

29 OTL 1997

CDMM.

SPEDITI :

**ALLEGATI AGGIUNTI :**

= VEDI DENTRO

7  
1 74 13 88 - 81 - 83 - 85 - 87 - 88 90 91 92 96 97 99

1 51 - 62 68 72 75 76 77 79 81 82 86 87 89

F 61 63 69 78 71 72 76 77

F 56 59 60 61 64 70 71 72 76 77

6 61 67 68

M 53 58 65 67 69

R 59 73 85 87 89 91 92 93 95 96 100 101 102 110

111 112 121 124 126

S 66 71 82 87 98 99 102 103 108 109 121 122 123

124 125 126 127 128 130 131 147 148 149 151

152 154 155 100

T 61 62 66 67 69 71

N1 88.1-2

SP 1486 - 1487 - 1488 - 1411 - 1413

1822 - 48897 - 41002 - 480073 - 46854 - 46855 - 46856 - 46124 - 46176

**46178 - 46179 - 46341 - 46387 - 46388 - 46471 - 46472 - 46688 - 46689 - 46611**

TA5B. (5 - 6 - 7 - 8 - 9 - (44 - 48 - 49 - 50 - 53 - 63 - 64 - 65 - 67 - 68 - 69)

78 - 83 - 84 - 85 - 88 - 108 - 109 - 103



**BALLISTA S.p.A.**  
MILANO (ITALIA)

# VALVOLA A FARFALLA

BUTTERFLY VALVE

ST. 40045

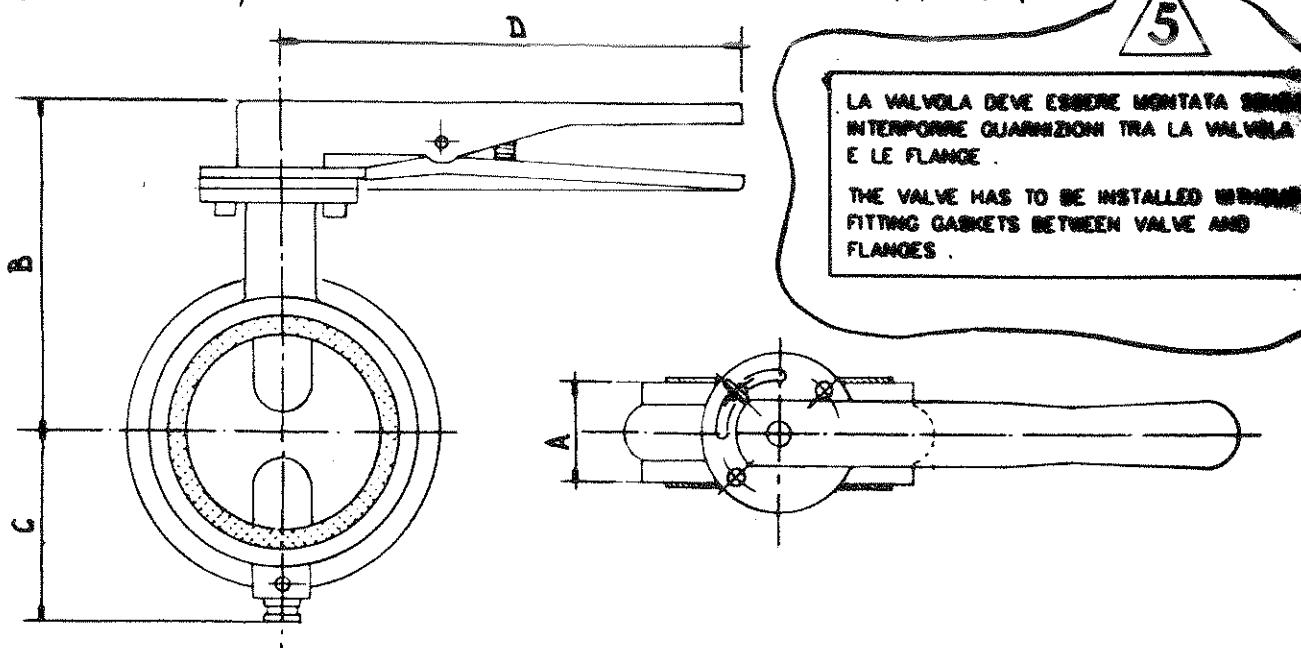
TIPO  
TYPE

**B 71**

<b>PRESIONE NOM</b> <b>RATING</b>	<b>CORPO BODY</b>	150 <sup>W</sup>	<b>ACCOPPIAMENTO ASSEMBLING</b>	<b>CORPO COPERC. BODY BONNET</b>	<b>FILETTO</b>	<b>VITE INTERNA INSIDE SCREW</b>	
	<b>ACCOPPIAMENTO ASSEMBLING</b>	●			<b>UNION BONNET IMBULLONATO BOLTED BONNET</b>		
<b>MATERIALI</b>	<b>CORPO GHISA / CAST IRON BODY</b>		<b>STELO AISI 304 STEM</b>		<b>VITE ESTERNA OUTSIDE SCREW</b>		
<b>MATERIALS</b>	<b>SEDI VITON SEATS VITON</b>		<b>OTTURATORE GHISA WEDGE CAST IRON</b>				

**NOTA : TUTTE LE VALVOLE POSSONO ESSERE FORNITE , SU RICHIESTA , CON "RIDUTTORE + CATENA" E , SE  
DI NECESSITA' , CON "PROLUNGA" - L = 200 + 1800 MM**  
**NOTE : UPON REQUEST , ALL THE VALVES CAN BE SUPPLIED WITH "GEAR OPERATOR + CHAIN" AND , IF  
NECESSARY , WITH "EXTENSION" - L = 200 + 1800 MM**

## ● TRA FLANGE / BETWEEN FLANGES ANSI B16.5-150<sup>W</sup> R.F. - S.O.



INCH.	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
A (*)	33	43	46	46	52	56	56	60	68	78	78	102	114	127
B	149	160	173	182	213	228	244	276	325	348	-	-	-	-
C	56	72	78	86	100	115	129	158	191	233	277	302	342	385
D	250	250	250	250	250	250	250	330	CON RIDUTTORE	WITH GEAR OPERATOR				
PESO Weight Kg	1,5	2,5	3	3,5	4,5	6	7	10	26	36	65	85	105	125

(\*) FACE-TO-FACE DIMENSIONS IN ACCORDING TO "DIN 3202-K1"

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE SENZI AMIANTO**

5 REVISED WHERE INDICATED

4 REVISED WHERE INDICATED

3 REVISED WHERE INDICATED



BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A FARFALLA  
BUTTERFLY VALVE

B 75

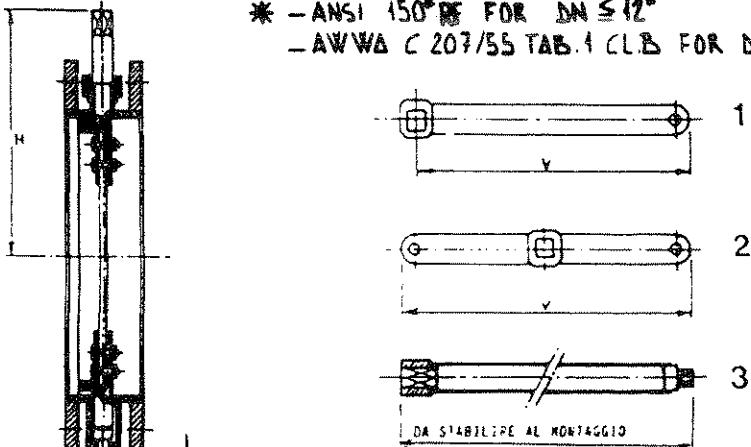
ST. 46380

PRESSIONE NOM RATING	CORPO BODY	0.5 kg/cm <sup>2</sup>	ACCOPIAMENTO ASSEMBLING	TIPO TYPE	FILETTATO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPPIAMENTO ASSEMBLING *		CORPO COPERC. BODY BONNET		IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY CARBON STEEL		STENO STEM CARBON STEEL		FARFALLA BUTTERFLY CARBON STEEL	
	SEDI SEATS CERAMIC FIBER		FARFALLA BUTTERFLY		CARBON STEEL	



N.B.: LA VALVOLA VIENE NORMALMENTE FORNITA CON MANOVRA " TIPO 1 "  
REMARK : THE VALVE IS USUALLY SUPPLIED WITH LEVER " TYPE 1 "

\* - ANSI 150° RF FOR DN ≤ 12"  
- AWWA C 207/55 TAB. 1 CL B FOR DN ≥ 14"



N.B.: I VALORI DI "H" E "V" SONO DATI COME VALORI MASSIMI - "H" E "V" VALUES ARE GIVEN AS MAX. VALUES

DN"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	34"
L	120	120	120	120	120	130	150	150	150	170	170	170	170	170	170
H	184	211	241	282	313	326	360	385	416	468	496	530	553,5	595	620
V1	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
V2	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
+	46442	46443	46391	46379	46376	46377	46429	46570	46430	46378	46571	46572	46444	46573	46576

DN"	36"	38"	40"	42"	44"	46"	48"	50"	52"	54"	56"	60"			
L	170														
H	645														
V1	300														
V2	400														
+	46575														

- + DA COSTRUIRE CONFORME DIS. BALLESTRA N° ST. 46376-46377-46378-46379-46391-46429-46430-46442-46443-46444-46570-46571-46572-46573-46574-46575
- + TO BE MADE ACCORDING TO BALLESTRA DWGS.: ST. 46376-46377-46378-46379-46391-46429-46430-46442-46443-46444-46570-46571-46572-46573-46574-46575

NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

5	REVISED WHERE INDICATED	Banca	Automa	19.3.97
6	GENERAL REVISION	C.S.	Automa	22.11.97

We reserve the ownership under the law of this drawing with prohibition of even partial reproduction; and to make it known to third persons without our written authorization



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

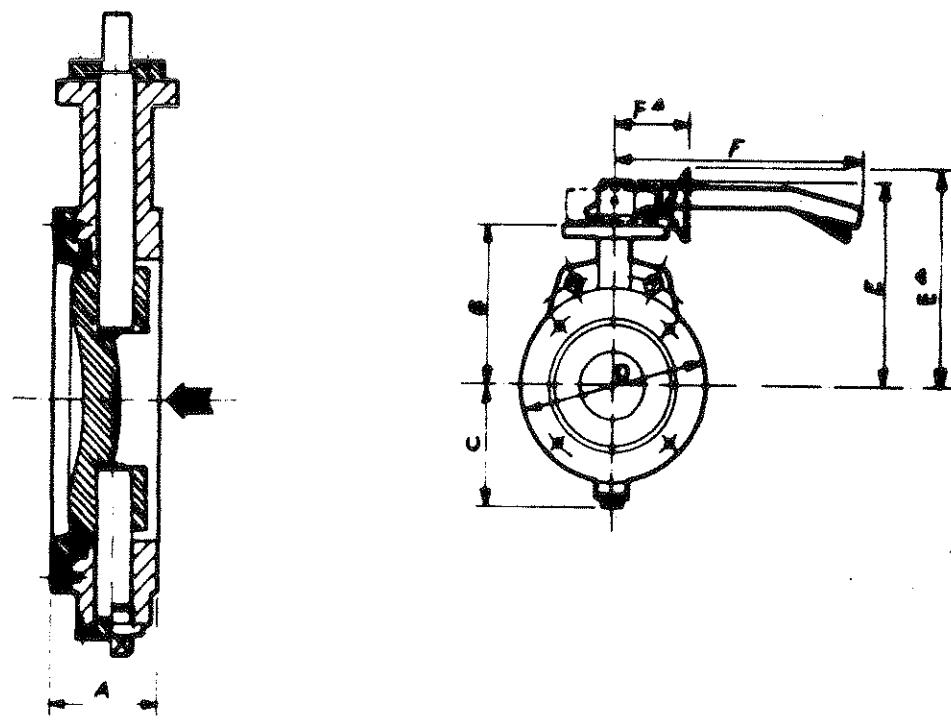
## **VALVOLA A FARFALLA BUTTERFLY VALVE**

TIPO  
TYPE

B 80

ST. 46439

PRESSIONE NOM PRESSURE NOM	CORPO BODY	150 #		
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150RF		
MATERIALI	CORPO BODY	AISI 304	STENO STEM	AISI 304
MATERIALS	SEDI SEATS	P.T.F.E.(TEFLON)	FARFALLA BUTTERFLY	AISI 304



**CON RIDUTTORE**  
**WITH GEAR OPERATOR**

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEBONO ESSERE SENZA AMIANTO**

D 18.9.AZ 1 MARCH 90 2 24/1/94

4

Lanni Le



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

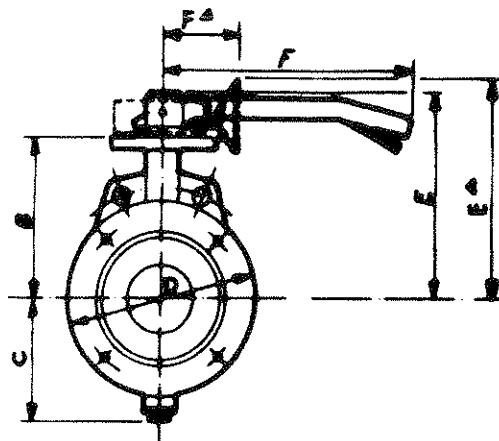
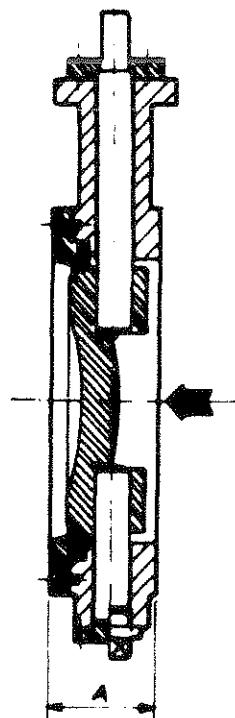
## **VALVOLA A FARFALLA BUTTERFLY VALVE**

ST. 46440

PRESSIONE NOM	CORPO BODY	150#		
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150RF		
MATERIALI	CORPO BODY	AISI 316	STENO STEM	AISI 316
MATERIALS	SEDI SEATS	P.T.F.E.(TEFLON)	FARFALLA BUTTERFLY	AISI 316

We reserve the ownership under the law of this drawing until known to third persons without our written authorization.

È vietata la fotocopia a termine di legge di questo disegno con diritto di riproduzione anche in parte o di renderlo



**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



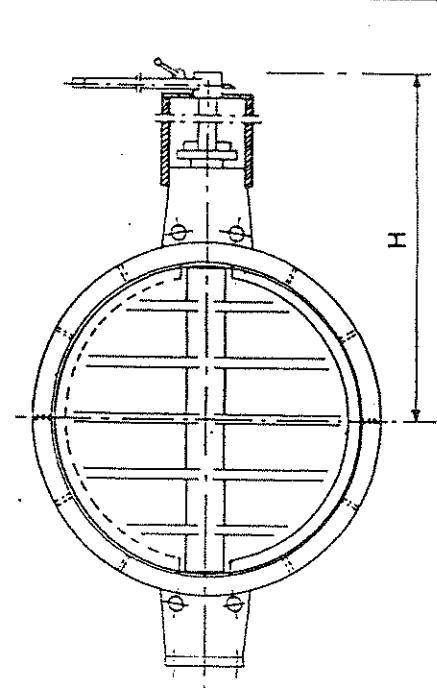
BALLESTRA s.p.a.  
MILANO (ITALIA)

VALVOLA A FARFALLA  
BUTTERFLY VALVE

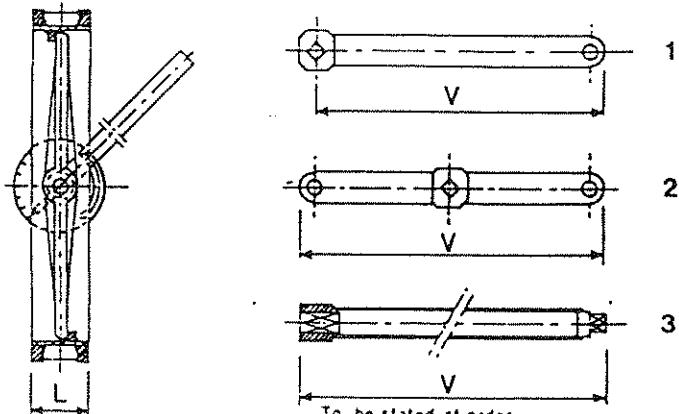
ST. 46562

TIPO  
TYPE  
**B 83**

PRESSEIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	ANSI 150# ANSI B 16.5 150# RF	ACCOPPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	CARBON STEEL (A 105 )	STEO STEM FARFALLA BUTTERFLY	AISI 420	CARBON STEEL ( A 105 )
		FOR HOT AIR 480°C			



N.B.: LA VALVOLA VIENE NORMALMENTE FORNITA CON MANOVRA "TIPO 1"  
REMARK : THE VALVE IS USUALLY SUPPLIED WITH LEVER "TYPE 1"



DN	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"			
L	46	52	56	56	6!	68	78	78	102	114	127			
H	157	168	180	195	221	247	273	295	340	360	385			
V/1	300	300	300	300	300	300	300	400	400	400	400			
V/2	400	400	400	400	400	400	500	500	500	500	500			
V/3					TO BE STATED AT ORDER									

VALVE TYPE "RESCHIM"

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED WHERE INDICATED	Bianco	Rosso	Blu	19/3/97
0	ISSUED	Nel	Nel	Nel	11.5.97



BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A FARFALLA  
BUTTERFLY VALVE

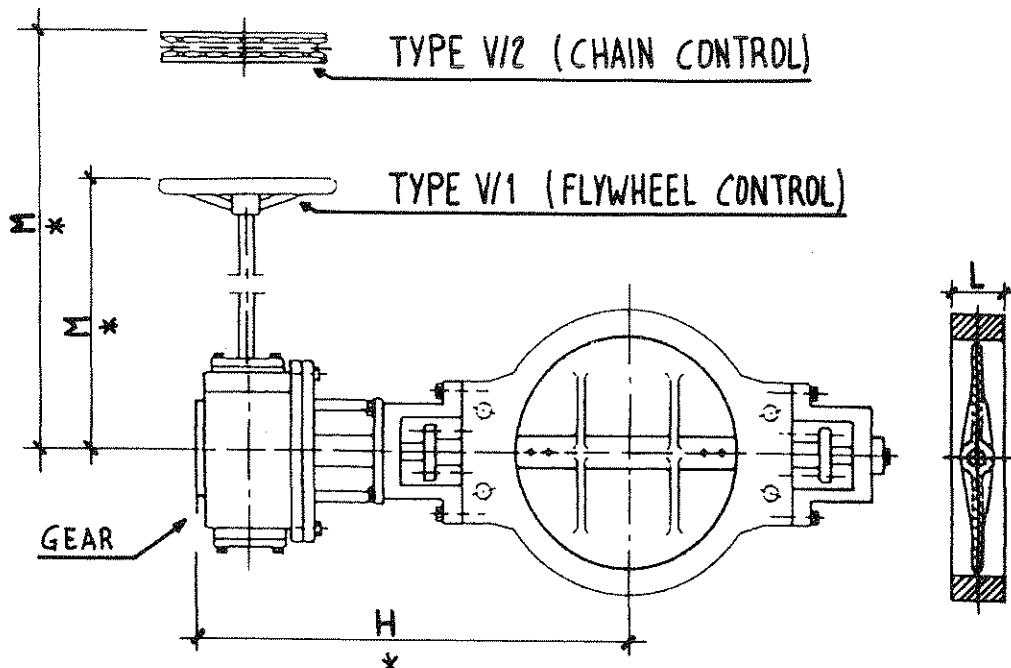
ST. 46594

TIPO  
TYPE

B87

PRESSIONE NOM RATING	CORPO BODY	3 Kg/cm <sup>2</sup>	ACCOPPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPPIAMENTO ASSEMBLING	ANSI B16.5-150#RF		IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY CAST IRON		STELLO STEM	A182 Gr. F63	
	SEDI SEATS		FARFALLA BUTTERFLY	CAST IRON	

FOR HOT AIR-200°C



DN	16"	18"	20"	24"							
L	102	114	127	154							
H	665	685	780	790							
M	320	320	320	380							

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

\* - INDICATIVE DIMENSIONS

1) DIMENSIONS FACE-TO-FACE ACCORDING TO DIN 3202-K1

O	ISSUED	DP	A.M. [Signature]	13-02-92
~		COMP	STOCK	DATE

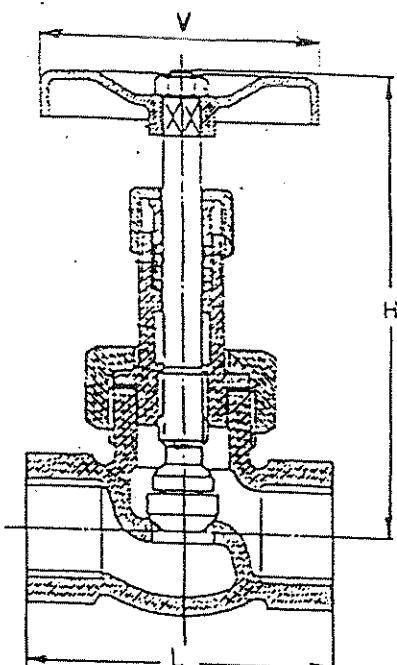


**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**VALVOLA A DISCO**  
**GLOBE VALVE**  
**TIPO D 51**

**ST. 46004**

<b>PRESSIONE NOM RATING</b>	<b>CORPO BODY</b>	200#	<b>ACCOPPIAMENTO ASSEMBLING</b>	<b>CORPO COPER. ASSEMBLING</b>	<b>FILETTO UNION BONNET</b>	<b>VITE INTERNA INSIDE SCREW</b>
	FILETTATO ANSI B2.1 SCREWED ANSI B2.1					<input checked="" type="checkbox"/> <b>IMBULLONATO BOLTED BONNET</b> <input type="checkbox"/> <b>VITE ESTERNA OUTSIDE SCREW</b>
<b>MATERIALI MATERIALS</b>	<b>CORPO : BRONZO BODY : BRONZE</b>				<b>STENO : ACCIAIO AL 13% Cr STEM : SS 13% Cr</b>	
	<b>SEDI : BRONZO</b>	<b>OTTURATORE: OTTONE</b>	<b>GUARNIZIONI: GOMMA SINTETICA</b>	<b>SEATS : BRONZE</b>	<b>TRIM : BRASS</b>	<b>GASKETS : SYNTHETIC RUBBER</b>



DN	mm	8	10	15	20	25	32	40	50					
	INCH.	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"					
L *		50	60	75	80	90	110	120	140					
H		109	109	115	135	150	200	210	235					
V		60	60	75	75	80	100	110	110					
PESO WEIGHT Kg		0,6	0,6	0,7	0,8	1,7	3.	3,45	4,7					

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

\* FACE TO FACE DIMENSIONS IN ACCORDING TO "DIN 3202-M3"

3	GENERAL REVISION	APR. 26-3-91
REV.	DESCRIZIONE - DESCRIPTION	DATA



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

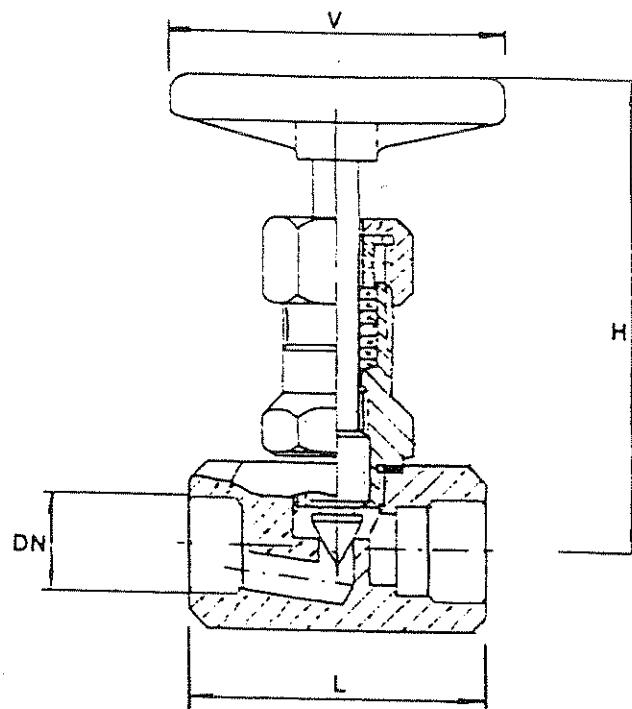
**VALVOLA A DISCO**  
**GLOBE VALVE**  
**TIPO**  
**TYPE**

**D 62**

**ST. 46094**

<b>PRESSEIONE NOM</b> <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	800 #	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>	<b>FILETTO</b> <b>UNION BONNET</b>	<b>VITE INTERNA</b> <b>INSIDE SCREW</b>
	<b>ACCOPIAMENTO</b> <b>ASSEMBLING</b>	SOCKET WELDED		<b>IMBULLONATO</b> <b>BOLTED BONNET</b>	<b>VITE ESTERNA</b> <b>OUTSIDE SCREW</b>
<b>MATERIALI</b>	<b>CORPO</b> <b>BODY</b> AISI 316		<b>STEO</b> <b>STEM</b>	AISI 316	
<b>MATERIALS</b>	<b>SEDI</b> <b>SEATS</b> AISI 316				

**NOTE:** ON LINES CONVEYING DANGEROUS OR TOXIC MEDIA, A CUTOFF VALVE WITH PERFECT SEALING HAS TO BE INSTALLED UPSTREAM THIS VALVE.



