage by means of hooks to the eyebolt on the machine sides.

The machine must be hoisted using four steel cables with hooks of suitable size.

See drawings for lifting points (if supplied).

### **STORAGE**

During storage, the machine must be kept in a dry and covered place.

Electric equipment must be protected from dampness. Ambient temperature should be between - 10 and + 55°C and relative humidity is lower than 95% without condensation.

### **1.3.2 OVERALL DIMENSIONS AND FOUNDATIONS**

See machine drawing for number, size, and position of anchor bolts, check the correct connection and tightening of machine to foundation.

### **CLEANING**

Before starting the machine, wipe away all protective oil from painted surfaces using alkaloid detergents such as oil of turpentine or petroleum naphtha.

NOTE: These liquids must be used on a cloth and not sprayed.

### **PACKING DISPOSAL**

Pull out nails from wooden boards forming packing tops.

Dispose of wood, cardboard, nylon bags and nails according to regulations in force.

### **1.3.3 MACHINE INDICATOR PLATES**

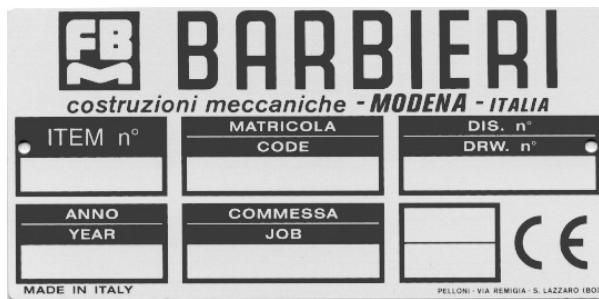
#### **SAFETY, GUIDANCE AND NOTICE SIGNS**

On the machine or plant are settled plates concerning "WARNING" or danger situations. It is compulsory by operators be informed where the plates are and that they are readable. Clean them with clean clothes, avoiding use of solvents.

Fig. 1)

##### **SERIAL PLATE ("CE" IF SUPPLIED)**

This sign is located on the right-hand side of the machine head, identifying the data provided by the regulations in force.



"**ELECTRIC CURRENT**" sign, black on yellow, located on the electric box (if supplied).

Fig. 2)

"**CARTER**" dangerous gear, located on transmission or revolving objects.



### **1.3.4 ERECTION MARKS ON MACHINE**

See general drawing for erection.

## **2.2.1 INSTALLATION**

While transporting the machine to the working place, make sure it is handled with care and particularly the geared motor and the idle support areas in order to avoid serious damages in starting the equipment. During transport and installation of the conveyor take care that it does not undergo very strong bending that may cause excessive deformation on frame and spiral with irreparable damages.

While lifting the conveyor, do not clutch at the spiral that may lose its balance and cause a faulty operation by increasing the noise level of the machine and by decreasing the life of the bearings.

To lift the machine it is necessary to grasp it at the two ends, near the flanges on which the spiral supports are secured and in correspondence of the different reinforcement cross members of the box.

While assembling the parts of the machines it is necessary to carefully follow the numbers written on the identification plate placed on the machine.

After having located the conveyor in correspondence of the charging and discharging ports and after having checked that such ports are perfectly in parallel to the ground, put a suitable gasket between the two flanges, in order to get a perfect seal between the two parts. When tightening the connecting bolts between the ports, it will be necessary to tighten the screws evenly, by starting alternately from one screw to the one sideways opposed. If required, provide additional brackets in order to avoid any kind of oscillation or bending of the machine.

If the conveyor is supplied in two or more sections when erect be careful that they are in line using screw registration on supports.

### **ASSEMBLING FRAMES SHIPPED SEPARATELY**

Insert the spiral shaft outstanding one part of conveyor in the other conveyor frame. Approaching the frames insert the intermediate support shaft duly lubricated with grease inside the hub of the spiral shaft. (In tubular screw open the inspection door to facilitate the operation).

Bolt the flanges of the conveyor frames.

Keep attention that the spiral pitch be kept at best continuous although the 2 spirals are separate from intermediate support.

### **IMPORTANT:**

Check the various frame alignment, the correct position is obtained when it is possible to rotate the shaft with spiral by hand.

This assembly allows the right operation of the external and intermediate bearings without overheating or premature wear.

### **CONVEYOR WITH BOLTED SHAFT**

Operation as previously described, align the holes in the screw shaft and in the pin, then insert the bolts to connect them.

## **2.2.2 ELECTRIC CONNECTION**

First of all, verify that the operation voltage of the electric installation of the machine corresponds to the voltage used in the factory.

Connect the machine power cable to electric panel provided with magnetothermal switch suitable the motor power.

Connect earth wire (yellow/green) after making sure that earth connections are executed in compliance with regulations in force.