DN	1/8"	1/4"	3/8"	1/2"	3/4"	1"					
L *	50	50	60	75	80	90					
H	400	100	100	110	135	145					
V	70	70	70	70	95	100					
PESO WEIGHT Kg	0.56	0.56	0.56	0.75	1.65	2.65					

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

\* FACE TO FACE DIMENSIONS IN ACCORDING TO DIN 3202 - M3"

DESIGN CONDITION: T= 250°C - P= 12 BAR

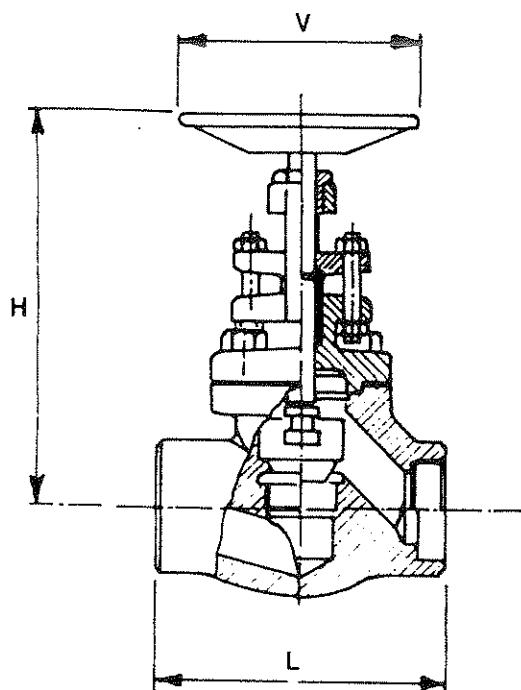
3	GENERAL REVISION	<i>[Signature]</i>	<i>[Signature]</i>	31-5-93	
2	GENERAL REVISION	<i>[Signature]</i>	<i>[Signature]</i>	26-3-91	
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTRO. CONTROL	APPL. APPROD	DATA DATE

BALESTRA s.p.a.  
MILANO (ITALIA)VALVOLA A DISCO  
GLOBE VALVE  
TIPO  
TYPE

ST.46274

D 72

PRESSIONE NOM RATING	CORPO BODY	800 #	ACCOPPIAMENTO ASSEMBLING	CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPPIAMENTO ASSEMBLING	SOCKET WELD			IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY	ACCIAIO AL CARBONIO CARBON STEEL		STENO	ACCIAIO AL CROMO STEM CHROME STEEL	
	SEDI SEATS	ACCIAIO AL CROMO CHROME STEEL	+ Steel it.	OTTURATORE WEDGE	ACCIAIO AL CROMO CHROME STEEL	+ Steel it.



DN"	1/4"	1/2"	3/4"	1"	1½"	2"					
L	80	90	110	127	170	210					
H	152	155	181	238	290	330					
V	90	90	107	107	142	142					
peso kg weight	1.7	2	3.3	5.4	10.8	14.2					

**NOTE** ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

3

0	6.2.85	1	25.8.87	2	28.9.89	3	MARCH 90				
	DA/a1		A.D.				/anni				

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**BALLESTRA S.p.A.**  
MILANO (ITALIA)

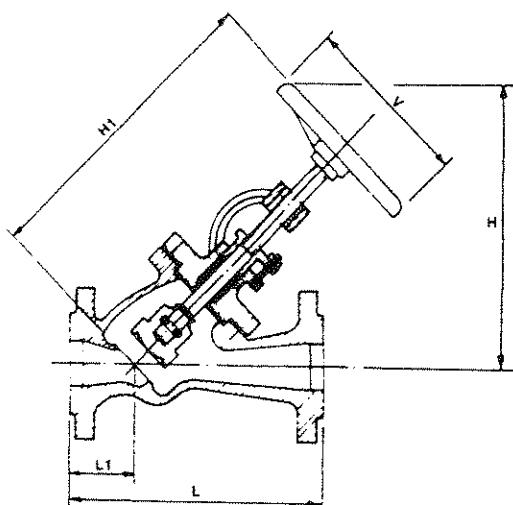
## VALVOLA A DISCO

## GLOBE VALVE

TIPO - TYPE

ST. 46347

PRESSURE NOM	CORPO BODY	150 #	ACCOPIAMENTO CORPO COPERTO	FILETTATO UNION BONNET	VITE INTERNA INSIDE SCREW
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150 RF	ASSEMBLING BODY-BONNET	IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI	CORPO BODY	AISI 316		AISI 316	
MATERIALS	SEDI SEATS	AISI 316		AISI 316	PROFILO PARABOLICO



riserviamo la proprietà a favore di legge di questo disegno condiviso di riprodurlo anche in parte o di renderlo

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



16.6.85 1 MARCH 90

DA/a/L

244



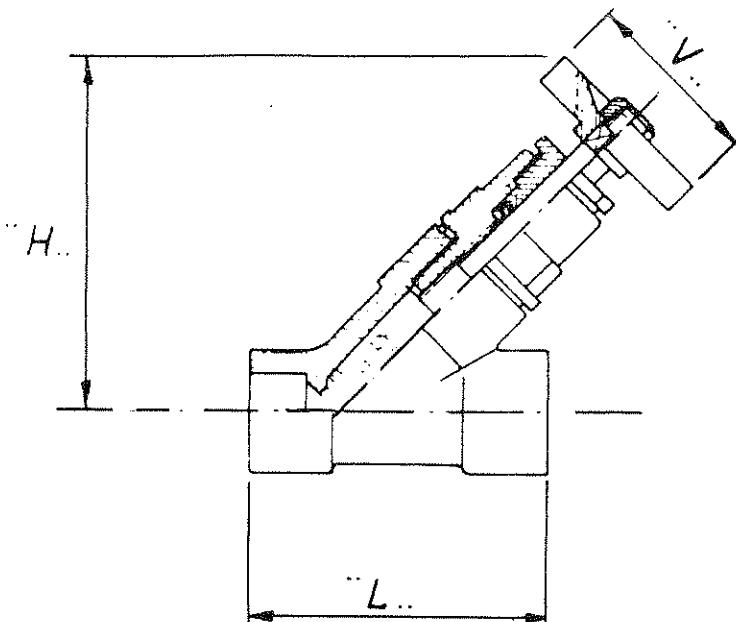
**BALLESTRA s.p.a.**  
MILANO (ITALIA)

**VALVOLA A DISCO**  
**GLOBE VALVE**  
**TIPO**  
**TYPE**

**D 77**

**ST. 46390**

<b>PRESSIONE NOM</b> <b>RATING</b>	<b>CORPO BODY</b>	<b>PN 10</b>	<b>ACCOPPIAMENTO CORPO COPERC. ASSEMBLING</b>	<b>FILETTO UNION BONNET</b>	<b>VITE INTERNA INSIDE SCREW</b>
	<b>ACCOPPIAMENTO ASSEMBLING</b>	<b>SOCKET WLD</b>		<b>IMBULLONATO BOLTED BONNET</b>	<b>VITE ESTERNA OUTSIDE SCREW</b>
<b>MATERIALI</b>	<b>CORPO BODY</b> POLYPROPYLENE			<b>STENO STEM</b>	POLYPROPYLENE
<b>MATERIALS</b>	<b>SEDI SEATS</b> POLYPROPYLENE			<b>OTTURATORE WEDGE</b>	POLYPROPYLENE

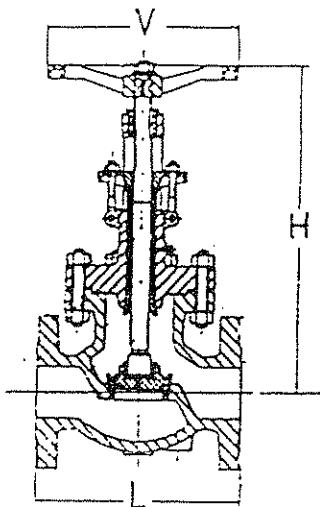


DN"		1/2"	3/4"	1"		1 1/2"	2"	2 1/2"	3"	4"		
<b>Øest. PIPE</b>		20	25	32		50	63	75	90	110		
<b>L</b>		81	104	128		167	195	243	262	325		
<b>H</b>		110	140	170		215	278	332	370	420		
<b>V</b>		50	60	70		85	130	130	175	175		

**NOTE** ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1

 <b>BALLESTRA s.p.a.</b> MILANO (ITALIA)		<b>VALVOLA A DISCO</b> <b>GLOBE VALVE</b> <b>TIPO</b> <b>TYPE</b> <b>D79</b>				<b>ST. 46348</b>		
<b>PRESSIONE NOM</b>  <b>RATING</b>	<b>CORPO</b> <b>BODY</b>		150 $\frac{1}{2}$		<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>		<b>FILETTO</b> <b>UNION BONNET</b>	
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>		ANSI B16.5-150 RF		<b>VITE INTERNA</b> <b>INSIDE SCREW</b>		<input type="checkbox"/> <b>VITE ESTERNA</b> <b>OUTSIDE SCREW</b>	
<b>MATERIALI</b>  <b>MATERIALS</b>	<b>CORPO</b> <b>BODY</b>			A 216 WCB		<b>STELLO</b> <b>STEM</b>		
	<b>SEDI</b> <b>SEATS</b>			A 182 F6		<b>OTTURATORE</b> <b>WEDGE</b>		
<b>USE: SATURATED STEAM &amp; CONDENSATE</b> <b>OPERATING CONDITION: 200°C - 13Kg/cm²</b>				4				



INCHES	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"			
L	165	203	216	241	292	356	406	495	622	699			
H	358	390	446	480	561	624	678	813	925	1087			
V	175	200	200	225	250	300	350	425	500	575			

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

4	REVISED WHERE INDICATED	<i>[Signature]</i>	15-3-94
3	MODIFIED PICTURE	<i>[Signature]</i>	22/5/91
2	REVISED WHERE INDICATED	<i>[Signature]</i>	5-2-91

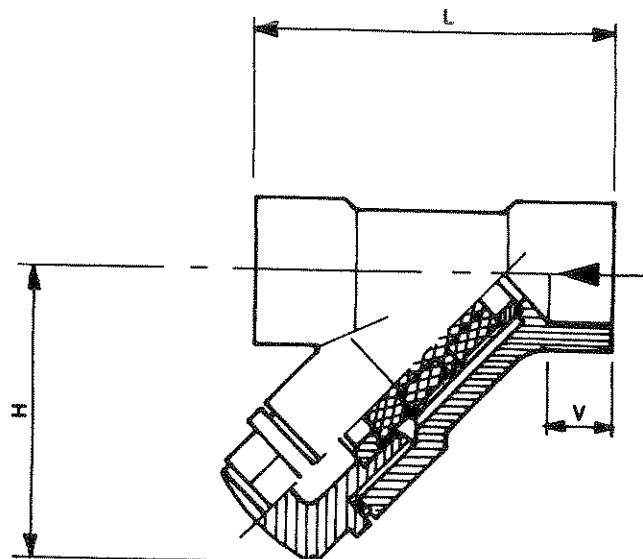


**BALLESTRA s.p.a.**  
MILANO (ITALIA)

**FILTRO A Y  
STRAINER TYPE Y  
TIPO  
TYPE F 61**

**ST. 46389**

PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	10 kg/cm <sup>2</sup>	ACCOPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY CESTELLO BASKET	POLYPROPYLENE POLYPROPYLENE	COPERCHIO BONNET GUARNIZIONE GASKET	POLYPROPYLENE	



DN"	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"			
Øest TUBO	20	25	32	50	63	75	90	110			
L	81	104	128	167	195	243	262	325			
H	63	83	100	125	150	180	190	235			
V	16	18.5	22	31	37.5	43.5	51	61			



**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

2	REV. REvised WHERE INDICATED	Bianco	D.M.	Rev.	26/9/90
	DESCRIZIONE - DESCRIPTION	CORPO BODY	CONTRO COTTON	APPENDICE APPENDIX	DATA DATE



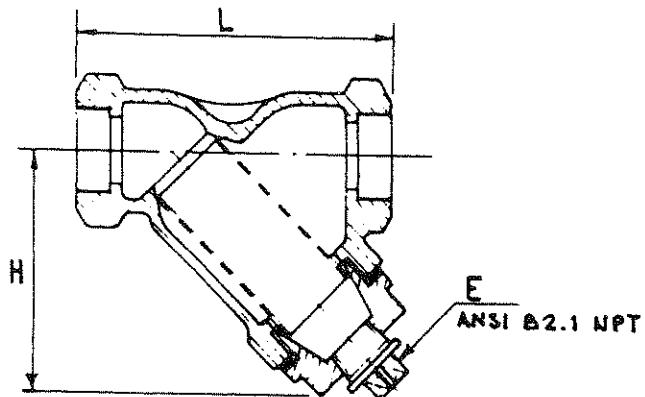
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

FILTRO A Y  
STRAINER TYPE Y  
TIPO  
TYPE

**F 69**

**ST. 46276**

PRESIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	800 # SOCKET WELDING	ACCOPPIAMENTO CORPO COPER.C. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW <input checked="" type="checkbox"/> VITE ESTERNA OUTSIDE SCREW <input type="checkbox"/>
MATERIALI MATERIALS	CORPO BODY CESTELLO BASKET	ACCIAIO AL CARBONIO CARBON STEEL AISI 316	COPERCHIO BONNET GUARNIZIONE GASKET	ACCIAIO AL CARBONIO CARBON STEEL AMIANTITE ASBESTOS	



DN"		1/2"	3/4"	1"		1 1/2"	2"					
L		87.5	111	124		162	190					
H		95	110	115		140	170					
peso weight		0.5	1.0	1.4		3.2	5.3					
E		1/4"	1/4"	1/2"		1/2"	1/2"					

**NOTE** ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO



16.2.85 1 MARCH 90											
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BALLESTRA S.p.A.  
MILANO (ITALIA)

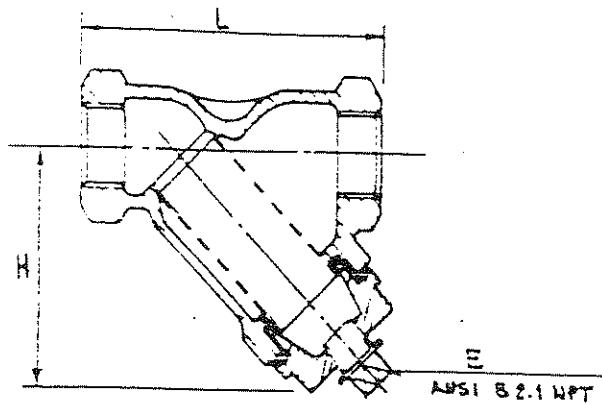
FILTRO A "Y"  
STRAINER TYPE "Y"

TIPO  
TYPE

F 70

ST.46326

PRESSEIONE NOM RATING	CORPO BODY	200	ACCOPPIAMENTO ASSEMBLING	FILETTATO/SCREWED ANSI B2.1	ACCOPPIAMENTO ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
MATERIALI MATERIALS	CORPO BODY	BRONZO BRONZE	CESTELLO BASKET	AISI 304	COPERCHIO BONNET	BRONZO BRONZE	VITE ESTERNA OUTSIDE SCREW
					GUARNIZIONE GASKET		



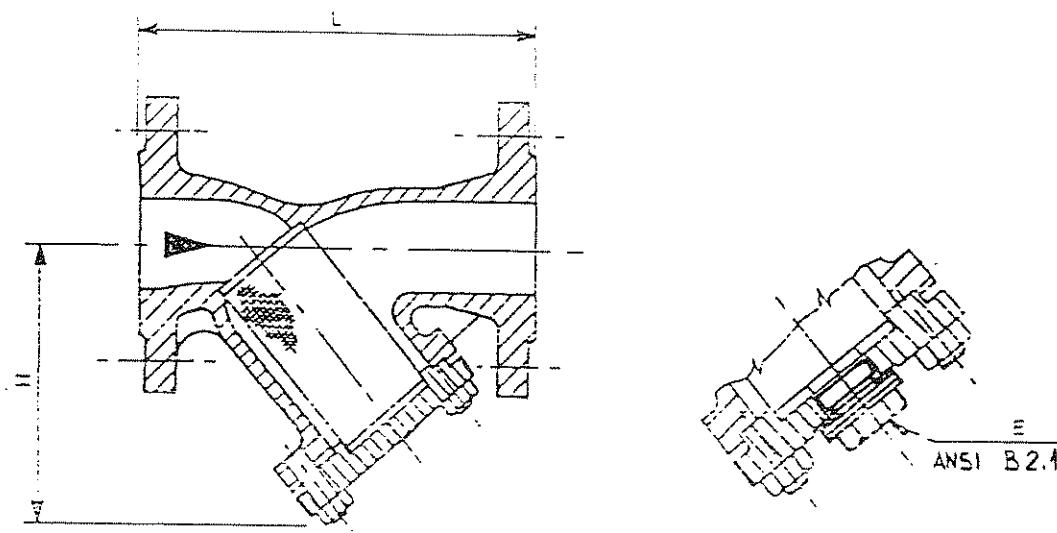
DN"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"						
L *	55	55	60	68	95	100	112						
H	46	53	63	74	80	88	140						
peso weight	0.35	0.50	0.80	1.20	1.80	2.20	5						
E	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"						

NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

\* FACE TO FACE DIMENSIONS ACCORDING TO "DIN 3202 : M5 FOR 3/8"-1 1/4"-1 1/2"-2"  
M14 FOR 1/2"-3/4"-1"

3	REV.	REvised DIMENSION L	DESCRIPTION - DESCRIPTION	COMP.	CONTR.	APPR.	19-2-91

	BALLESTRA S.p.A. MILANO (ITALIA)	FILTRO A Y STRAINER TYPE Y TIPO TYPE F 71	ST. 46349
PRESSIONE NOM	CORPO BODY	150#	FILETTO UNION BONNET <input type="checkbox"/> VITE INTERNA INSIDE SCREW <input type="checkbox"/>
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B 16.5 150# RF	ACCOPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET <input checked="" type="checkbox"/> IMBULLONATO BOLTED BONNET <input checked="" type="checkbox"/> VITE ESTERNA OUTSIDE SCREW <input type="checkbox"/>
MATERIALI	CORPO BODY	A 216 WCB	COPERCHIO BONNET
MATERIALS	CESTELLO BASKET	A 182 F 304	GUARNIZIONE GASKET



DN	2"	3"	4"	6"	8"	10"	12"					
L	203	241	292	406	495	622	699					
H	205	255	300	390	490	550	640					
E	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"					
peso Weight												

NOTE: All gaskets have to be asbestos free  
Tutte le guarnizioni devono essere esenti amianto.

TYPE NICOLINI

2. GENERAL REVISION							

MM Date 5-2-91



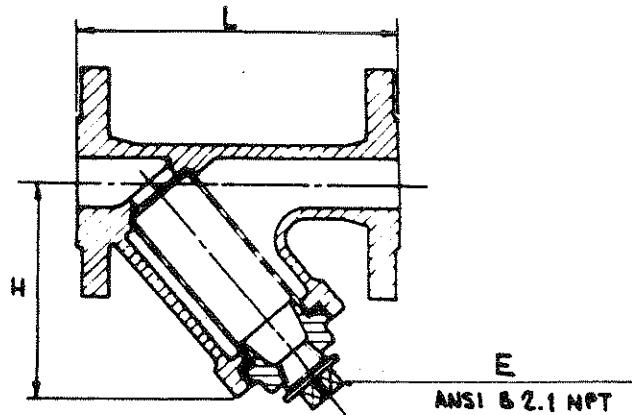
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

FILTRO A Y  
STRAINER TYPE Y-  
TIPO  
TYPE

**F72**

**ST. 46350**

PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	150# ANSI B16.5- 150#RF	ACCOPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	AISI 316	STELLO STEM	AISI 316	
		AISI 316	OTTURATORE WEDGE	TEFLON	



DN"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	2 1/2"				
L	140	152	165	203	229	317	368	470	279				
H	76	79	92	111	133	152	197	356	140				
E	1/4"	1/4"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1/2"				

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

3	REVISED WHERE INDICATED				
2	REVISED WHERE INDICATED				
1	REVISED WHERE INDICATED				
0	ISSUED				



BALLESTRA S.p.A.  
MILANO (ITALIA)

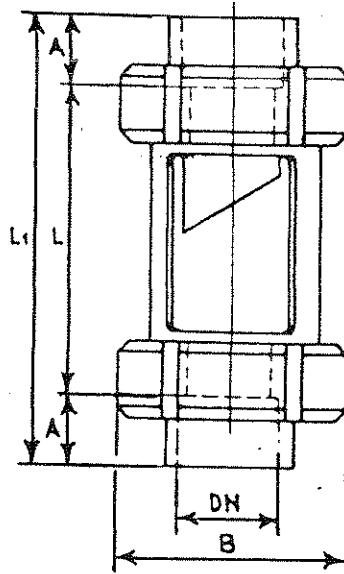
INDICATORE DI FLUSSO  
FLOW INDICATOR

TIPO  
TYPE

FG 59

ST. 46246

PRESSIONE NOM RATING	CORPO BODY	PN 6	
	ACCOPIAMENTO ASSEMBLING	A TASCA DA SALDARE SOCKET WELDING	
MATERIALI MATERIALS	CORPO : BODY :	POLIPROPILENE "MOPLEN" POLYPROPYLENE "MOPLEN"	
	SEDI SEATS :		



N.B. - Gli indicatori di cui alla presente tabella possono essere richiesti anche per accoppiamento tasca a saldare. Le dimensioni restano invariate.

DN Øest tubo	15	20	25	32	40	50	65	80				
	20	25	32	40	50	63	75	90				
L	91	99	106	115	146	140	182	204				
L1	131	139	146	171	206	200	263	304				
A	20	20	20	28	30	30	41	50				
B	64	66	78	94	115	130	168	186				
peso kg weight	0.180	0.220	0.300	0.500	0.980	1.100	2.000	2.900				

NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO





**BALLESTRA s.p.a.**  
MILANO (ITALIA)

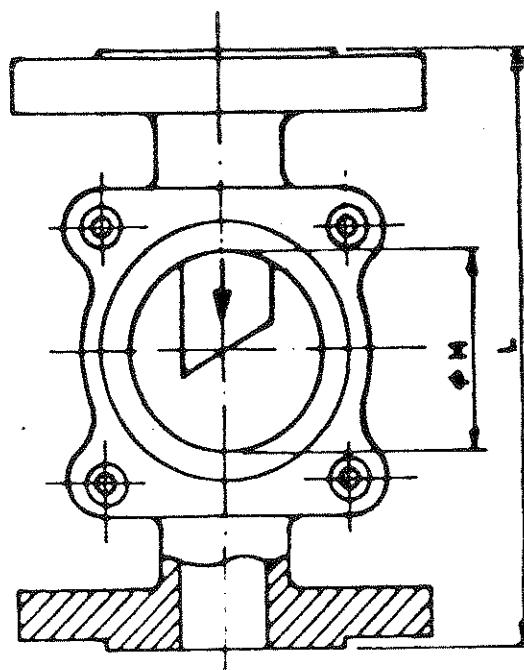
INDICATORE DI PASSAGGIO  
CROSSING INDICATOR

TIPO  
TYPE

**FG 60**

**ST. 46351**

<b>PRESSIONE NOM</b> <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	150 #		<b>TIPO CON TUBO A Goccia</b> <b>DROP TUBE TYPE</b>	
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>	ANSI B16.5-150 RF			
<b>MATERIALI</b>	<b>CORPO</b> <b>BODY</b>	<b>ACCIAIO AL CARBONIO</b> <b>CARBON STEEL</b>			
<b>MATERIALS</b>	<b>SEDI</b> <b>SEATS</b>				



INCH.	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"
L	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850
ØH	40	50	55	65	70	80	90	120	150	180	200	230	250	300	350
peso kg weight	3	4.5	5.6	7	8.5	11.3	16.5	26	36	47	63	85	110	155	220

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

2



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

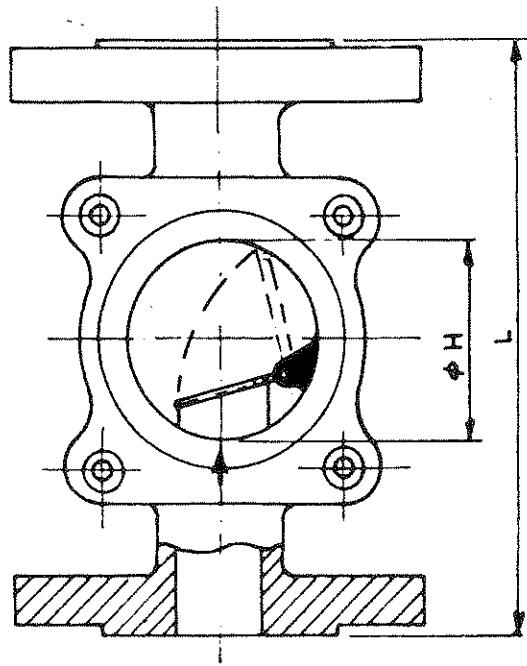
INDICATORE DI PASSAGGIO  
CROSSING INDICATOR

TIPO  
TYPE  
**FG61**

**ST. 46352**

PRESSIONE NOM RATING	CORPO BODY	150 #		TIPO CON TUBO A GOCCIA DROP TUBE TYPE (CLAPET)
	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150 RF #		
MATERIALI MATERIALS	CORPO BODY	ACCIAIO AL CARBONIO CARBON STEEL		
	SEDI SEATS			

L'indicatore deve essere montato esclusivamente su tubazioni verticali con flusso dal basso in alto / The indicator must be mounted only on vertical piping with the flow from low to high



INCH.	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"
L	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850
ØH	40	50	55	65	70	80	90	120	150	180	200	230	250	300	350
peso kg weight	3	4.5	5.6	7	8.5	11.3	16.5	26	36	47	63	85	110	155	220

**NOTE** ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

2

1.2.85 1	25.8.872	MARCH 90						
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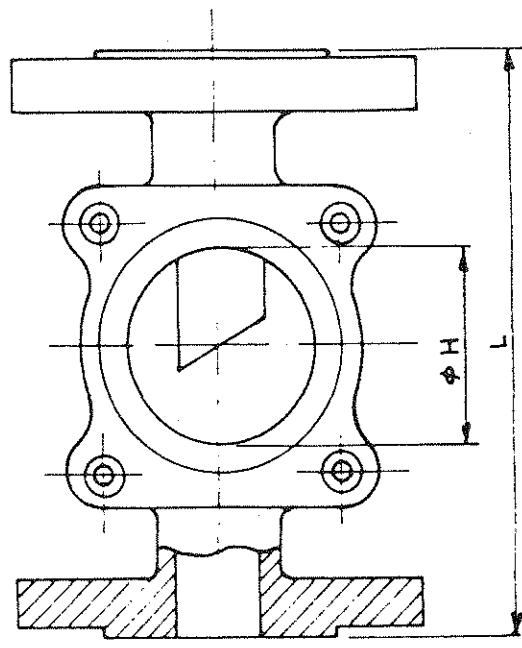
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

## INDICATORE DI PASSAGGIO CROSSING INDICATOR

TIPO : FG 64  
TYPE :

ST. 46353

PRESSIONE NOM PRESSURE NOM	CORPO BODY	150 #		TIPO CON TUBO A GOCCIA DROP TUBE TYPE
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150#RF		
MATERIALI	CORPO BODY	AISI 316		
MATERIALS	SEDI SEATS			



**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



BALLESTRA s.p.a.  
MILANO (ITALIA)

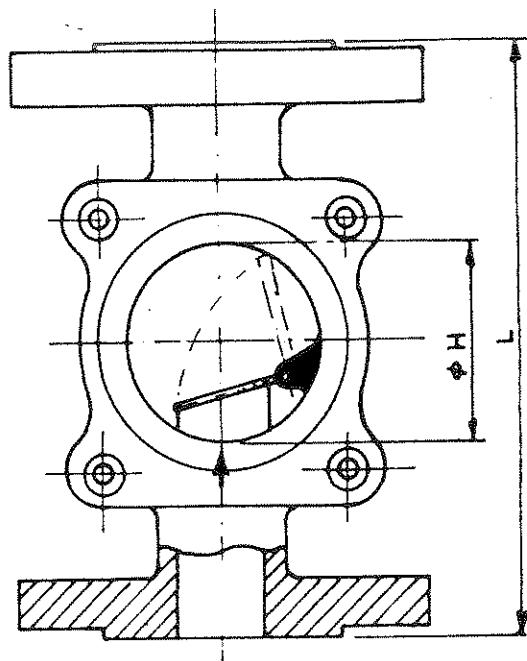
INDICATORE DI PASSAGGIO  
CROSSING INDICATOR  
TIPO  
TYPE

F G 65

ST. 46354

PRESSIONE NOM RATING	CORPO BODY ACCOPIAMENTO ASSEMBLING	150 # ANSI B16.5-150 #		TIPO CON TUBO A GOCCHIA DROP TUBE TYPE (CLAPET)
MATERIALI MATERIALS	CORPO BODY AISI 316			
	SEDI SEATS			

L'indicatore deve essere montati esclusivamente su tubazioni verticali con flusso dal basso in alto. / The indicator must be mounted only on vertical piping with the flow from low to high.



INCH.	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	10"	12"
L	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850
ØH	40	50	55	60	70	80	90	120	150	180	200	230	250	300	350
peso kg weight	3	4.5	5.6	7	8.5	11.3	16.5	26	36	47	63	65	110	155	220

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

2

1.2.85 1 25.8.87 2 MARCH 90

DA/11 Lanni

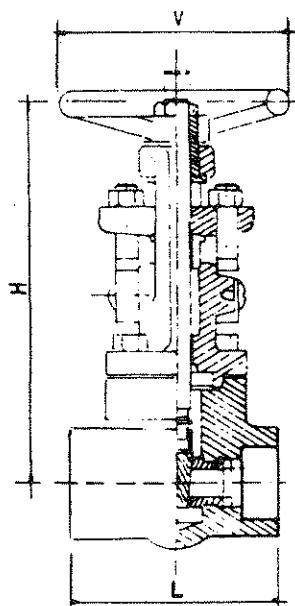


**BALLESTRA s.p.a.**  
MILANO (ITALIA)

VALVOLA A SARACINESCA  
GATE VALVE  
TIPO : G61  
TYPE

**ST. 46270**

PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	800 # SOCKET WELDING	ACCOPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO X BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
MATERIALI	CORPO BODY	ASTM A 105-79	STENO STEM	ASTM A 182 F6	
MATERIALS	SEDI SEATS	ASTM A 182 F6 + Stellit	OTTURATORE WEDGE	ASTM A 182 F6 + Stellit.	



DN"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"					
L	80	80	80	90	110	127	127	130					
H	140	140	140	166	181	215	251	276					
V	90	90	90	90	107	107	142	142					
peso kg weight	1.7	1.7	1.7	2.1	3.3	5.2	7	9.1					

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**





BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A MASCHIO

PLUG VALVE

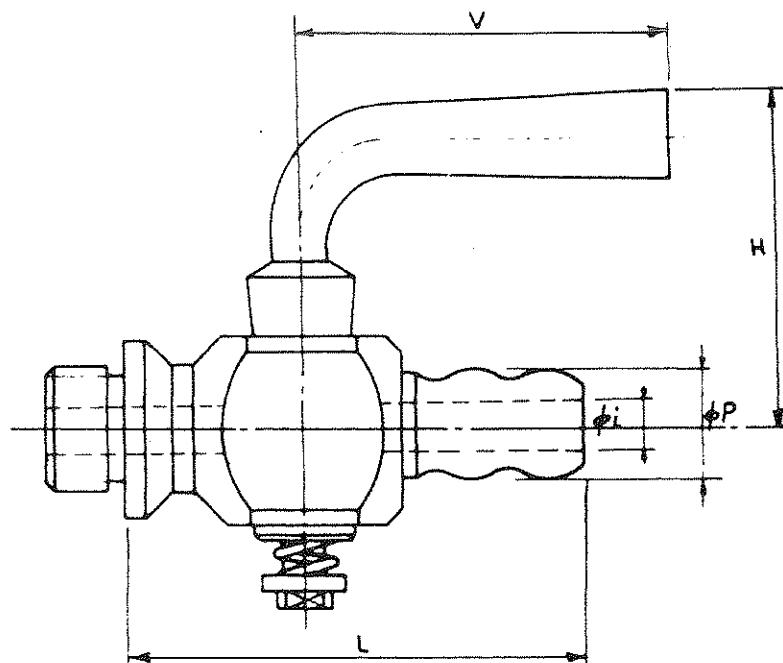
TIPO

TYPE

ST. 46019

M 53

PRESSIONE NOM RATING	CORPO BODY	PN 16		
	ACCOPIAMENTO ASSEMBLING	FILETTATO ANSI B2.1 THREADED ANSI B2.1		
MATERIALI MATERIALS	CORPO BODY	AISI 316	STEOLO STEM	AISI 316
	SEDI SEATS		MASCHIO PLUG	AISI 316



INCHES	1/4"	3/8"	1/2"	3/4"	1"						
L	59	63	76	84	102						
H	40	45	53	60	-						
V	42	52	65	70	80						
peso kg weight	0.200	0.230	0.400	0.650	-						
Ø i	6	8	10	14	20						
Ø p	12	14	16	20	30						

U.A.

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO



1.2.85	1 MARCH 90								
	/Zuni								



BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A MASCHIO A 3 VIE  
3 WAY PLUG VALVE  
TIPO  
TYPE

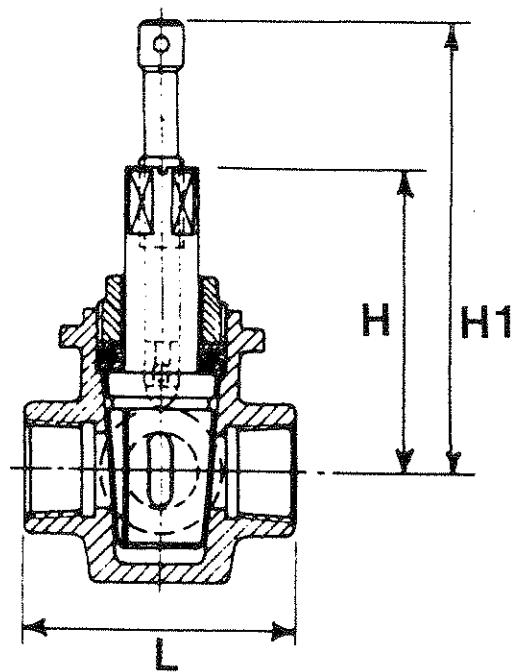
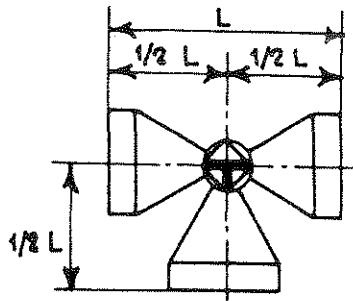
ST. 46093

M 58

PRESSIONE NOM RATING	CORPO BODY	PN 10	ACCOPIAMENTO ASSEMBLING	FILETTATO ANSI B2.1 SCREWED ANSI B2.1	FILETTO UNION BONNET	<input type="checkbox"/>	VITE INTERNA INSIDE SCREW
	ACCOPIAMENTO ASSEMBLING	FILETTATO ANSI B2.1 SCREWED ANSI B2.1	ASSEMBLING	BODY BONNET	IMBULLONATO BOLTED BONNET	<input checked="" type="checkbox"/>	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY	GHISA CAST IRON			STELLO STEM		
	SEDI SEATS				MASCHIO PLUG	GHISA CAST IRON	

- 1) Deve essere prevista la lubrificazione del maschio / Will be foreseen male lubrication
- 2) Il maschio deve essere forato a "T" / The plug has to be "T" drilled

### Pianta - Plant



DN	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"					
L	100	130	130	135	155	175	200	240					
H	115	124	124	140	157	177	200	230					
H1	161	170	170	194	210	250	273	317					
peso kg weight	4	5	5	6	8	12	18	26					

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



18.2.75 | MARCH 90

*Zanni*

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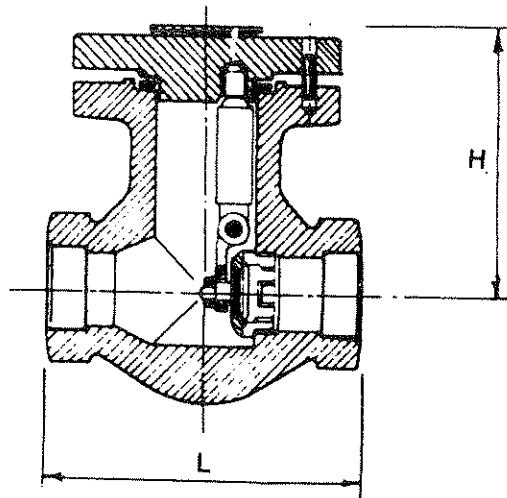
**BALLESTRA s.p.a.**  
MILANO (ITALIA)

**VALVOLA DI RITEGNO**  
**CHECK VALVE**  
**TIPO**  
**TYPE**

**R 83**

**ST.46275**

<b>PRESSIONE NOM</b> <b>RATING</b>	<b>CORPO BODY</b>	800 #	<b>ACCOPIAMENTO</b> <b>ASSEMBLING</b>	<b>CORPO COPERC. ASSEMBLING</b>	<b>FILETTO</b> <b>UNION BONNET</b>	<b>VITE INTERNA INSIDE SCREW</b>
	<b>ACCOPIAMENTO ASSEMBLING</b>	SOCKET WELDING	<b>BODY BONNET</b>	<b>IMBULLONATO</b> <b>X</b>	<b>VITE ESTERNA OUTSIDE SCREW</b>	<b>BOLTED BONNET</b> <b>X</b>
<b>MATERIALI</b> <b>MATERIALS</b>	<b>CORPO BODY</b>	ACCIAIO AL CARBONIO CARBON STEEL	<b>STEO</b> <b>STEM</b>	ACCIAIO AL 13% Cr ASTM A 182 Fg	<b>BATTENTE</b> <b>SWING</b>	ACCIAIO AL 13% Cr SS 13% Cr
	<b>SEDI SEATS</b>	ACCIAIO AL 13% Cr SS 13% Cr				



INCH.	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"					
L	73	92	111	127	137	172	210					
H	60	71	80	97	104	127	150					
peso kg weight	1.8	1.9	2.7	4.8	5.3	10	15					

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



1.2.85 1 MARCH 90

Lanni



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

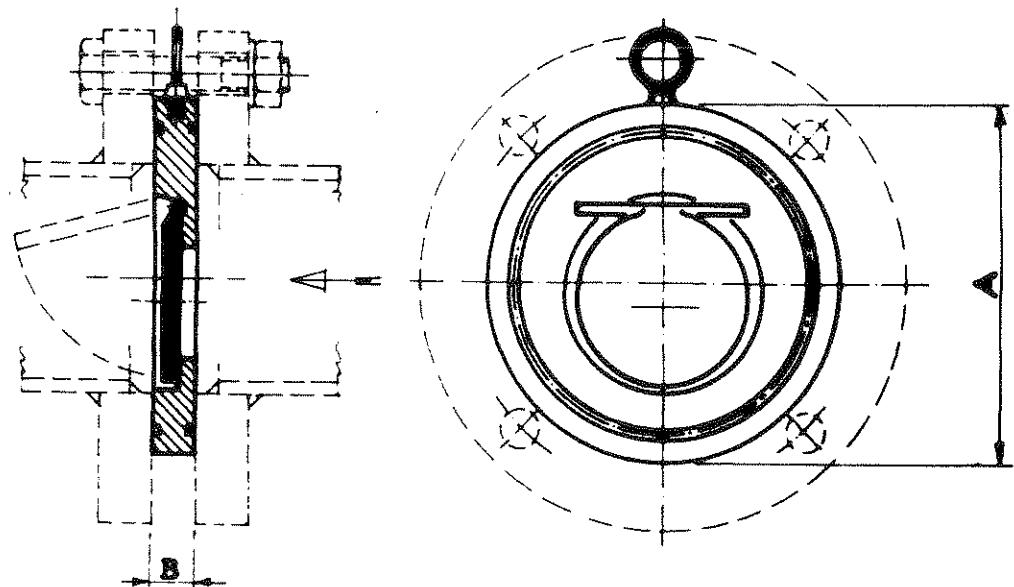
**VALVOLA DI RITEGNO**  
**CHECK VALVE**  
**TIPO**  
**TYPE**

**ST. 46357**

**R 87**

<b>PRESSIONE NOM</b> <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	150 #		
	<b>ACCOPIAMENTO</b> <b>ASSEMBLING</b>	(*)		
<b>MATERIALI</b> <b>MATERIALS</b>	<b>CORPO</b> <b>BODY</b>	A 105 Gr. I	4	GUARNIZIONI O-RING O-RING GASKETS
	<b>SEDI</b> <b>SEATS</b>			BATTENTE VITON SWING AISI 304 4

(\*) TRA FLANGE / BETWEEN FLANGES ANSI B16.5 150# R.F.-S.O.



INCH.	1 1/4"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
A	82	102	124	137	175	197	222	279	340	410	451	514	549	606
B	14	14	14	14	14	16	19	29	32	38	41	51	51	61
peso kg weight	0.65	1	1.3	1.6	2	3	5	11	15	25	37	55	65	105

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

- 4 REVISED WHERE INDICATED
- 3 REVISED WHERE INDICATED
- 2 REVISED WHERE INDICATED
- 1 REVISED
- 0 ISSUED

4

27-07-94

12-7-



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

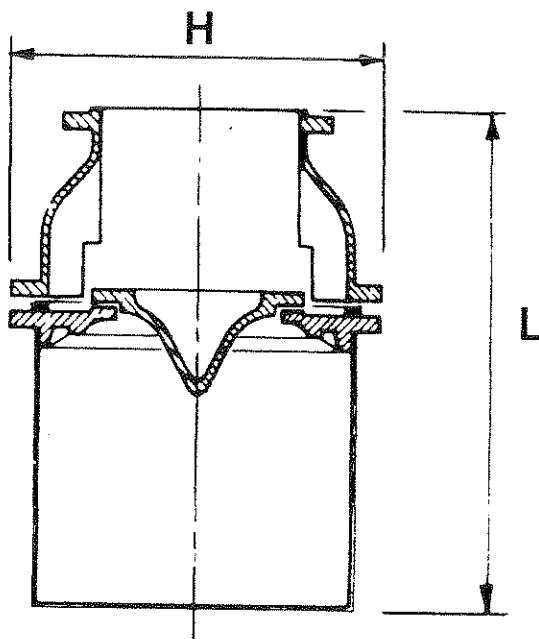
VALVOLA DI FONDO  
BOTTOM VALVE

ST. 46358

PRESSIONE NOM	CORPO BODY	150 #	ACCOPIAMENTO CORPO COPERC. ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150 # RF	ASSEMBLING BODY BONNET	IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI	CORPO BODY	GHISA CAST IRON	STEO STEM		
MATERIALS	SEDI SEATS		OTTURATORE WEDGE	GHISA CAST IRON	

We reserve the ownership under the law of this drawing until it is known to third persons without our written authorization.