To verify the correct connection of the machine to the mains, act as follows:

- Apply voltage to the panel through the main switch.
- Start the motor trough the push button.

The rotation of the motor must take place according to the direction indicated by the arrow and which is printed on the flywheels housing. Otherwise, change a polarity of the connection to the mains.

## **GENERAL CHECK TO BE CARRIED OUT BEFORE TURNING THE MACHINE ON**

Make sure that the safety devices and damaged parts are working correctly.

Make sure that the moving parts are not hindered in their movements.

Make sure that there are no damaged parts and that all parts have been mounted and are working correctly.

Any damaged safety devices or parts must be repaired or replaced.

## **OIL SUPPLY IN THE MACHINE**

The machine is supplied with oil in reducer.

If necessary to provide for the supply or add to level before starting.

Introduce through the plug the oil stated in table, in any case.

The level can be checked through the transparent pilot light.

### **2.2.3 PRELIMINARIES OPERATION AT STARTING**

Carefully inspect the inside part of the screw, making sure that there are no foreign object that may damage the screw or the receiving machine. Inspect the charging and discharging point and check if there are obstacles to the free passage of the material.

### **2.2.4 STARTING**

Start the empty machine in order to verify the perfect working of all components. Then check the direction of rotation of the spiral.

If the rotation is wrong, stop the conveyor, disconnect the power and reverse the polarity of the motor connection. Start again and verify the good running of the machine components.

### **2.2.5 STARTING WITH PRODUCT**

If the machine run properly and no defects are shown, can be fed with the product, taking care that the receiving machine is working. When the screw is running with product, stop the conveyor and start fully loaded in order to verify the worse working conditions. In this way the motor at starting and in the normal working conditions can be checked.

### **2.2.6 OPERATION**

When more conveyor fully loaded are working in line check that the receiving one is running faster than the feeding one.

When the top cover or the bolted inspection doors are open be sure that the conveyor is stop and take actions to avoid that it is casually started.

The machine must be used in such a way that the operator (or any other person or animal) cannot enter through the inlet and outlet holes.

Never use the conveyor with bare inlet or outlet holes; these holes must always be fastened respectively to the feeding and receiving machine, to avoid any possibility of access to the inside rotating parts; any use with bare holes must be planned by the user in compliance with the safety rules (safety barriers and screens, test of the safety distances for the limbs etc.).

Any improper use and any arbitrary modification to the machine will relieve the manufacturer from his liabilities for any damage and will cause the expiration of the guarantee.

### **3.1.1 PERIODICAL MAINTENANCE OPERATIONS**

The machine must be submitted to inspection and maintenance to safeguard technical, productive and safety conditions provided by the manufacturer.

Maintenance operations must be performed by technical or maintenance personnel only. Tampering by non-skilled workers can compromise machine operation and relieves manufacturer from every liability.

**WARNING: before carrying out maintenance, cut off the power supply to the machine by means of the key switch.**

#### **DAILY:**

It is advisable to carry daily a careful visual inspection (before starting) of machinery to be sure the are not loss or irregularity.

Check oil loss, bolt loose, seals wearied, product deposits etc.

#### **WEEKLY:**

- Check the oil level in speed reducer.
- Lubricate intermediate and end supports.
- Check felt dust protection efficiency and tighten or replace if necessary.
- Check transmission.

#### **ELECTRIC SYSTEM**

Yearly inspect electric insulation of the electric system and protection conductor (earth) by an authorised electrician.

Tampering by non-authorised personnel can compromise machine operation and relieves manufacturer form every liability.

#### **WEAR PARTS**

Steel screw, intermediate supports, end bearings and seals are product subject to wear and their replacement need to be scheduled in advance.

## **MAINTENANCE**

### **IMPORTANT**

To avoid incidents during inspection of moving part it is required to stop the conveyor and avoid that it is restarted without authorisation.

### **SAFETY**

Remember that use and maintenance of screw conveyors may be dangerous if safety principles are not followed.

If safety distances cannot be observed (ex. for maintenance purpose), remember that all rotating parts can be dangerous, mainly drive pulley and tail pulley.

All maintenance actions should be carried out after stopping the conveyor (including belt tensioning and belt training).

Before starting the conveyor again, be sure that nobody is in danger.

### **MAINTENANCE INTERVALS**

The inspection and maintenance intervals depend on the actual operating conditions (loads, starting frequency, etc.) and ambient conditions (dust, humidity, etc.).

It is advisable to check the conveyor carefully in the first working period, then eventually correct and adapt the following general guidelines.

### **FRAME**

The paint on the outside part of the worm screw may be damaged during transport and set up of the machine and the plate of the frame may get rusty. Re-paint the areas following the instructions suggested by the paint producer.