Ci riserviamo la proprietà ai termini di legge di questo disegno con divieto di riprodurlo anche in parte o di renderlo



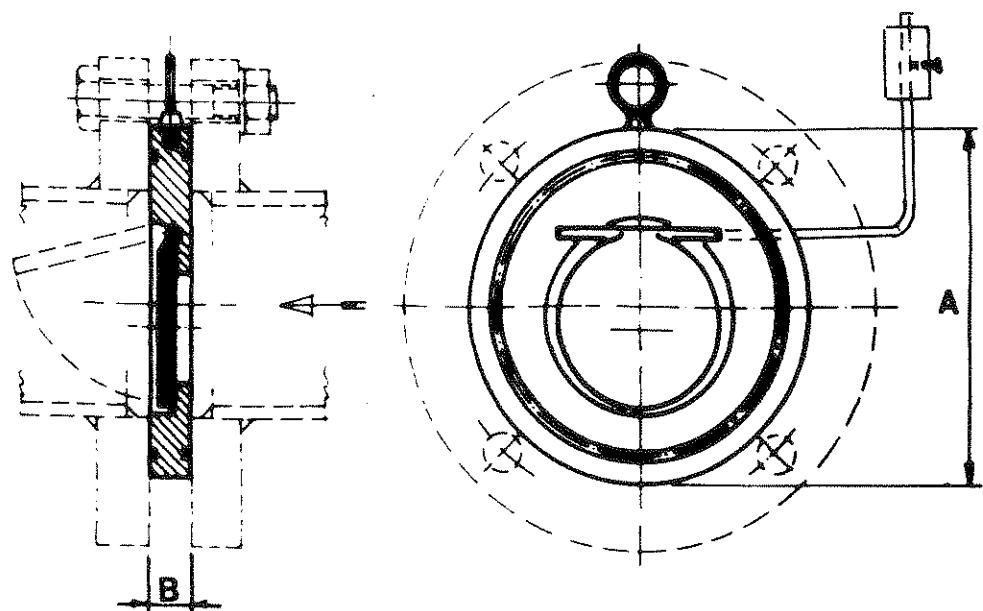
**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



	BALLESTRA S.p.A. MILANO (ITALIA)	VALVOLA DI RITEGNO CHECK VALVE TIPO TYPE	R 91	ST.46359
PRESSIONE NOM	CORPO BODY	150 #	ACCOPPIAMENTO CORPO COPERC. ASSEMBLING	FILETTO UNION BONNET
RATING	ACCOPIAMENTO ASSEMBLING	(*)	CORPO COPERC. ASSEMBLING	IMBULLONATO BOLTED BONNET
MATERIALI	CORPO BODY	AISI 304	GUARNIZIONI O-RING O-RING GASKETS	VITE INTERNA INSIDE SCREW
MATERIALS	SEDI SEATS		BATTENTE SWING	VITE ESTERNA OUTSIDE SCREW

 Le valvole con il contrappeso devono essere montate solamente su tubazioni orizzontali.  
The valves with the counterweight must be mounted only on horizontal pipelines.

(\*) TRA FLANGE/BETWEEN FLANGES ANSI B16.5-150#RF-S.O.



INCH.	WITHOUT COUNTERWEIGHT							WITH COUNTERWEIGHT							
	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	
A	82	102	124	137	175	197	222	—	279	340	410	451	514	549	606
B	14	14	14	14	14	16	19	—	29	32	38	41	51	51	61
peso kg weight	0,7	1,1	1,4	1,7	2,2	3,4	5,6	—	12	17	28	42,5	64	72	125

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

4	REVISED WHERE INDICATED	Scalisi	M.M.	Check	28.06.96
3	REVISED O-RING GASKET MATERIAL	Ge	M.M.	Check	2.4.96
2	REVISED DIMENSIONS AND ASSEMBLING	Bruni	B.M.	E.M.	27.1.95
1	ADDED NOTE	Larini	B.M.	G.M.	MARCH '90
0	ISSUED	Z.A.	B.A.	B.A.	1-2-85



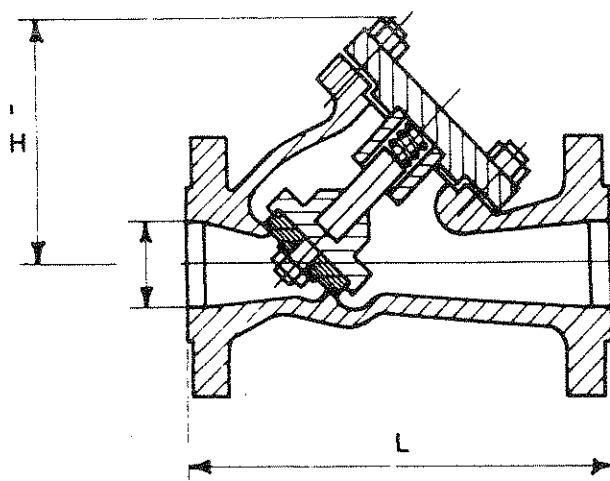
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**VALVOLA DI RITEGNO**  
**CHECK VALVE**  
**TIPO**  
**TYPE**

**R 92**

**ST. 46360**

<b>PRESSEIONE NOM</b> <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	150 #	<b>ACCOPPIAMENTO</b> <b>CORPO COPERC.</b> <b>ASSEMBLING</b>	<b>FILETTO</b> <b>UNION BONNET</b>	<b>VITE INTERNA</b> <b>INSIDE SCREW</b>
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>	ANSI B 16.5-150#	<b>IMBULLONATO</b> <b>BOLTED BONNET</b>	<b>VITE ESTERNA</b> <b>OUTSIDE SCREW</b>	<input checked="" type="checkbox"/>
<b>MATERIALI</b>	<b>CORPO</b> <b>BODY</b>		<b>STELO</b> <b>STEM</b>	<b>AISI 316</b>	
<b>MATERIALS</b>	<b>SEDI</b> <b>SEATS</b>		<b>OTTURATORE</b> <b>WEDGE</b>	<b>TEFLON</b>	



INCH.	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	
L	130	150	160	180	200	230	290	310	350	400	480	550	600	
H	80	85	90	100	110	120	150	180	200	250	300	350	430	
Peso Kg. weight	3	3.5	4.5	6.5	9	11	18	23	27	42	50	65	85	

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



0	1.2.85	1	MARCH 90											
CASATI	Zanini													



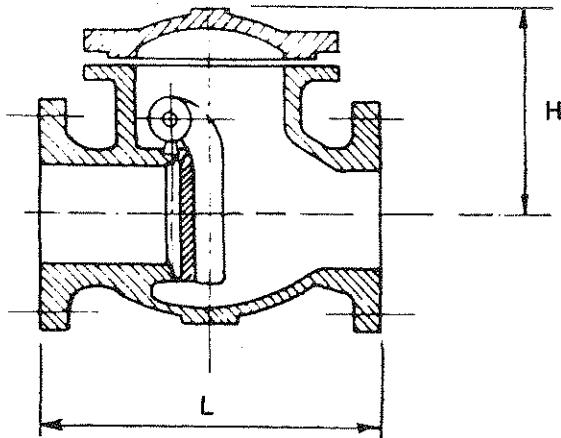
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**VALVOLA DI RITEGNO**  
**CHECK VALVE**  
**TIPO**  
**TYPE**

**R 93**

**ST. 46361**

<b>PRESSIONE NOM</b>	<b>CORPO</b> <b>BODY</b>	150 $\frac{1}{2}$	<b>ACCOPPIAMENTO</b> <b>CORPO COPERC.</b> <b>ASSEMBLING</b> <b>BODY BONNET</b>	<b>FILETTO</b> <b>UNION BONNET</b>	<b>VITE INTERNA</b> <b>INSIDE SCREW</b>	
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>	ANSI B16.5-150 #		<b>IMBULLONATO</b> <b>BOLTED BONNET</b>		
<b>MATERIALI</b> <b>MATERIALS</b>	<b>CORPO</b> <b>BODY</b>	A 216 WCB		<b>STELLO</b> <b>STEM</b>	<b>VITE ESTERNA</b> <b>OUTSIDE SCREW</b>	
	<b>SEDI</b> <b>SEATS</b>	A 182 F6		<b>BATTENTE</b> <b>SWING</b>		



INCH.	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L	165	203	216	241	292	330	356	495	622	699	787	864	978	978	1275
H	128	141	163	170	199	213	250	304	321	365	445	473	540	605	680

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

2

0	1.2.85	1	5.10.88	2	MARCH 90										

14

Zanni



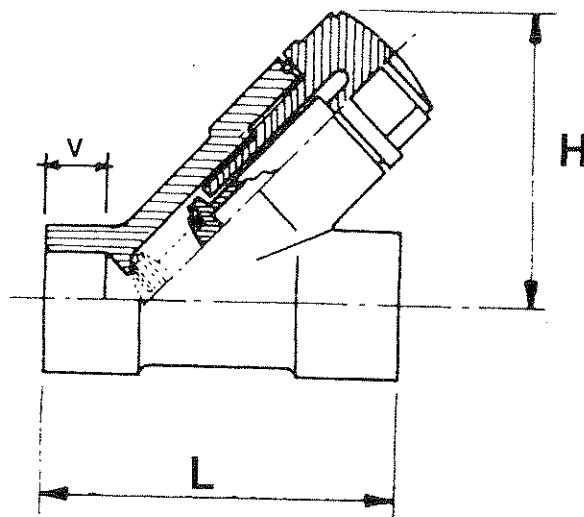
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**VALVOLA DI RITEGNO**  
**CHECK VALVE**  
**TIPO**  
**TYPE**

**R 95**

**ST. 46371**

<b>PRESSIONE NOM RATING</b>	<b>CORPO BODY</b>	<b>PN 10</b>	<b>ACCOPPIAMENTO CORPO COPERC. ASSEMBLING</b>	<b>FILETTO UNION BONNET</b>	<b>VITE INTERNA INSIDE SCREW</b>
	A TASCA DA SALDARE ASSEMBLING	SOCKET WELDED	ASSEMBLING BODY BONNET	IMBULLONATO BOLTED BONNET	<input checked="" type="checkbox"/> VITE ESTERNA OUTSIDE SCREW
<b>MATERIALI MATERIALS</b>	<b>CORPO BODY</b> PP			<b>STELO STEM</b>	
	<b>SEDI SEATS</b> PP			<b>OTTURATORE WEDGE</b>	PP



DN Øest tubo	10	15	20	25	32	40	50	65	80	100				
16	20	25	32	40	50	63	75	90	110					
L	81	81	104	128	167	167	195	243	262	325				
H	63	63	83	100	125	125	150	180	190	235				
V	14	16	18.5	22	26	31	37.5	43.5	51	61				

**NOTE** ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1

1.2.85 1 MARCH 90

Bianco

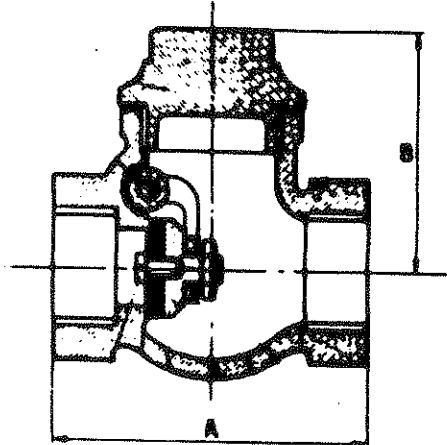


**BALLESTRA s.p.a.**  
MILANO (ITALIA)

**VALVOLA DI RITEGNO  
CHECK VALVE  
TIPO R 96  
TYPE**

**ST. 46396**

PRESSIONE NOM	CORPO BODY	200 #	ACCOPIAMENTO CORPO COPERC. ASSEMBLING	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
RATING	ACCOPIAMENTO ASSEMBLING	FILETTATO SCREWED ANSTR2.1			
MATERIALI	CORPO BODY	BRONZO BRONZE	STEO STEM		
MATERIALS	SEDI SEATS	VITON	3	OTTURATORE WEDGE	OTTONE BRASS



**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESANTI AMIANTO**



BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA DI RITEGNO  
CHECK VALVE  
TIPO  
TYPE

ST. 46600

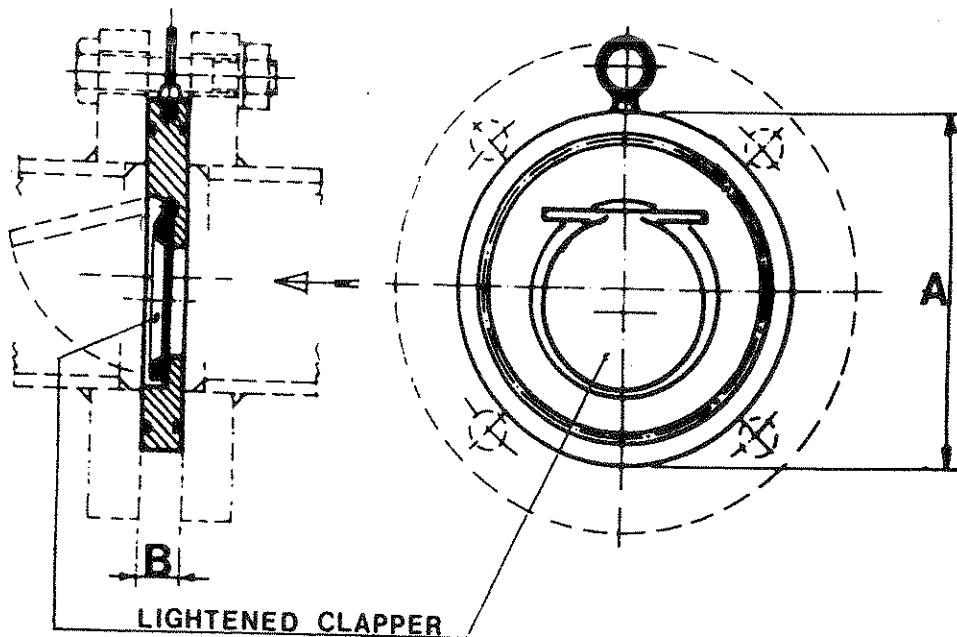
R 102

PRESSIONE NOM RATING	CORPO BODY ACCOPIAMENTO ASSEMBLING	150 # (*)		
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	AISI 316	GUARNIZIONI O-RING : P.T.F.E. O-RING GASKETS	

(\*) TRA FLANGE / BETWEEN FLANGES ANSI B16.5-150# L.J.

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INCH.	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
A	82	102	124	137	175	197	222	279	340	410	451	514	549	606
B	14	14	14	14	14	16	19	29	32	38	41	51	51	61
peso kg weight	0,65	1,00	1,30	1,60	2,0	3,0	5,0	11,0	15,0	25,0	37,0	55,0	65,0	105,0

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED DIMENSIONS A-B..	AM	AM	04-07-93
0	ISSUED	AM	AM	20-03-93
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.	CONTR. CONTRO	APPR. APPROD.



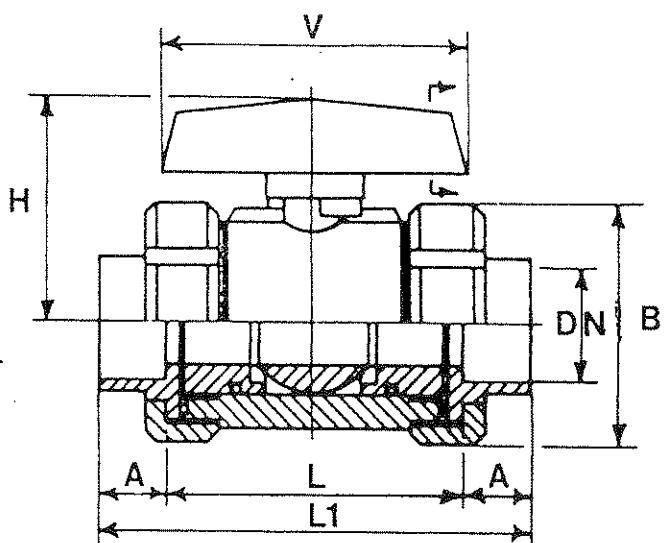
BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE  
TIPO  
TYPE

S 71

ST. 46245

PRESSIONE NOM RATING	CORPO BODY	PN 6	PASSAGGIO TOTALE FULL BORE	P MAX ESERCIZIO OPERATING MAX. P : 6 ATM
	ACCOPPIAMENTO ASSEMBLING	A TASCA DA SALDARE SOCKET WELDING		
MATERIALI MATERIALS	CORPO BODY	POLIPROPILENE "MOPLEN" POLYPROPYLENE "MOPLEN"		STEO : POLIPROPILENE "MOPLEN" STEM : POLYPROPYLENE "MOPLEN"
	SEDI SEATS	P.T.F.E.	ANELLI DI TENUTA SEAL RING	OTTURATORE: POLIPROPILENE "MOPLEN" WEDGE POLYPROPYLENE "MOPLEN"



DN Øest.tubo	15	20	25	32	40	50	65	80	100	110				
L	80	90	95	99	140	140	175	197	218					
H	58	68	74	85	100	107	134	143	165					
V	85	100	100	130	130	145	200	200	140					
A	20	20	20	28	30	30	41	50	61					
B	64	66	78	94	115	130	168	186	207					
C	23	25	25	30	30	30	50	50	50					
L1	120	130	135	155	200	200	257	297	340					
peso kg weight	0.230	0.330	0.380	0.600	1.000	1.200	2.750	3.750	6					

NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO



20.9.78 1 MARCH 90

Bianco



BALLESTRA s.p.a.  
MILANO (ITALIA)

VALVOLA A SFERA

BALL VALVE

TIPO

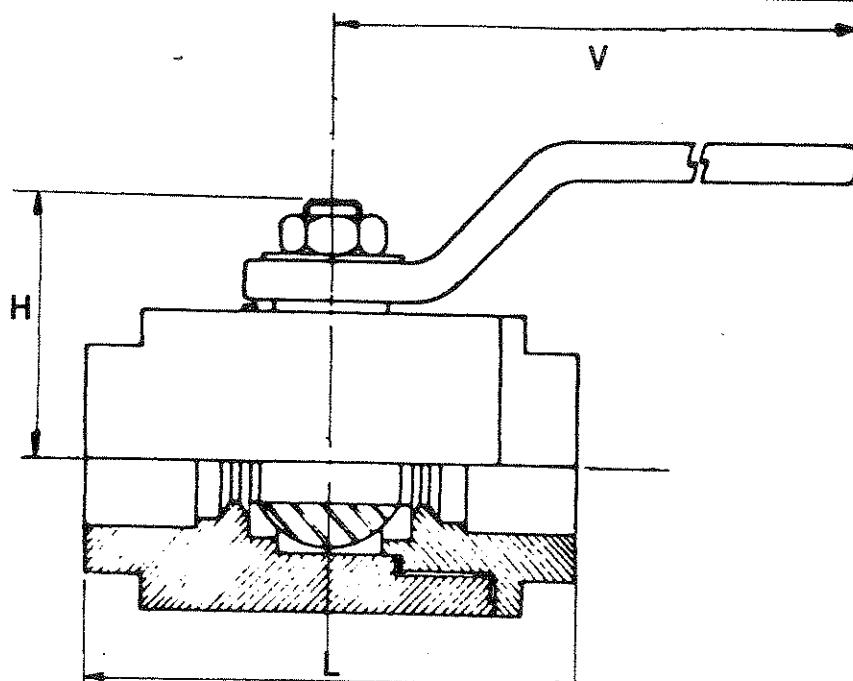
TYPE

ST. 46316

S 82

PRESSIONE NOM RATING	CORPO BODY	800 #	ACCOPIAMENTO ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPPIAMENTO ASSEMBLING	SOCKET WELD	ASSEMBLING BODY BONNET	IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY	ACCIAIO INOX AISI 304 S.S. AISI 304	STENO STEM	ACC. INOX AISI 304 S.S. AISI 304	
	SEDI SEATS	TEFLON	SFERA BALL	ACC. INOX AISI 304 (*) S.S. AISI 304	

(\*) PASSAGGIO TOTALE FULL BORE



N.B. I valori di "H" e "V" sono dati come valori massimi / The values of "H" and "V" are given as maximum values

DN	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"				
L	65	65	73	90	98	104	125	154				
H	39	39	50	52	61	64	78					
V	135	135	135	135	180	180	275	275				
peso weight	0.7	0.7	1	1.5	2.3	3.3	5					

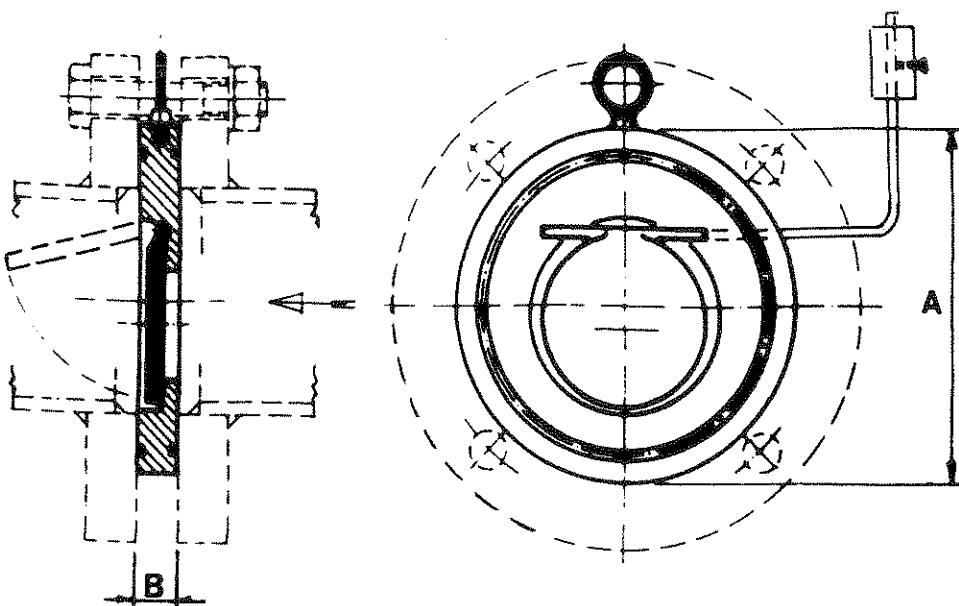
**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



1 MARCH 90

Zanni

	BALLESTRA S.p.A. MILANO (ITALIA)	VALVOLA DI RITEGNO CHECK VALVE TIPO TYPE	R 101	ST.46546
PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	150# (*)	ACCOPPIAMENTO CORPO COPERC. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	AISI 316	GUARNIZIONI O-RING O-RING GASKETS	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
			BATTENTE SWING	PT.F.E. AISI 316
<p>(3) Le valvole con il contrappeso devono essere montate solamente su tubazioni orizzontali.  The valves with the counterweight must be mounted only on horizontal pipelines.</p> <p>(*) TRA FLANGE/BETWEEN FLANGES ANSI B16.5-150# R.F.-S.O.</p>				



INCH.	WITHOUT COUNTERWEIGHT						WITH COUNTERWEIGHT								
	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	
A	82	102	124	137	175	197	222	—	279	340	410	451	514	549	606
B	14	14	14	14	14	16	19	—	29	32	38	41	51	51	61
peso kg weight	0,7	1,1	1,4	1,7	2,2	3,4	5,6	—	12	17	28	42,5	64	72	125

NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

3	REVISED WHERE INDICATED	Geli	All	28.06.96
2	MODIFIED C-RING GASKET MATERIAL	Se	All	2.4.96
1	REVISED WHERE SHOWN	BM	BM	27.01.95
0	ISSUED	BM	BM	02.91
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONT'L CONT.RD	APPR. APPR.D



BALLESTRA S.p.A.  
MILANO (ITALIA)

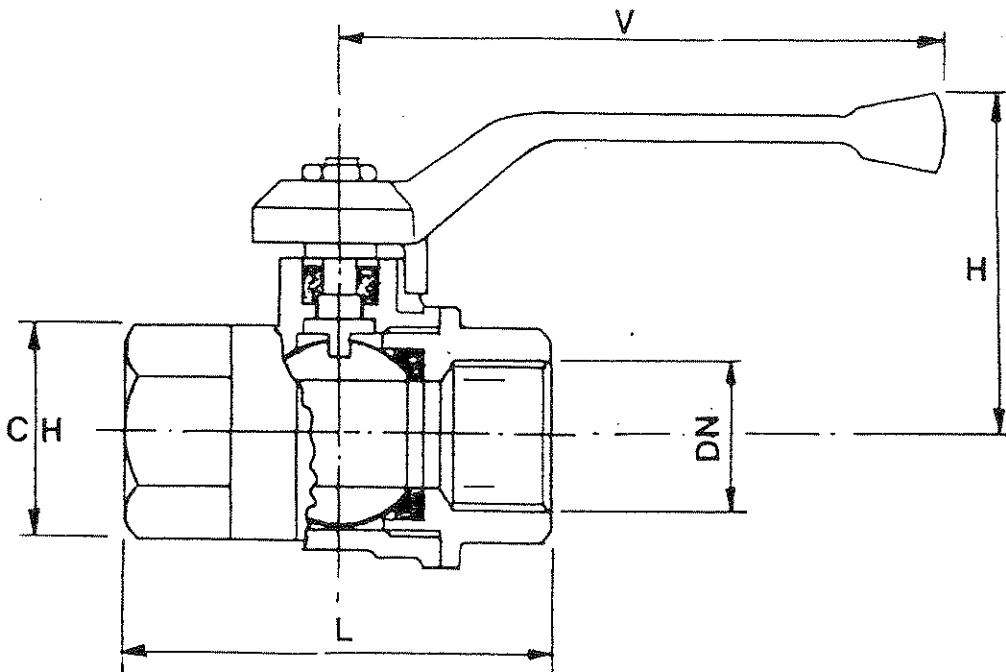
VALVOLA A SFERA  
BALL VALVE  
TIPO  
TYPE

S 87

ST. 46330

PRESSIONE NOM RATING	CORPO BODY	200 #	ACCOPIAMENTO ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPIAMENTO ASSEMBLING	FILETTATO SCREWED ANSI B2.1	CORPO COPERC. ASSEMBLING	IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO OT 58 NICKELATO BODY BRASS NICKEL-PLATED		GUARNIZIONI GASKETS		P.T.F.E.
	SEDI SEATS		SFERA (*) OT 58 CROMATA A SPESORE BALL BRASS THICK. CHROM-PLATED		

(\*) PASSAGGIO TOTALE / FULL BORE



INCH.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1"	$1\frac{1}{4}$	$1\frac{1}{2}$	2"	$2\frac{1}{2}$	3"		
L (1)	55	60	75	80	90	110	120	140	132	160		
H	58	58	68	75	90	100	122	136	130	150		
V	85	85	85	85	103	103	135	135	250	250		
EH	22	22	26	32	38	48	55	68	83	98		
WEIGHT Kg.	0.20	0.20	0.30	0.40	0.60	1.00	1.50	2.20	4.80	7.60		

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

(1) - FACE-TO-FACE DIMENSIONS IN ACCORDING TO "DIN 3202-M3" FOR INCH.  $\frac{1}{4}$ " -  $2\frac{1}{2}"$   
"DIN 3202-M5" FOR INCH.  $2\frac{1}{2}"$  -  $3"$

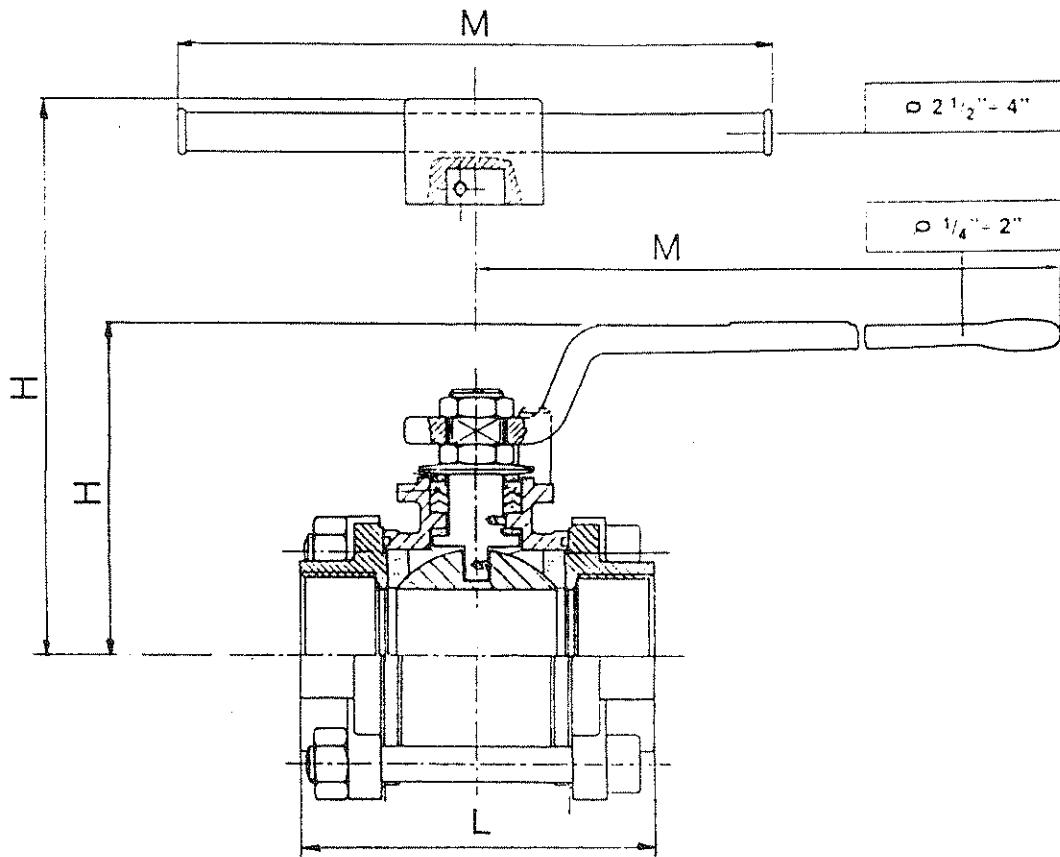
10

3	REVISED W-FPE INDICATED	A	21296
2	GENERAL REVISION	PA	02-91
REV.	DESCRIPTION - DESCRIPTION	COMP. APPRO.	CONTR. APPRO.

BALLESTRA S.p.A.  
MILANO (ITALIA)VALVOLA A SFERA  
BALL VALVE  
TIPO S 98  
TYPE

ST. 46544

PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO FILETTATO ASSEMBLING	800 # SCREWED ANSI P2.1	PASSAGGIO TOTALE FULL BORE	
MATERIALI MATERIALS	CORPO BODY CARBON STEEL	STELO STEM ACC. INOX AISI 316 SS AISI 316	SFERA BALL ACC. INOX AISI 316 SS AISI 316	



INCH.	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	
L	55	60	75	80	90	110	120	140	185	205	240	
H	45	45	59	62	80	85	103	111	134	142	167	
M	120	120	145	145	185	185	280	280	370	370	470	
peso kg weight	0.6	0.6	0.7	0.9	1.4	1.9	3.2	5.2	12.5	15	24	

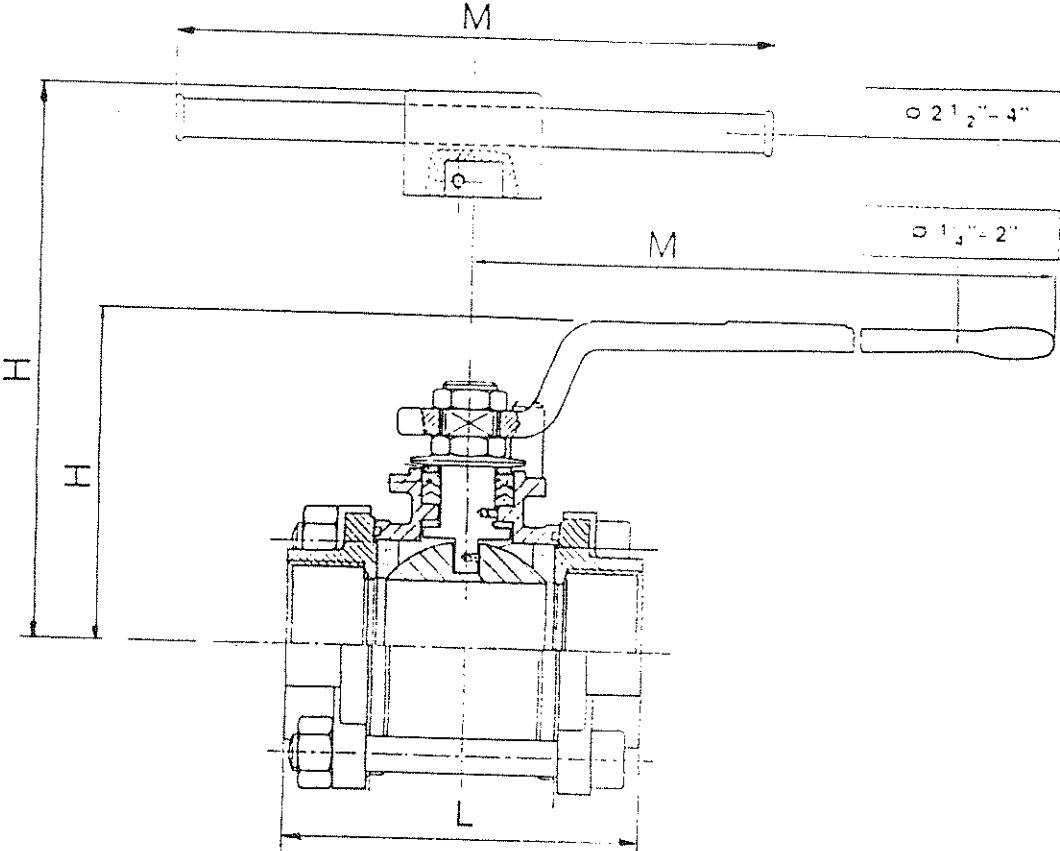
**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



FACE TO FACE ACCORDING TO DIN 3202 M3

REV.	DESCRIZIONE - DESCRIPTION	SP COMP. PREP.	CONT. CONTROL	APPR. APPROD.	DATA DATE
1	REVISED WHERE INDICATED				2-12-92
0	ISSUE				6-2-91

 <b>BALLESTRA S.p.A.</b> MILANO (ITALIA)		<b>VALVOLA A SFERA</b> <b>BALL VALVE</b> <b>TIPO</b> <b>TYPE</b>		<b>ST. 46545</b>
<b>PRESSIONE NOM</b>  <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	800 #	<b>PASSAGGIO TOTALE</b> <b>FULL BORE</b>	
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>	FILETTATO SCREWED ANSI#2.1		
<b>MATERIALI</b>  <b>MATERIALS</b>	<b>CORPO</b> <b>BODY</b>	AISI 316	<b>STEO</b> <b>STEM</b>	ACC. INOX AISI 316
	<b>SEDI</b> <b>SEATS</b>	TEFLON	<b>SFERA</b> <b>BALL</b>	SS AISI 316
				ACC. INOX AISI 316
				SS AISI 316

The technical drawing illustrates a ball valve assembly. It shows a side view of the valve body with a handle at the top. Above the handle, there is a horizontal pipe section with two O-diameter dimensions: one labeled  $\odot 2\frac{1}{2}'' - 4''$  and another labeled  $\odot 1\frac{1}{2}'' - 2''$ . Below the handle, the valve body has a vertical height dimension labeled 'H'. At the bottom, there is a front view of the valve body with a horizontal dimension labeled 'M'.

INCH.	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"			
L	55	60	75	80	90	110	120	140	185	205	240			
H	45	45	59	62	80	85	103	111	134	142	167			
M	120	120	145	145	185	185	280	280	370	370	470			
peso kg weight	0.6	0.6	0.7	0.9	1.4	1.9	3.2	5.2	12.5	15	24			

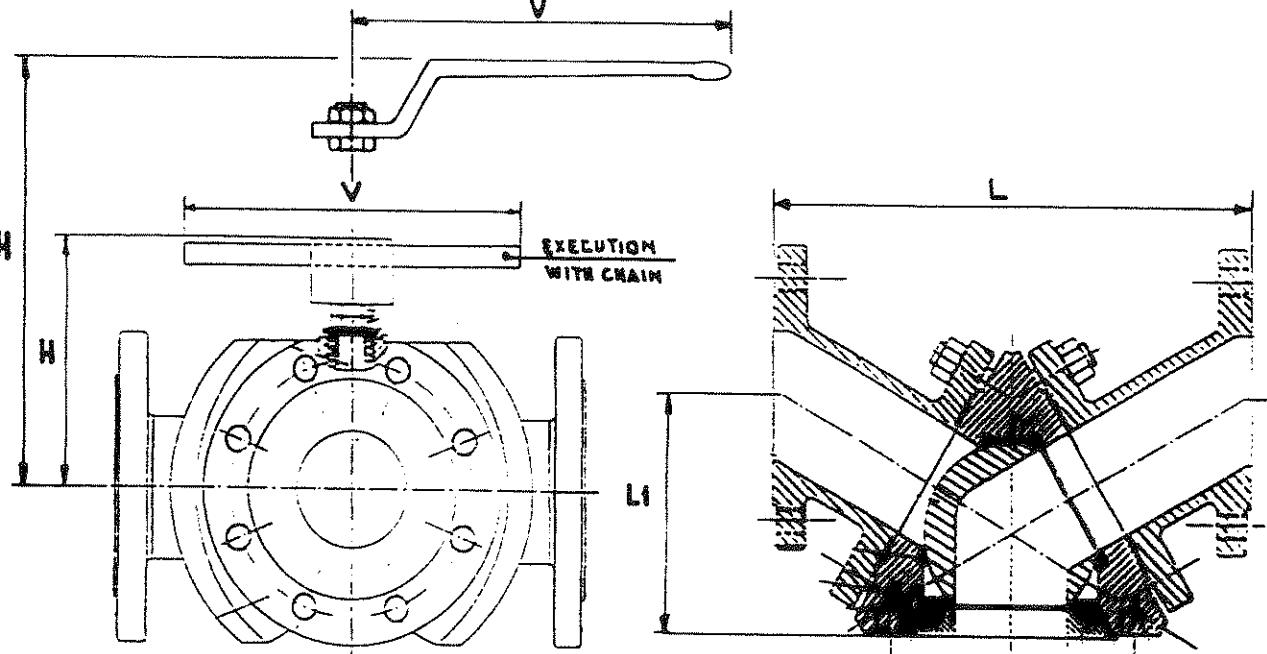
**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

1

FACE TO FACE ACCORDING TO DIN 3202 M3

	REVISED WHERE INDICATED	H					
0	ISSUE	E	MM	12-91	APPR.	DATA	
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONT'L CONTR.D	APPR. APPR.D		DATE	

	BALLESTRA S.p.A. MILANO (ITALIA)	VALVOLA A SFERA A TRE VIE THREE WAY BALL VALVE TIPO TYPE <b>S102</b>	ST.46551					
PRESSIONE NOM	CORPO BODY	150*	PASSAGGIO TOTALE					
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5 150# RF	FULL BORE					
MATERIALI	CORPO BODY	CARBON STEEL	STENO STEM AISI 304					
MATERIALS	SEDI SEATS	P.T.F.E.	SFERA BALL AISI 304					
								
INCH.	1-1/8"	2"	2-1/8"	3"	4"	5"	6"	8"
L	200	230	290	310	350	400	480	600
L1	100	115	145	155	175	200	248	300
H	103	111	134	142	167	181	235	277
V	280	280	370	370	470	470	600	745
WEIGHT Kg.	13	18	33	40	56	83	106	160
SCREWS (1)	No. 12	No. 12	No. 12	No. 12	No. 24	No. 24	No. 24	No. 24
	1/4" x 40	5/16" x 40	5/16" x 45	5/16" x 45	5/16" x 50	5/16" x 50	5/16" x 55	5/16" x 55

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE LIBERI DAI MATERIAZI ANAMALI**

(1) - SCREWS : ANSI B18.2.1 / H.E.S. ASTM A193 B7

(2) - DIMENSIONS FACE-TO-FACE ACCORDING : DIN 3202-F1



1	REVISED WHERE INDICATED	2-12-92
0	ISSUED	08-91
REV.	DESCRIPTION - DESCRIZIONE	DATA

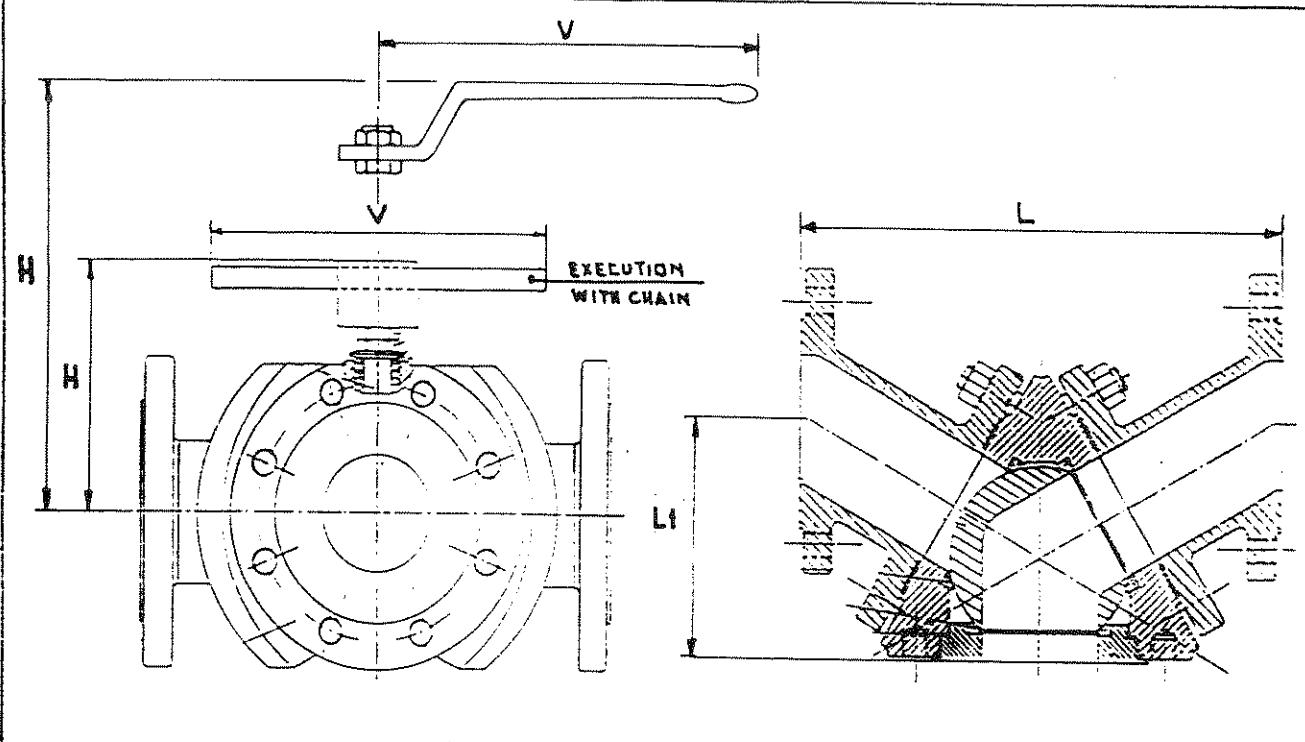


BALLESTRA s.r.l.  
MILANO ITALIA

VALVOLA A SFERA A TRE VIE  
THREE WAY BALL VALVE  
TIPO  
TYPE  
**S103**

ST. 46552

PRESSIONE NOM.	CORPO BODY	150 #	PASSAGGIO TOTALE
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5 150# RF	FULL BORE
MATERIALI	CORPO BODY AISI 316		
MATERIALS	SEDI SEATS	P.T.F.E.	STELLO STEM AISI 316
			SFERA BALL AISI 316



INCH.	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"			
L	200	230	290	310	350	400	480	600			
L1	100	115	145	155	175	200	240	300			
H	103	111	134	142	167	181	235	277			
V	280	280	370	370	470	470	600	745			
WEIGHT Kg.	13	18	33	40	56	83	106	180			
SCREWS (1)	M6.12	M6.12	M6.12	M6.12	M6.24	M6.24	M6.24	M6.24			
	1" x 40	5" x 40	5" x 45	5" x 45	5" x 50	3" x 50	3" x 55	3" x 55			
	2	8	8	8	8	4	4	4			

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

(1) - SCREWS : ANSI B18.2.1 / H.C.S. ASTM 193 B7

(2) - DIMENSIONS FACE-TO-FACE ACCORDING : DIN 3202-F1



1	REVISED WHERE INDICATED	J.P.		2-12-92
0	ISSUED	J.A.	MM. Sullens	02-81
REV.	DESCRIPTION	COPIES PROPS	CONTROLE CONTROLS	DATE DATE

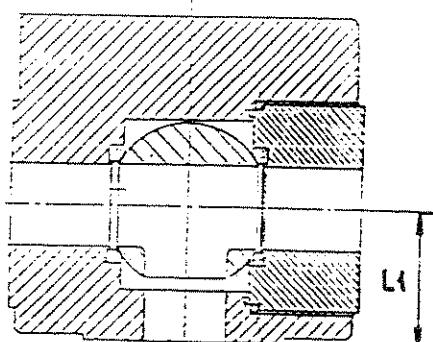
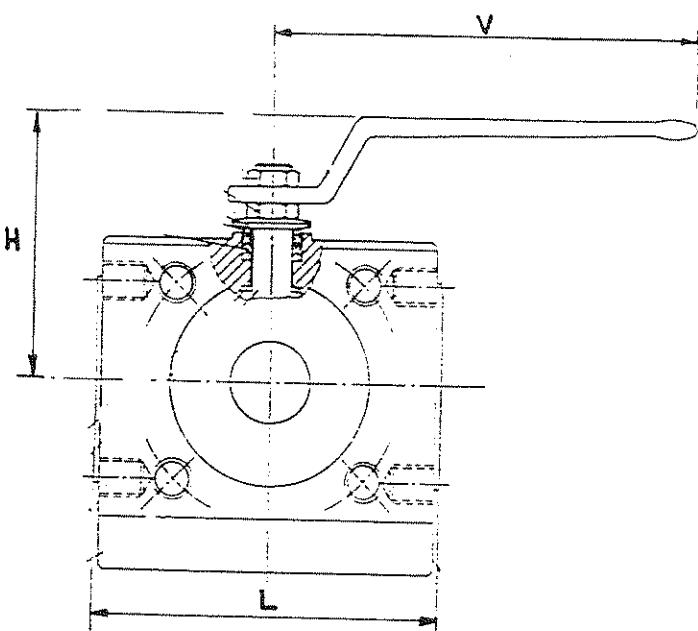


BALLESTRA S.p.A.  
MILANO (ITALY)

VALVOLA A SFERA A TRE VIE  
THREE WAY BALL VALVE  
TIPO  
TYPE S109

ST. 46558

PRESSIONE NOM.	CORPO BODY	150#	PASSAGGIO TOTALE
RATING	ACCOPIAMENTI ASSEMBLING	ANSI B16.5 150# RF	FULL BORE
MATERIALI	CORPO BODY	AISI 316	SESTOLO STEM
MATERIALS	SEDI SEATS	P.T.F.E.	SFERA BALL



INCH.	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "					
L	115	120	125	150					
L1	35	38	41	52					
H	62	80	85	103					
V	145	185	185	280					
WEIGHT Kg.	5.5	9	11	14					
SCREWS (4)	N0.12	N0.12	N0.12	N0.12					
	$\frac{1}{2} \times 30$	$\frac{1}{2} \times 30$	$\frac{1}{2} \times 35$	$\frac{1}{2} \times 40$					

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

(1) - SCREWS: ANSI B18.2.1/H.C.S. ASTM A193 B7

(2) - DIMENSIONS FACE-TO-FACE ACCORDING: DIN 3202-F4 FOR INCH.  $\frac{1}{2}$ " - 1"  
DIN 3202-F34 FOR INCH.  $1\frac{1}{4}$ "

1	REVISED WHERE INDICATED	H				2.12.92
0	ISSUED	R.P.				02-91
REV.	DESCRIZIONE - DESCRIPTION	COMP.	PROSP.	EXTR.	NTP	DATA



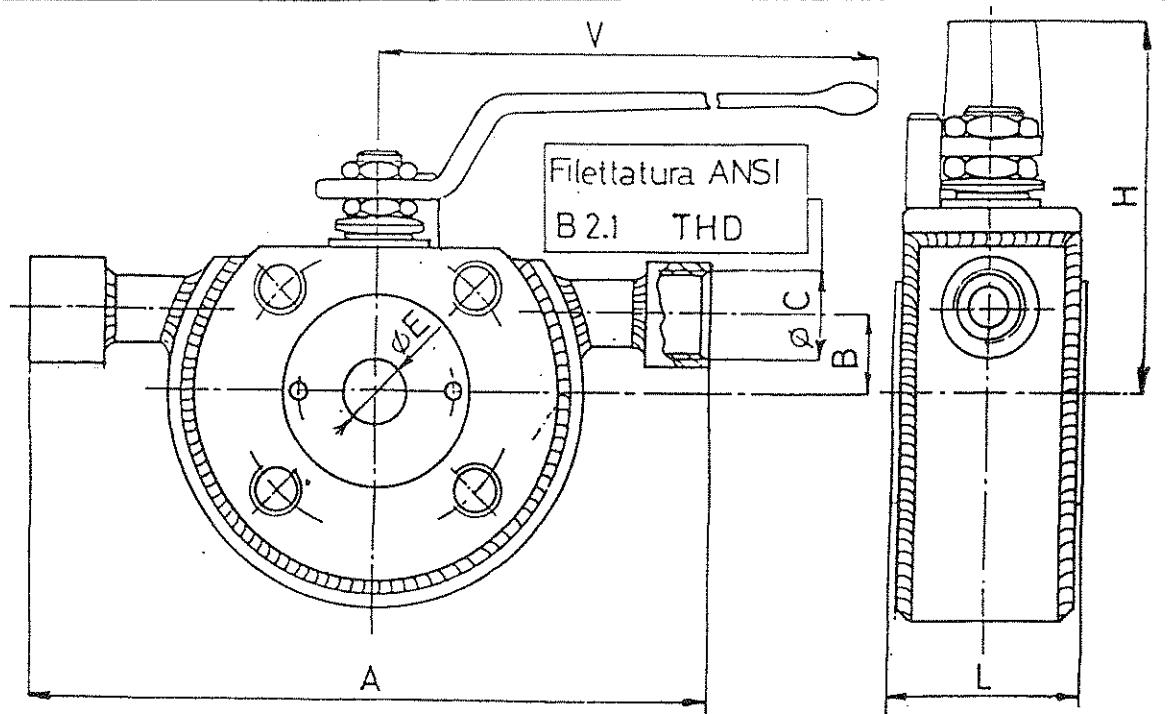
BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE  
TIPO  
TYPE S 121

ST. 46584

PRESSIONE NOM RATING	CORPO BODY	150 #	PASSAGGIO TOTALE FULL BORE	CON CAMICIA DI RISCALDAM. WITH HEATING JACKET	
	ACCOPPIAMENTO ASSEMBLING	ANSI B16.5-150 RF			
MATERIALI MATERIALS	CORPO BODY	ACCIAIO AL CARBONIO CARBON STEEL	SFERA BALL	AISI 304	
	SEDI SEATS	TEFLON CARICATO VETRO PTFE + GLASS	STENO STEM	AISI 304	

NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



DN"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	
L	35	35	43	51	64	85	103	120	155	182	234	310	
H	59	62	80	85	103	111	135	144	170	182	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
ØE	15	19	25	30	38	51	64	76	101	118	152	203	
A	150	160	190	210	230	250	270	300	340	360	420	500	
B	-	-	-	25	30	30	45	50	70	80	95	130	
ØC	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	1/2"	1/2"	1"	1"	1"	1"	
PESO KG WEIGHT	2,8	3,3	4,3	6,5	8,8	12,5	20	25	36	52	57	99	
VITI (1)	N°8	N°16	N°16	N°16	N°16								
SCREWS	1/2" x 30	5/8" x 30	1/2" x 30	1/2" x 35	1/2" x 35	5/8" x 40	5/8" x 40	5/8" x 45	5/8" x 45	3/4" x 50	3/4" x 50	3/4" x 50	

(1) SCREWS: ANSI B.18.2.1/H.C.S. - ASTM A 193 B7

NOTE ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED WHERE INDICATED	APPR.	1/2	APPR.	1/2
0	ISSUED	APPR.	1/2	APPR.	1/2
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONT.RD	APPR. APPLD	DATA DATE



BALLESTRA s.p.a.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE

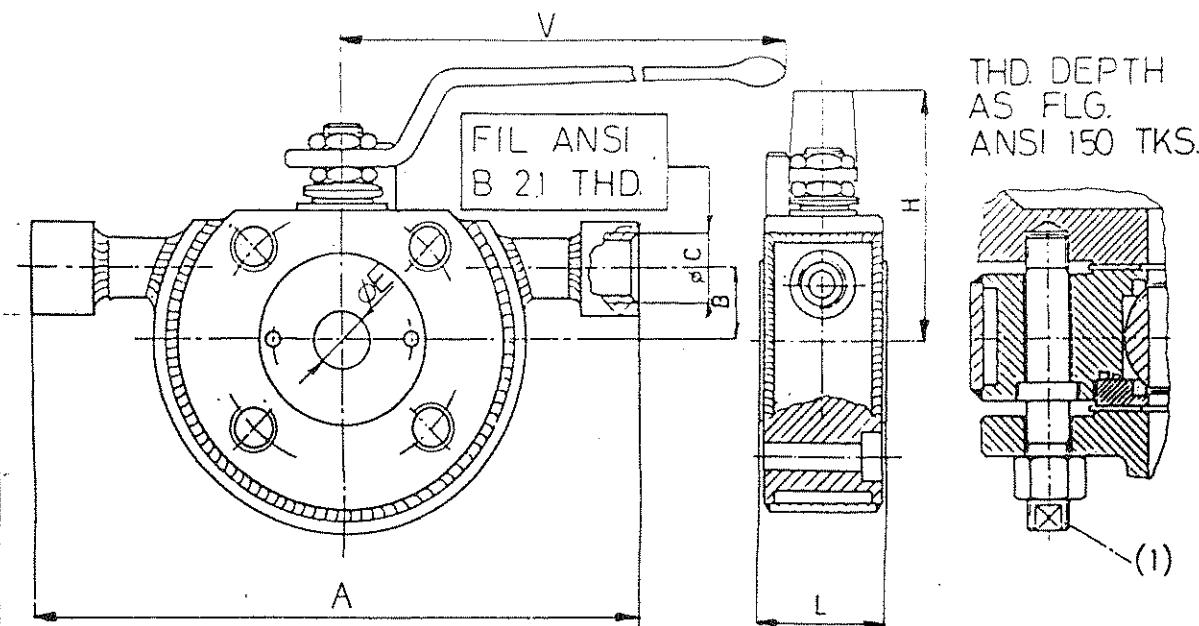
TIPO  
TYPE

S 122

ST. 46585

PRESSEIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	150 # ANSI B16.5-150 RF	PASSAGGIO TOTALE FULL BORE	CON CAMICIA DI RISCALDAM. WITH HEATING JACKET
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	ACCIAIO AL CARBONIO CARBON STEEL TEFLON CARICATO VETRO PTFE + GLASS	SFERA BALL STELO STEM	AISI 304 AISI 304

COMPLETA DI PRIGIONIERI (MONTAGGIO MP)



DN	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
L	35	35	43	51	64	85	103	120	155	182	234	310
H	59	62	80	85	103	111	135	144	170	182	235	277
V	145	145	185	185	280	280	370	370	470	470	600	745
Ø E	15	19	25	30	38	51	64	76	101	118	152	203
A	150	160	190	210	230	250	270	300	340	360	420	500
B	—	—	—	25	30	30	45	50	70	80	95	130
Ø C	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1"	1"	1"	1"
Weight	2,8	3,3	4,3	6,5	8,8	12,5	20	25	36	52	57	99
Screws	(1)	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"

(1) SPECIAL BOLTS SUPPLIED WITH VALVES.

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



1	REVISED WHERE INDICATED	DP	MM	26-11-91
0	ISSUED	DP	MM	4-11-91
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D



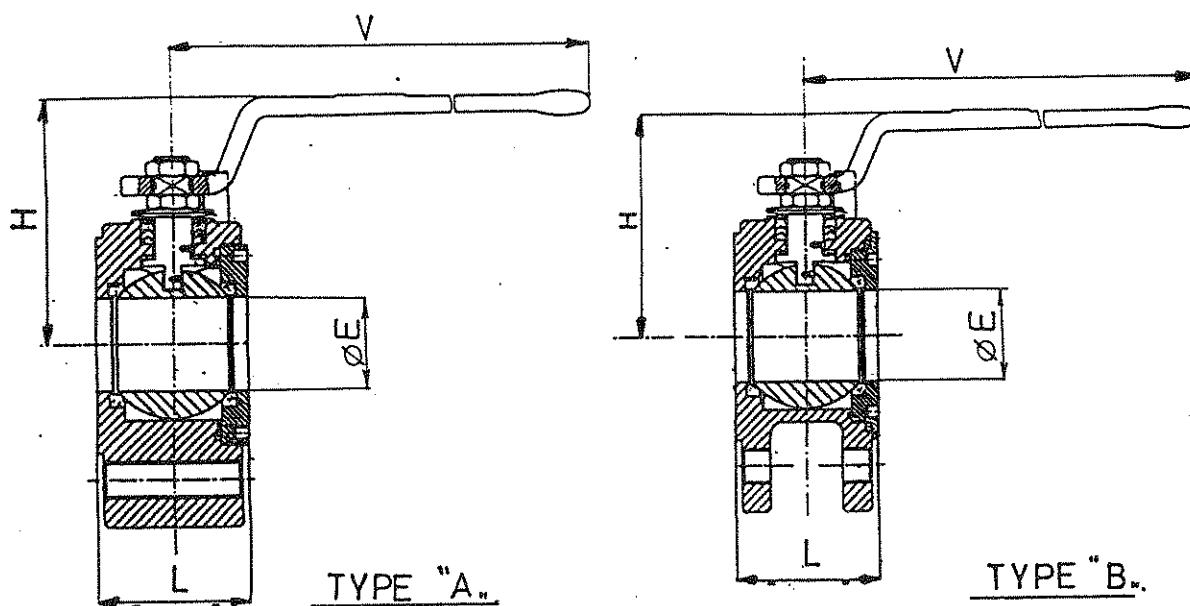
BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE  
TIPO - TYPE S 123

ST. 46586

PRESSURE NOM RATING	CORPO BODY	150 #	PASSAGGIO TOTALE	
	ACCOPIAMENTO ASSEMBLING	ANSI B16.5 150#RF	FULL BORE	
MATERIALI MATERIALS	CORPO BODY	AISI 304	STIELO STEAM	AISI 304
	SEDI SEATS	TEFLON	SFERA BALL	AISI 304

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



DN":	½"	¾"	1"	1-1/4"	1½"	2"	2½"	3"	4"	5"	6"	8"	
ØE	15	19	25	30	38	51	64	76	101	118	152	203	
L	35	35	43	51	64	85	103	120	155	182	234	310	
H	59	62	80	85	103	111	135	144	170	183	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
Peso/Weight	16	19	28	48	7	65	102	14	21	31	49	89	
VITI	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº16	Nº16	Nº16	Nº16	
SCREWS	½x30	½x30	½x30	½x35	½x35	5/8x40	5/8x40	5/8x45	5/8x45	3/4x50	3/4x50	3/4x50	
TYPE	A			B									

(1) SCREWS: ANSI B18.2.1/H.C.S. - ASTM A 19387

**NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")**  
**A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")**



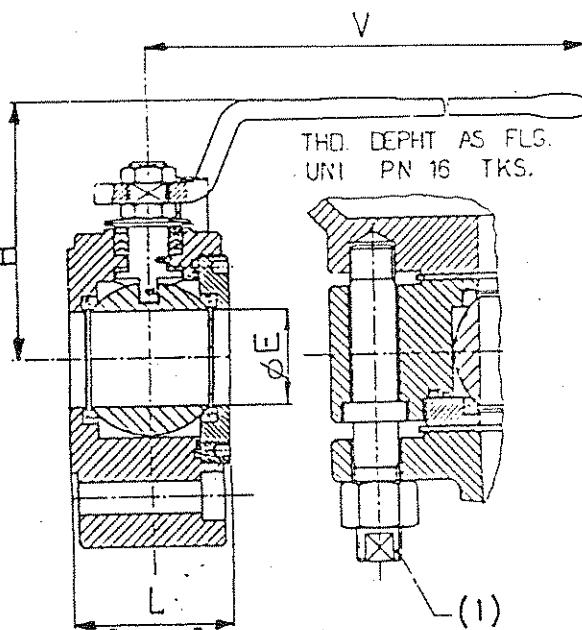
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0	ISSUED	dp	APR.	Stato: 14/11/91
	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D
REV.				DATA DATE

 <b>BALLESTRA S.p.A.</b> MILANO (ITALIA)		<b>VALVOLA A SFERA</b> <b>BALL VALVE</b> <b>TIPO-TYPE S124</b>		<b>ST. 46587</b>
PRESSIONE NOM	CORPO BODY	150#	PASSAGGIO TOTALE	
RATING	ACCOPIAMENTO ASSEMBLING	ANSI B16.5-150RF	FULL BORE	
MATERIALI	CORPO BODY	AISI 304	STIELO STEM	AISI 304
MATERIALS	SEDI SEATS	TEFLON	SFERA BALL	AISI 304

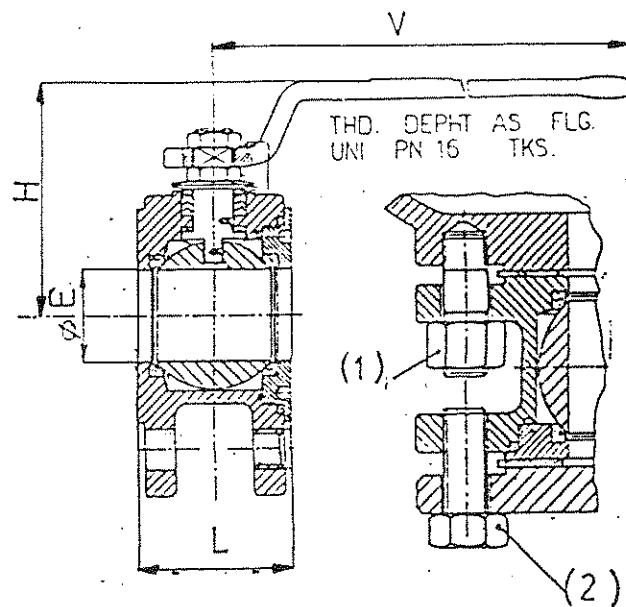
NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
 A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



TYPE "A."



TYPE "B."



DN	1/2	3/4	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"		
φ E	15	19	25	30	38	51	64	76	101	118	152	203		
L	35	35	43	51	64	85	103	120	155	182	234	310		
H	59	62	80	85	103	111	135	144	170	183	235	277		
V	145	145	185	185	280	280	370	370	470	470	600	745		
WEIGHT	16	19	2.8	4.8	4.6	6.5	10.2	14	21	31	49	89		
VITI (2)	-	-	-	-	N°4	N°4	N°4	N°4	N°8	N°8	N°8	N°8		
SCREWS	-	-	-	-	1/2" x 35	5/8" x 40	5/8" x 40	5/8" x 45	5/8" x 45	3/4" x 50	3/4" x 50	3/4" x 50		
TYPE	<u>"A."</u>		<u>"B."</u>											
#SCREWS(1)	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"		

(1) SPECIAL BOLTS SUPPLIED WITH VALVES

(2) SCREWS: ANSI B 18.2.1/H.C.S. - ASTM A 193 B7

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

1	REVISED WHERE INDICATED	DP	MM	June 26-11-91
0	ISSUED	DP	MM	June 4-11-91



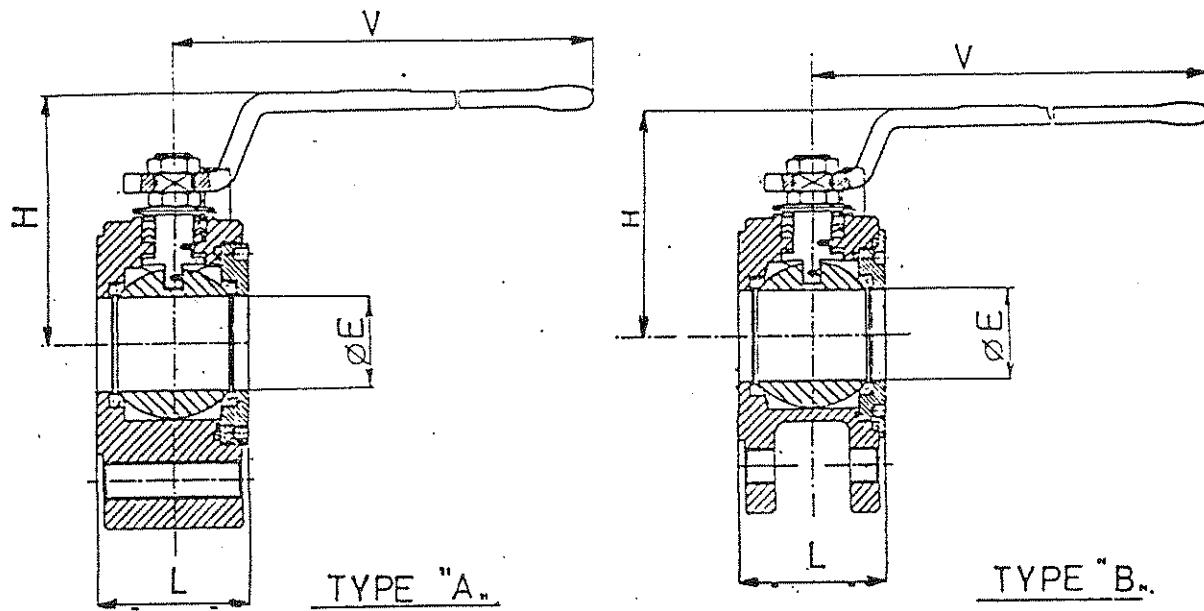
BALLESTRA s.p.a.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE  
TIPO - TYPE 5125

ST. 46588

PRESSIONE NOM RATING	CORPO BODY	150#	PASSAGGIO TOTALE FULL BORE		
	ACCOPPIAMENTO ASSEMBLING	AISI B16.5 150#RF			
MATERIALI MATERIALS	CORPO BODY	AISI 316		STELO STEAM	
	SEDI SEATS	TEFLON		SFERA BALL	
		AISI 316		AISI 316	

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO



DN":	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	
ØE	15	19	25	30	38	51	64	76	101	118	152	203	
L	35	35	43	51	64	85	103	120	155	182	234	310	
H	59	62	80	85	103	111	135	144	170	183	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
Peso/Weight	16	19	28	48	7	65	102	14	21	31	49	89	
VITI	N°8	N°16	N°16	N°16	N°16								
SCREWS	1/2 x 30	1/2 x 30	1/2 x 30	1/2 x 35	1/2 x 35	5/8 x 40	5/8 x 40	5/8 x 45	5/8 x 45	3/4 x 50	3/4 x 50	3/4 x 50	
TYPE	A								B				

(1) SCREWS: ANSI B18.2.1/H.C.S. - ASME A 19387

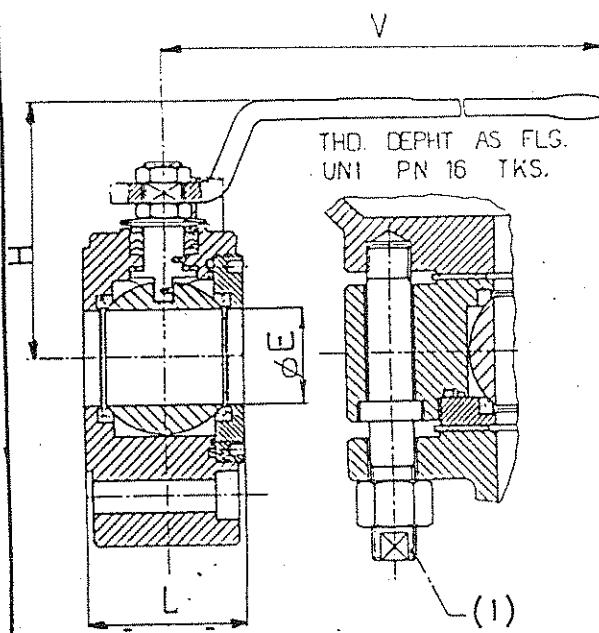
NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