After the first 50 hours of operation, carefully check if the bolts are perfectly tight because they may unloose due to the normal settling. This operation has to be repeated from time to time in order to avoid any damage to the screw.

At the end of each week, check if the charging ports and particularly the discharging port are completely free.

### **END SUPPORTS**

The re-lubrication is provided for the idle and drive supports in order to bring new lubricant to the bearings and remove the old one. The re-lubrication has to be made every 50 or 60 working hours and for this operation we recommend top quality grease for bearings (see table of recommended grease type). Replace the seals if the product flow from the supports.

## **INTERMEDIATE SUPPORT**

The intermediate support is the support that has to be more frequently checked, as the bushing is subject to fast wear if not duly lubricated.

Check the wear of the external seal rings and replace them if wearied.

To check the wear of the bushing, it is necessary to remove the support from the frame in order to verify, in different positions, the radial clearance, by means of the angular oscillation between pin and bushing; light oscillations are allowed, but, these are excessive it is necessary to replace the support as soon as possible as the wear is extreme and may produce damages.

## **REDUCTION GEAR**

The reduction gear is supplied with the right amount of recommended lubricant. Therefore it requires no maintenance excepted checking oil level and replacing oil when required.

The oil has to be replaced according to the working hours and operating temperature; if the reduction gears are working just for a few hours every day, it will be necessary to replace:

- a) mineral lubricating oil after 3 years max.
- b) synthetic lubricating oil after 5 years max.

It is recommended to reduce the lubrication time in case of particularly hard work conditions.

## **TRANSMISSION**

The transmission (chain and pinions or chain coupling) must be greased every 40 working hours with special grease (see table).

Also check the right tensioning of the chain when it is greasing, in case of loosening, restore the correct tension by operating the special adjusters.

When the chain is lenghtned or wearied replace it, in the meantime, verify the pinions and if necessary replace them.

## **SPIRAL AND FRAME WEAR**

To check the wear of the spiral, just measure the radial clearance between outside diameter of the spiral and bottom of the worm screw body. The spiral is the most wearable part, particularly in the outside part where the surface speed is higher and therefore the wear is bigger.

Check the thickness of the bottom of the frame and arrange for local or total replacement when wear or corrosion reduced excessively the thickness.

### **3.1.7 TROUBLE SHOOTING**

Minor problems can be resolved without consulting a specialist.

#### **FAULT:**

##### **MOTOR DOES NOT START**

Possible reasons:

- 1) no main supply or lack of a single phase.
- 2) motor failure or failure in supply system.

Action:

- 1) check fuses and thermal relays, if faulty, replace, or reset.
- 2) repair or replace the part concerned. Verify tension in line.

##### **MOTOR STARTS, BUT THEN STOPS**

Possible reasons:

- 1) incorrect rotation.
- 2) screw obstruction.
- 3) output rate too high.
- 4) motor burnt out.
- 5) defective bearing or gear reducer.
- 6) outlet blocked.

Action:

- 1) change polarity.
- 2) change hanger bearings, if necessary, clean whole screw conveyor.
- 3) check ammeter reading, and output rate. If both rates are to high, reduce the material inlet flow or reduce the shaft speed, contact our technical department.
- 4) discover reason (see above) and only then replace motor.
- 5) discover reason (see 2) - could be normal wear - replace part concerned.
- 6) check outlet is free and that level controls etc. are functioning.

##### **MOTOR STARTS, BUT SCREW DOES NOT CONVEY**

Possible reasons:

- 1) gear pinion, gear drive shaft, transmission, broken.
- 2) incorrect rotation.
- 3) bad outflow of material from the inlet.

Action:

- 1) discover reason, replace part concerned.
- 2) change polarity.
- 3) improve outflow of material.

### **3.1.8 DEMOLITION AND WASTE DISPOSAL**

To proceed at machinery demolition it is necessary dismantle the machine in relation to type of material involved.

- Drain reduction unit oil

NOTE: The drained liquids must not be mixed together and must be kept in closed containers, avoiding contamination with foreign substances.

Oil should be disposed of by authorised disposal and recycling plants.

Disassemble and separate selectively:

- electric material
- plastic material
- water pipes
- steel and cast iron
- other materials

**WARNING: The above-mentioned materials must be disposed of according to the regulations in force and the type of product.**

### **3.1.9 SET THE MACHINE TEMPORANEOUSLY OUT OF SERVICE**

In case of stop of this equipment provide the following operation:

- Clean inside the case and remove the deposit on wheels and shafts.
- Grease with suitable product the shafts, inside and outside the heads and the transmission.
- Grease the felts and the felt cage.
- Reduce tension on belt or chains raising the tension unit.
- Grease all the external moving parts.