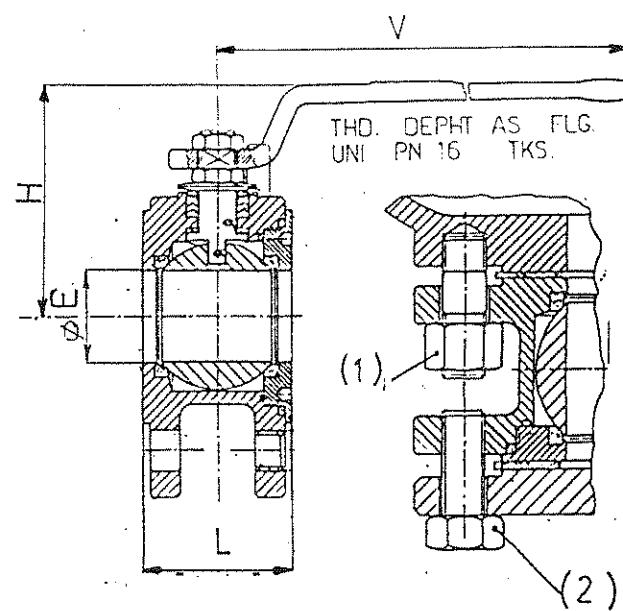
1	REVISED WHERE INDICATED	AP	<i>R.M.</i>	26-11-91
0	ISSUED	AP	<i>R.M.</i>	26-11-91

 <b>BALLESTRA S.p.A.</b> MILANO (ITALIA)		<b>VALVOLA A SFERA</b> <b>BALL VALVE</b> <b>TIPO-TYPE 5126</b>		<b>ST. 46589</b>
<b>PRESSIONE NOM RATING</b>	<b>CORPO BODY</b>	150#	<b>PASSAGGIO TOTALE FULL BORE</b>	
	<b>ACCOPPIAMENTO ASSEMBLING</b>	ANSI B16.5-150 RF		
<b>MATERIALI</b> <b>MATERIALS</b>		<b>CORPO BODY</b> AISI 316  <b>SEDI SEATS</b> TEFILON		<b>STENO STEM</b> AISI 316  <b>SFERA BALL</b> AISI 316
<b>NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L") A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")</b>				

TYPE "A"



TYPE "B"



DN	1/2	3/4	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	
Ø E	15	19	25	30	38	51	64	76	101	118	152	203	
L	35	35	43	.51	64	85	103	120	155	182	234	310	
H	59	62	80	85	103	111	135	144	170	183	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
WEIGHT	1,6	1,9	2,8	4,8	4,6	6,5	10,2	14	21	31	49	89	
VITI (2)	-	-	-	-	N°4	N°4	N°4	N°4	N°8	N°8	N°8	N°8	
SCREWS	-	-	-	-	1/2" x 35	5/8" x 40	5/8" x 40	5/8" x 45	5/8" x 45	3/4" x 50	3/4" x 50	3/4" x 50	
TYPE	<u>"A"</u>				<u>"B"</u>								
* SCREWS(1)	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	

(1) SPECIAL BOLTS SUPPLIED WITH VALVES

(2) SCREWS: ANSI B 18.2.1/H.C.S. - ASTM A 193 B7

**NOTE** ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED WHERE INDICATED 	DP	 Date	26-11-91
0	ISSUED	SP	 Date	4-11-91

PRV DESCRIZIONE - DESCRIPTION COMP. CONTR. APPR. DATA  
REVISIONE - REVISIONE CONTROL. CONTROL. APPROVED DATE



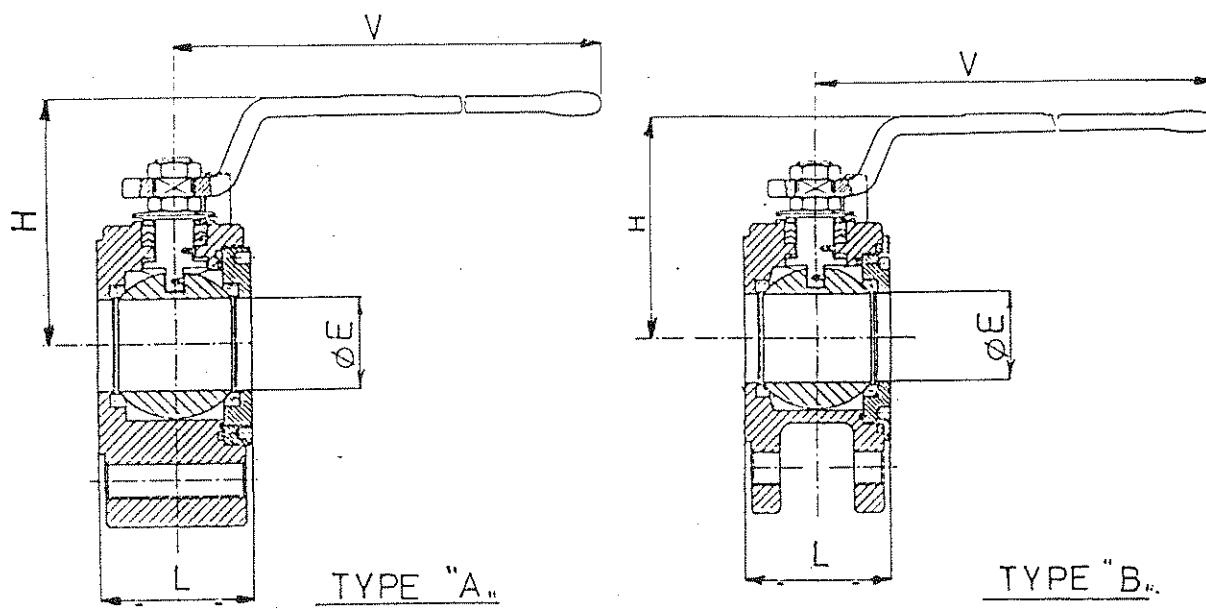
BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A SFERA  
BALL VALVE  
TIPO - TYPE 5127

ST. 46590

PRESSIONE NOM RATING	CORPO BODY	150 #	PASSAGGIO TOTALE FULL BORE	
	ACCOPPIAMENTO ASSEMBLING	ANSI B16.5 150# RF		
MATERIALI MATERIALS	CORPO ACCIAIO AL CARBONIO BODY CARBON STEEL		STENDO STEAM	AISI 304
	SEDI TEFLOL SEATS		SFERA BALL	AISI 304

NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



DN";	1"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	
Ø E	15	19	25	30	38	51	64	76	101	118	152	203	
L	35	35	43	51	64	85	103	120	155	182	234	310	
H	59	62	80	85	103	111	135	144	170	183	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
Peso/Weight	1,6	1,9	2,8	4,8	7	10,5	17,5	22,5	33	48	49	89	
VIII	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº8	Nº16	Nº16	Nº16	Nº16	
SCREWS	3" x 30	3" x 30	4" x 30	3" x 35	3" x 35	5/8" x 40	5/8" x 40	5/8" x 45	5/8" x 45	7/16" x 50	7/16" x 50	7/16" x 50	
TYPE	"A"						"B"						

(1) SCREWS: ANSI B18.2.1/H.C.S. - ASTM A 193B7

NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED WHERE INDICATED	DP	MM	KLIMA	26-11-91
0	ISSUED	DP	MM	WILLI	4-11-91
REV.	DESCRIZIONE - DESCRIPTION	COMP.	CONTR.	APPR.	DATA

BALLESTRA S.p.A.  
MILANO (ITALIA)VALVOLA A SFERA  
BALL VALVE  
TIPO-TYPE 5128

ST. 46591

We reserve the ownership under the law of this drawing with prohibition of even partial reproduction and its known to third persons without our written authorization.

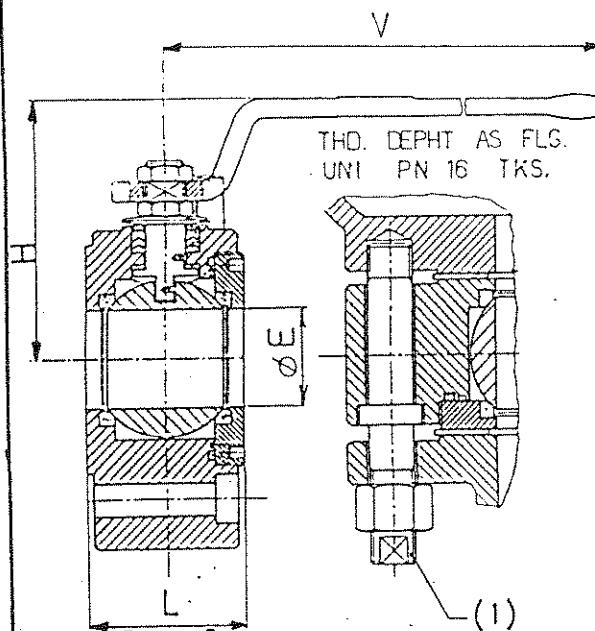
Il risparmio a termine di questo disegno con diritto di riproduzione anche in parte o di renderlo noto a terzi senza nostra autorizzazione è sc嗣to.

PRESSIONE NOM RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	150# ANSI B16.5-150RF	PASSAGGIO TOTALE FULL BORE	
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	ACCIAIO AL CARBONIO CARBON STEEL TEFLON	STENO STEM SFERA BALL	AISI 304 AISI 304

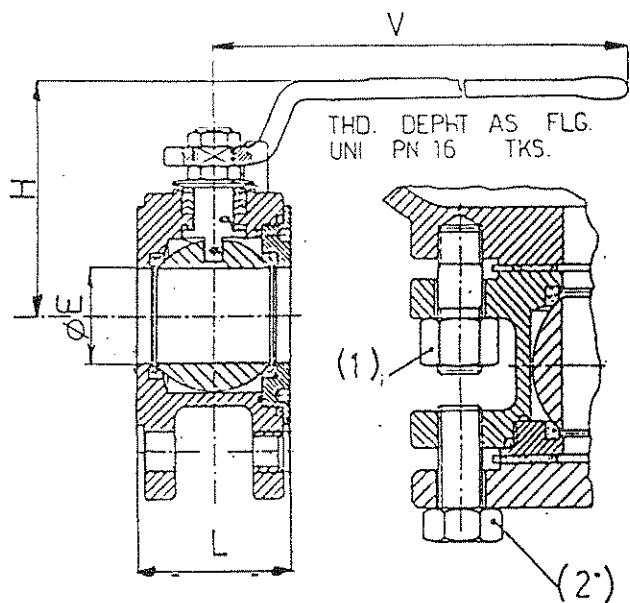
NOTE: WHEN THE VALVE IS CLOSED, THE BALL SHOULD REMAIN WITHIN THE LIMITS OF VALVE BODY (DIMENSION "L")  
A VALVOLA CHIUSA LA SFERA NON DEVE SPORGERE DAL CORPO VALVOLA (DIMENSIONE "L")



TYPE "A"



TYPE "B"



DN	1/2	3/4	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	
Ø E	15	19	25	30	38	51	64	76	101	118	152	203	
L	35	35	43	.51	64	85	103	120	155	182	234	310	
H	59	62	80	.85	103	111	135	144	170	183	235	277	
V	145	145	185	185	280	280	370	370	470	470	600	745	
WEIGHT	1,6	1,9	2,8	4,8	7	10,5	17,5	22,5	33	48	49	89	
VITI (2) SCREWS	—	—	—	—	—	—	—	—	—	—	N° 8	N° 8	
TYPE	"A"										"B"		
#SCREWS(1)	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	

(1) SPECIAL BOLTS SUPPLIED WITH VALVES

(2) SCREWS: ANSI B 18.2.1/H.C.S. - ASTM A. 193 B7

NOTE! ALL GASKETS HAVE TO BE ASBESTOS FREE  
TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO

1	REVISED WHERE INDICATED	JP	All	Open - 26-11-91
0	ISSUED	JP	All	Open - 4-11-91
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONT. CONTR.D	APPR. APPR.D
				DATA DATE



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

CONDENSINO PER ARIA  
AIR TRAP  
TIPO - TYPE T 61

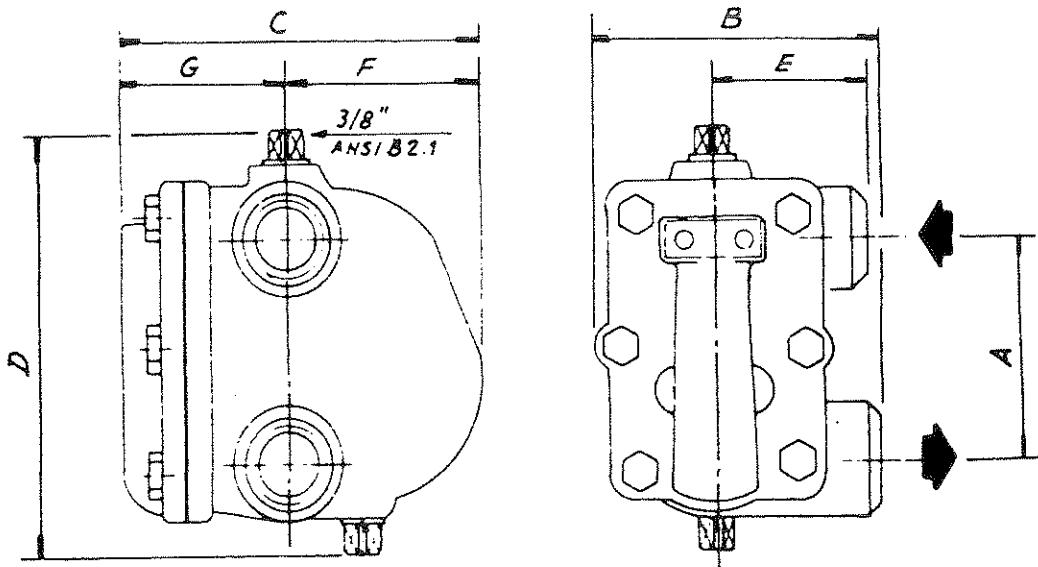
ST.46115

PRESSIONE NOM	CORPO BODY	12 BAR	ACCOPIAMENTO CORPO COPERCHIO	FILETTATO UNION BONNET	
RATING	ACCOPIAMENTO ASSEMBLING	FILETTATO ANSIB2.1 THREADED ANSIB2.1	ASSEMBLING BODY BONNET	IMBULLONATO BOLTED BONNET	<input checked="" type="checkbox"/>
MATERIALI	CORPO BODY	GHISA CAST IRON	GALLEGIANTE FLOAT	ACCIAIO INOX STAINLESS STEEL	
MATERIALS	SEDI SEATS	ACCIAIO INOX STAINLESS STEEL	OTTURATORE WEDGE	GOMMA NITRILICA RUBBER	

OMOLOGATO: JUCKER TYPE GA. 12

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Per i diritti riconosciuti dalla legge di questo disegno con divieto di riproduzione anche in parte o di renderlo utile senza nostra autorizzazione scritta



**NOTE | ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**





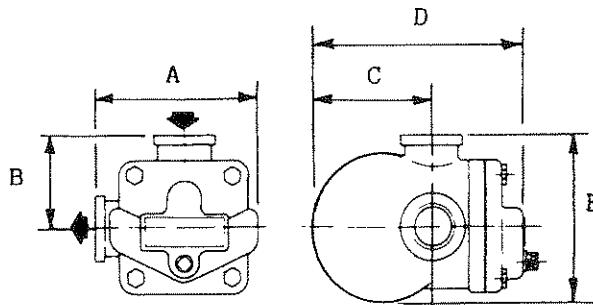
**BALLESTRA s.p.a.**  
MILANO (ITALIA)

CONDENSINO PER ARIA  
AIR TRAP  
TIPO : T 62  
TYPE :

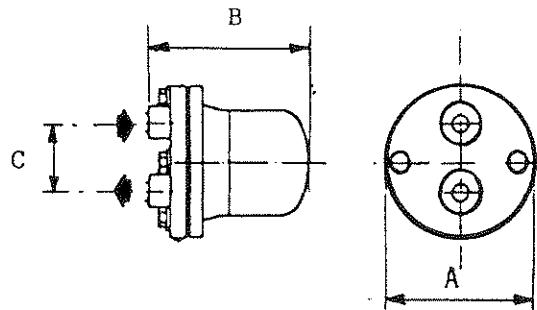
ST. 46116

PRESSIONE NOM RATING	CORPO MAX BODY PRESS. ACCOPPIAMENTO ASSEMBLING	14 BAR FILETTI ANSI B21 THREAD	ACCOPIAMENTO CORPO COPER. ASSEMBLING BODY BONNET	FILETTO UNION BONNET IMBULLONATO BOLTED BONNET	VITE INTERNA INSIDE SCREW VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO GHISA BODY CAST IRON SEDI ACCIAIO INOX SEATS STAINLESS STEEL	GALLEGGIANTE FLOAT OTTURATORE WEDGE	ACCIAIO INOX STAINLESS STEEL COMMA NITRILICA NITRILIC RUBBER		

TYPE: JUCKER FA.14



TYPE: JUCKER GYA.14



INCHES	3/4"					1/2"				
A	112					165				
B	61					185				
C	77					74				
D	137									
E	112									
weight kg	2.4					2.4				

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**



We receive the ownership under the law of this drawing with permission of even partial reproduction and to  
it belongs to third persons without our written authorization

Il mercantile lo preferiva a Vittorio di legge di questo disegno con durezza di rappresentare anche in pietra o di renderlo



**DALLESTRÀ S.p.A.**  
MILANO (ITALIA)

**CONDENSING PER VAPORE  
STEAM TRAP  
TIPO - TYPE T 66**

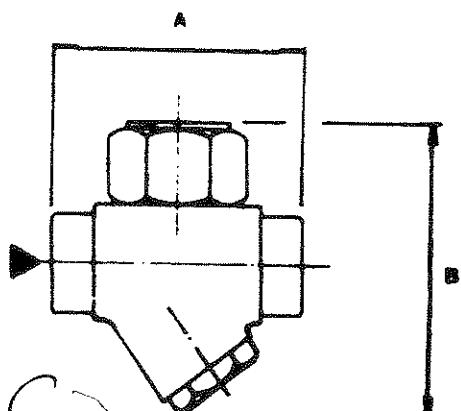
T 66

ST. 4

PRESSIONE NOM	CORPO BODY	35 Kg/Cm2 Max	ACCOPIAMENTO	FILETTATO	<input checked="" type="checkbox"/>
RATING	ACCOPIAMENTO ASSEMBLING	TASCA DA SALDARE SOCKET WELDING	CORPO COPERCHIO ASSEMBLING BODY-BONNET	UNION BONNET IMBULLONATO BOLTED BONNET	<input type="checkbox"/>
MATERIALI	CORPO ACCIAIO AL CARBONIO BODY CARBON STEEL	ASTM A 105	FILTO INCORPORATO BUILT-IN STRAINER		
MATERIALS	SEDI ACCIAIO INOX SEATS STAINLESS STEEL		OTTURATORE ACCIAIO INOX WEDGE	STAINLESS STEEL	

NOTE: HORIZONTAL ASSEMBLY IS PREFERRED

OMOLOGATO: DOUGLAS - ITALIA S.p.A. TIPO "DC-3E"



**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

3	REVISED WHERE INDICATED	SCH	MM	K
2	REVISED WHERE INDICATED	LANNI		
1	REVISED WHERE INDICATED	MANCO		
0	ISSUED	D.A.		



**BALLISTRA S.p.A.**  
MILANO (ITALIA)

SCARICO Vapore CON  
FILTRO

STEAM TRAP WITH Y STRAINER

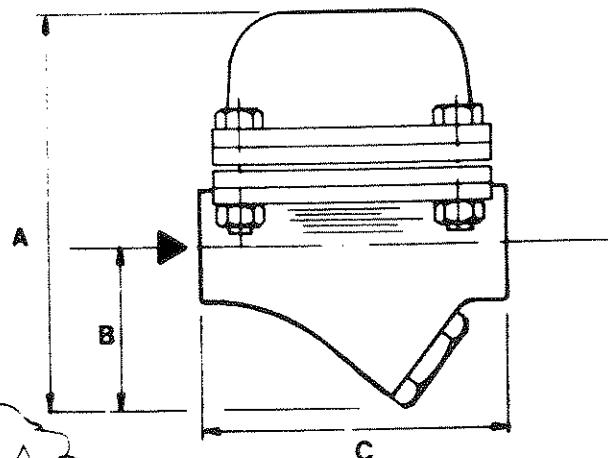
TIPO TYPE **T 67**

**ST. 48271**

<b>PRESSIONE NOM</b> <b>RATING</b>	<b>CORPO</b> <b>BODY</b>	MAX 20 kg/cm <sup>2</sup>	<b>TIPO: TERMOSTATICO A BIMETALLO</b> <b>TYPE: THERMOSTATIC WITH BINETALLIC STRIP</b>	
	<b>ACCOPPIAMENTO</b> <b>ASSEMBLING</b>		<b>A TASCA DA SALDARE</b> <b>SOCKET WELD</b>	
<b>MATERIALI</b>	<b>CORPO</b> <b>BODY</b>	<b>A 105</b>		<b>BIMETALLO</b> NiCr/NiCr <b>BIMETAL</b>
<b>MATERIALS</b>	<b>SEDI E OTTURATORE</b> <b>SEATS &amp; WEDGE</b>	<b>AISI 431</b>		<b>FILTO</b> AISI 304 <b>STRAINER</b> AISI 304

NOTE: HORIZONTAL & VERTICAL ASSEMBLY

OMOLOGATO: DOUGLAS MOD. BC 20



INCHES	1/2"	3/4"	1"	1 1/2"	2"						
A	150	150	160	205	205						
B	55	55	65	80	80						
C	100	100	120	160	160						
weight	3.8	3.8	4.5	13	13						

**NOTE: ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

4	REVISED WHERE INDICATED	<i>ganti</i>	<i>MM</i>	21.5.86
3	REVISED WHERE INDICATED	LANNI		4.98
2	REVISED WHERE INDICATED	BIANCO		3.90
1	REVISED WHERE INDICATED	D.A.	-	25.8.87
0	ISSUED			1.8.86



BALLESTRA S.p.A.  
MILANO (ITALIA)

VALVOLA A FARFALLA  
BUTTERFLY VALVE

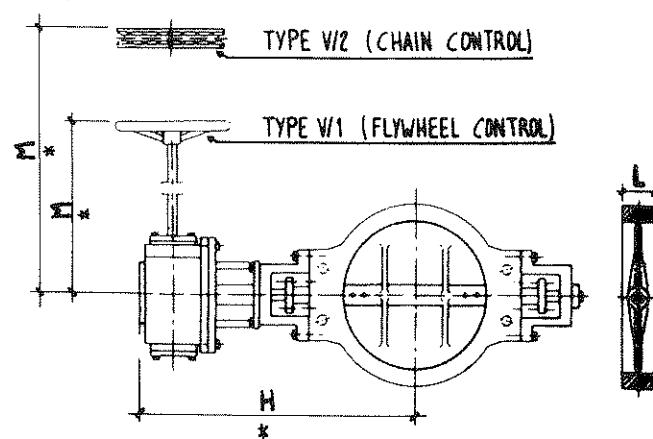
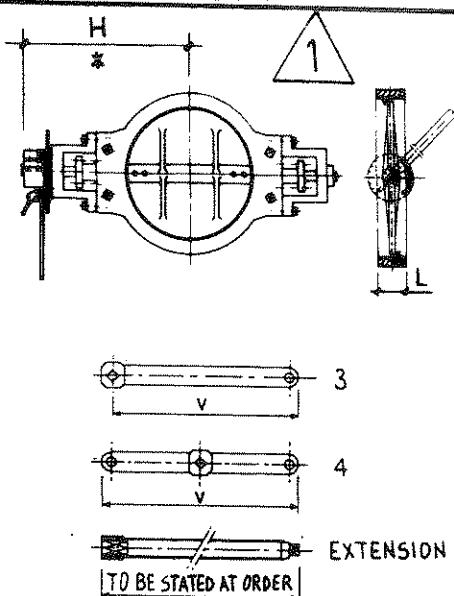
ST. 4659b

PRESSEIONE NOM	CORPO BODY	0,9 Kg/cm <sup>2</sup>	ACCOPIAMENTO CORPO COPERC. ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
RATING	ACCOPPIAMENTO ASSEMBLING	ANSI B16,5 150# SMALL GROVE	CORPO COPERC. ASSEMBLING	IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI	CORPO BODY	AISI 304	STELLO STEM	AISI 304	
MATERIALS	SEDI SEATS		FARFALLA BUTTERFLY	AISI 304	

-FOR GAS 502-700°C

-GUARANTEE FOR MAX 5% LEAK

N.B. : LA VALVOLA VIENE NORMALMENTE FORNITA CON MANOVRA TIPO "3".  
REMARK : THE VALVE IS USUALLY SUPPLIED WITH LEVER "TYPE 3".



DN	6"	8"	10"	12"	14"	16"	18"	20"	24"					
L	56	60	68	78	78	102	114	127	154					
H	195	221	247	273	295	665	685	780	790					
M						320	320	320	380					
V/3	300	300	300	300	400									
V/4	400	400	400	400	500									

WITH GEAR

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

\* - INDICATIVE DIMENSIONS

1) DIMENSIONS FACE-TO-FACE ACCORDING TO DIN 3202-K1

1	REVISED WHERE INDICATED	Bianco	Argento	Nero	24/3/97
0	ISSUED	d	W	W	13-02-92
REV.	DESCRIPTION - DESCRIPTION	PPS	PPS	PPS	PPS



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

VALVOLA A SARACINESCA

GATE VALVE

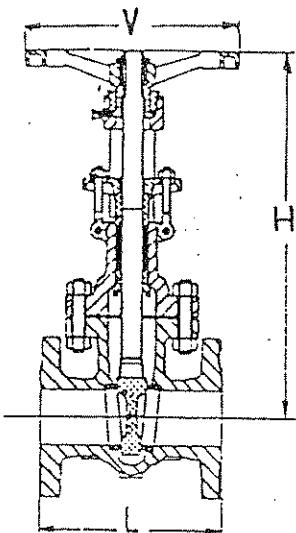
TIPO

TYPE

**G 68**

**ST.46355**

PRESSIONE NOM RATING	CORPO BODY	150#	ACCOPPIAMENTO ASSEMBLING	FILETTO UNION BONNET	VITE INTERNA INSIDE SCREW
	ACCOPPIAMENTO ASSEMBLING	ANSI B16.5-150#		IMBULLONATO BOLTED BONNET	VITE ESTERNA OUTSIDE SCREW
MATERIALI MATERIALS	CORPO BODY A 216 WCB		STELLO STEM	A 182 F6	
	SEDI SEATS A 182 F6		OTTURATORE WEDGE	A 182 F6 (STELLIT.)	



INCH.	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L	178	191	203	229	254	267	292	330	356	381	406	432	457	508
H	370	400	442	532	582	698	842	1050	1183	1284	1492	1632	1800	2095
V	200	200	225	250	250	300	425	500	500	575	650	650	720	800
peso kg weight														

**NOTE ! ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

3	MODIFIED PICTURE				
2	REVISED WHERE INDICATED	▲			
REV.	DESCRIZIONE - DESCRIPTION		Brancat	Mr. Chem	22/5/91

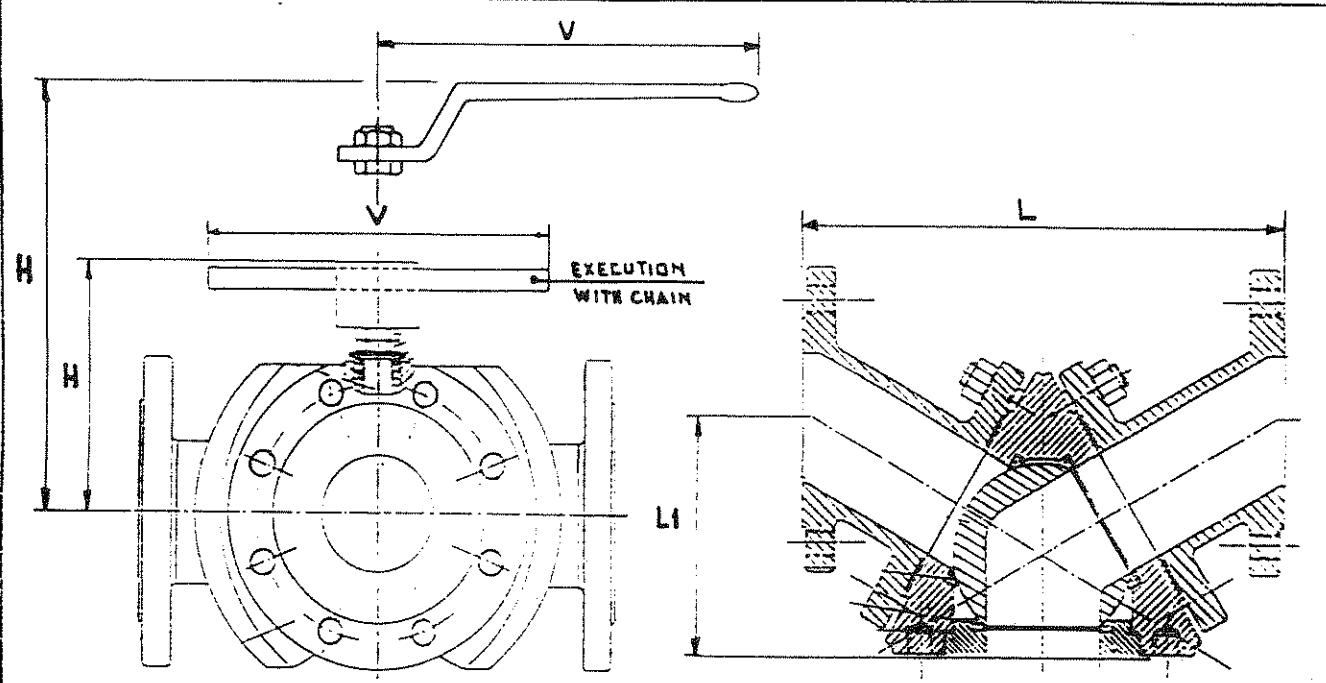


**BALESTRA S.p.A.**  
MILANO (ITALIA)

**VALVOLA A SFERA A TRE VIE**  
**THREE WAY BALL VALVE**  
**Tipo S 100**  
**TYPE S 100**

**ST. 46549**

PRESIONE NOM. RATING	CORPO BODY ACCOPPIAMENTO ASSEMBLING	16 Kg/cm <sup>2</sup> UNI 2223/2229 PN 16	PASSAGGIO TOTALE FULL BORE
MATERIALI MATERIALS	CORPO BODY SEDI SEATS	CARBON STEEL PT.F.E	STENO STEM SFERA BALL
			AISI 316
			AISI 316



DN	40	50	65	80	100	125	150	200			
L	200	230	290	310	350	400	480	600			
L1	100	115	145	155	175	200	240	300			
H	103	111	134	142	167	181	235	277			
V	280	280	370	370	470	470	600	745			
WEIGHT Kg.	13	18	33	40	56	83	106	180			
SCREWS (1)	Nº.12	Nº.12	Nº.12	Nº.24	Nº.24	Nº.24	Nº.24	Nº.36			
	16x35	16x40	16x40	16x40	16x45	16x50	20x50	20x50			

**NOTE : ALL GASKETS HAVE TO BE ASBESTOS FREE**  
**TUTTE LE GUARNIZIONI DEVONO ESSERE ESENTI AMIANTO**

(1) - SCREWS: UNI 5725-4.6 UNI 3740

(2) - DIMENSIONS FACE-TO-FACE ACCORDING: DIN 3202-F1



1	REVISED WHERE INDICATED	10	2-12-92
0	ISSUED	10	02-91
REV.		10	10



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

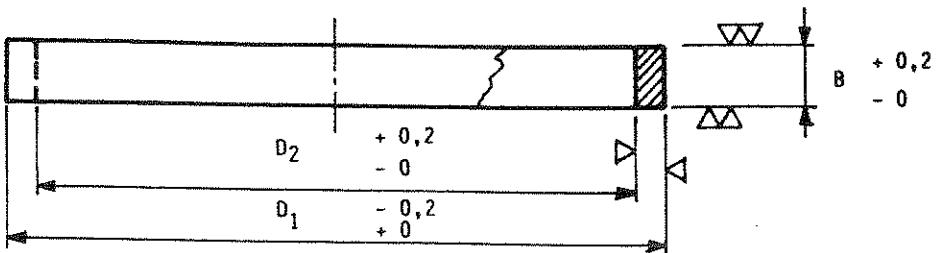
**ANELLO DI TENUTA  
PER FLANGE**

ANSI 8 16.5  
SMALL GROOVE

ST. 46341

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NOTE: 1) MATERIALI CONFORMI ALLE FLANGE DELLA RELATIVA CLASSE TUBAZIONI  
Materials in accordance to flange of relevant piping class.



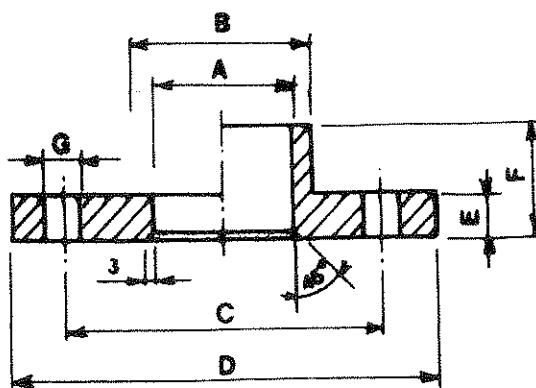
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

POLYPROPYLENE FLANGES

ANSI 150# FF

ST. 46387

Rev. 1



DN	A	B	C	D	E	F	G	N° OF HOLES	KG
15	1 1/2"	21	36	60.3	89	15	31	16	0,080
20	3/4"	26	39	69.8	98.4	15	31	16	0,100
25	1"	33	46	79.4	108	15	35	16	0,130
32	1 1/4"	41	55	89	117.5	18	38	16	0,205
40	1 1/2"	51	60	98.4	127	18	38	16	0,300
50	2"	64	80	120.6	152.4	18	38	19	0,350
65	2 1/2"	76	94	139.7	178	20	40	19	0,450
80	3"	91	109	152.4	190.5	22	44	19	0,500
100	4"	111	131	190.5	228.6	22	44	19	0,600
125	5"	141	150	216	254	27.5	76	22.2	0,800
150	6"	161	186	241.3	279.4	27.5	88	22.2	1,000
200	8"	201	230	298.4	343	30	45	22.2	1,650
250	10"	251	-	362	406	30	-	25.4	12
300	12"	316	-	432	483	30	-	25.4	12
350	14"	356	-	476	533	30	-	28.6	12
400	16"	401	-	540	597	30	-	28.6	16
450	18"	451	-	578	635	32	-	31.7	16
500	20"	502	-	635	698	32	-	34.7	20
550	22"	562	-	692	749	32	-	35	20
600	24"	632	-	749	813	32	-	35	20
650	26"	To BE DEFINED	-	806	870	35	-	35	24
700	28"	712	-	864	927	35	-	35	28
750	30"	To BE DEFINED	-	914	984	35	-	35	28
800	32"	802	-	978	1060	35	-	41	28

1

March '88



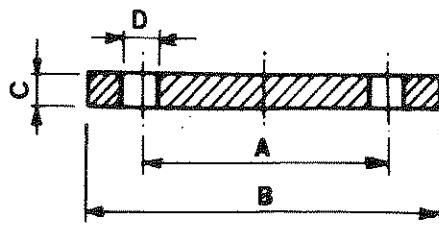
**BALLESTRA s.p.a.**  
MILANO (ITALIA)

## POLYPROPYLENE BLIND FLANGES

ANSI 150<sup>\*</sup> FF

ST. 46388

RE 1



DN		A	B	C	D	Nº fori	PESO Kg/ca
mm	inches						
15	½"	60.3	89	14	16	4	0.100
20	3/4"	69.8	98.4	16	16	4	0.130
25	1"	79.4	108	16	16	4	0.160
32	1 1/4"	89	117.5	16	16	4	0.230
40	1 1/2"	98.4	127	16	16	4	0.260
50	2"	120.6	152.4	18	19	4	0.340
65	2 1/2"	139.7	178	18	19	4	0.420
80	3"	152.4	190.5	20	19	4	0.560
100	4"	190.5	228.6	20	19	8	0.700
125	5"	216	254	22	22.2	8	1.
150	6"	241.3	279.4	22	22.2	8	1.400
200	8"	298.4	343	26	22.2	8	1.950
250	10"	362	406	26	25.4	12	2.850
300	12"	432	483	26	25.4	12	3.700
350	14"	476	533	26	28.6	12	4.600
400	16"	540	597	26	28.6	16	5.700
450	18"	578	635	28	31.7	16	
500	20"	635	698	28	31.7	20	
550	22"	692	749	28	35	20	
600	24"	749	813	28	35	20	
650	26"	806	870	30	35	24	
700	28"	864	927	30	35	28	
750	30"	914	984	30	35	28	
800	32"	978	1060	30	41	28	

Business units in Indonesia increased partly as a result of the opening of new business units in Japan during 1991.

entiamo la proprietà a termini di legge di questo disegno condiviso di riprodurlo anche in parte o di renderlo  
senza nostra autorizzazione scritta



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

## TUBI IN POLIPROPILENE "MOPLEN"

## PIPS IN POLYPROPYLENE "MOPLEN"

ST.46054

REV. 5/6

LEGENDA: DN - DIAMETRO NOMINALE

**Legend**      Nominal diameter

D = DIAMETRO ESTERNO (mm)

Out side diameter

S - SPESORE (mm)

### Thickness

P = Peso (Kg/mt)

### Weight

NOTE .

---

**REMARKS**

- MATERIALI: POLIPROPILENE "MOPLEN"
  - Material: POLYPROPYLENE "MOPLEN"
  - ESEMPIO DI DESIGNAZIONE: TUBO DN 2" ST. 46054
  - Example of designation : Pipe DN 2" ST. 46054
  - I TUBI DI CUI ALLA PRESENTE TABELLA SONO AD ESTREMITÀ LISCE
  - The pipes mentioned in this table have smooth ends

- DIAMETRI ESTERNI E TOLLERANZE SECONDO NORME DIN 8077-8078-
- External diameters and tolerance in conformity to code DIN 8077-8078

DN		D	S	P
mm.	inches			
15	½"	20	2.5	0.135
20	3/4"	25	2.7	0.186
25	1"	32	3.0	0.267
32	1 1/4"	40	1.8	0.217
40	1 ½"	50	2.0	0.301
50	2"	63	2.5	0.474
65	2 ½"	75	2.9	0.647
80	3"	90	3.5	0.936
100	4"	110	4.3	1.400
125	5"	140	3.6	1.480
150	6"	160	3.9	1.870
200	8"	200	4.9	2.920
250	10"	250	6.1	4.560
300	12"	315	7.7	7.190
350	14"	355	8.7	9.140
400	16"	400	6.0	7.200
450	18"	450	6.0	8.200
500	20"	500	8.0	11.300
550	22"	560	10.0	16.600

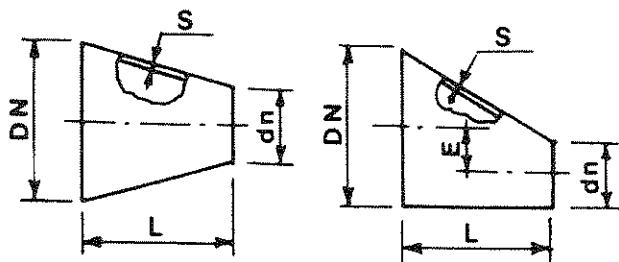


**BALLESTRA S.p.A.**  
MILANO (ITALIA)

RIDUZIONI CONCENTRICHE ED ECCENTRICHE  
IN POLIPROPILENE "MOPLEN"  
ECCENTRIC & CONCENTRIC REDUCERS IN  
POLYPROPYLENE "MOPLEN"

ST. 46056  
SH. 1 OF 2

REV. X 5



DN x dn	Øe x Øe	L	E	S	P
mm	inches				
65 x 25	2 1/2" x 1"	100	21.5	3	
65 x 32	2 1/2" x 1 1/4"		17.5	3	
65 x 40	2 1/2" x 1 1/2"		12.5	3	
65 x 50	2 1/2" x 2"		6	3	
80 x 25	3" x 1"	150	29	4	
80 x 32	3" x 1 1/4"		25	4	
80 x 40	3" x 1 1/2"		20	4	
80 x 50	3" x 2"		13.5	4	
80 x 65	3" x 2 1/2"	150	7.5	4	
100 x 40	4" x 1 1/2"		30	4	
100 x 50	4" x 2"		23.5	4	
100 x 65	4" x 2 1/2"		17.5	4	
100 x 80	4" x 3"	200	10	4	5
125 x 50	5" x 2"		38.5	4	
125 x 65	5" x 2 1/2"		32.5	4	
125 x 80	5" x 3"		25	4	
125 x 100	5" x 4"	200	15	4	
150 x 65	6" x 2 1/2"		42.5	4	
150 x 80	6" x 3"		35	4	
150 x 100	6" x 4"		25	4	
150 x 125	6" x 5"	250	10	4	
200 x 80	8" x 3"		55	6	
200 x 100	8" x 4"		45	5	
200 x 125	8" x 5"		30	5	
200 x 150	8" x 6"	300	20	5	
250 x 100	10" x 4"		70	6	
250 x 125	10" x 5"		55	6	
250 x 150	10" x 6"		45	6	
250 x 200	10" x 8"		25	6	



BALLESTRA S.p.A.  
MILANO (ITALIA)

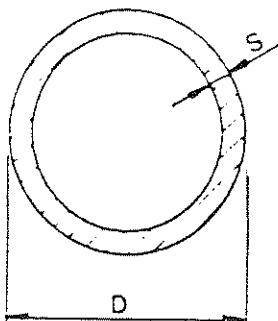
ST.46056  
SH. 2 OF 2

REV. A 5

DN x dn		Øe x Øe	L	E	S	P
mm	inches					
300 X 100	12" X 4"	315 X 110	350	102.5	8	
300 X 125	12" X 5"	315 X 140		87.5	8	
300 X 150	12" X 6"	315 X 160		77.5	8	
300 X 200	12" X 8"	315 X 200		57.5	8	
300 X 250	12" X 10"	315 X 250		32.5	8	
350 X 150	14" X 6"	355 X 160		97.5	8	
350 X 200	14" X 8"	355 X 200	400	77.5	8	
350 X 250	14" X 10"	355 X 250		52.5	8	
350 X 300	14" X 12"	355 X 315		20	8	
400 X 200	16" X 8"	400 X 200		100	6	
400 X 250	16" X 10"	400 X 250	450	75	6	
400 X 300	16" X 12"	400 X 315		42.5	6	
400 X 350	16" X 14"	400 X 355		22.5	6	5
450 X 250	18" X 10"	450 X 250	500	100	6	
450 X 300	18" X 12"	450 X 315		67.5	6	
450 X 350	18" X 14"	450 X 355		47.5	6	
450 X 400	18" X 16"	450 X 400		25	6	
500 X 300	20" X 12"	500 X 315	550	92.5	8	
500 X 350	20" X 14"	500 X 355		72.5	8	
500 X 400	20" X 16"	500 X 400		50	8	
500 X 450	20" X 18"	500 X 450		25	8	
550 X 350	22" X 14"	560 X 355	600	102.5	10	
550 X 400	22" X 16"	560 X 400		80	10	
550 X 450	22" X 18"	560 X 450		55	10	
550 X 500	22" X 20"	560 X 500		30	10	
600 X 400	24" X 16"	630 X 400	650	115	10	
600 X 450	24" X 18"	630 X 450		90	10	
600 X 500	24" X 20"	630 X 500		65	10	
600 X 550	24" X 22"	630 X 560		35	10	
700 X 450	28" X 18"	710 X 450	750	130	12	
700 X 500	28" X 20"	710 X 500		105	12	
700 X 550	28" X 22"	710 X 560		75	12	
700 X 550	28" X 24"	710 X 630		40	12	
800 X 500	32" X 20"	800 X 500	850	150	12	
800 X 550	32" X 22"	800 X 560		120	12	
800 X 600	32" X 24"	800 X 630		85	12	
800 X 700	32" X 28"	800 X 710		45	12	

4 5 Øe

MARZO 1982 10 000



D - Diametro esterno (mm) - Outsideddiameter  
S - Spessore (mm) - Thickness  
P - Peso per metro lineare (Kg) - Weight  
per meter

DIMENSIONI NORMALI - NORMAL DIMENSION

D	S	P
6	1	
8	1	0,187
10	1	0,240
12	1	0,294
14	1	0,365
16	1	0,420
18	1	0,475
20	1	0,530

Note:- E' previsto l'impiego di misure diverse da quelle della presente tabella,  
purchè scelte fra quelle delle tabelle UNI 1455 - 1461.

Different sizes can be used, provided they are selected among the ones  
of tables UNI 1455 - 1461.

- Dimensioni e pesi come da UNI 1455 - 1461  
Dimensions and weights as per UNI 1455 - 1461

- Materiale: Rame ricotto per applicazioni meccaniche  
Material : SOFT COPPER FOR MECHANICAL APPLIANCES

1-1-69	11.5.78	23.1.85	13.9.85					
	-	9.9.71	F					

## NOTE Notes

1. MATERIALE INDICATO NELL'ALLEGATO CON ACCORDO CARBONIO S.R.L. - MARCO.  
The material specified corresponds with "CARBONIO SRL" - "STAINLESS STEEL" N° 1.
2. PER PLASTICA FACCIA DI CONTATO DELLA PLASTICA STAMP. 1045. T 170 S..  
For plastic face thickness see 1045 stamp. T 170 S.
3. LA SPORRENTE DELLA COMBINAZIONE E DATA DALL'AREA DELLA PARAFACCHIO ALA  
FACCIA DI CONTATO DELLA PLASTICA.
4. LA POSIZIONE DI TUTTE LE CONNETTORI E INDICATA A TUTTI I VARI ACCORDI E INDICATA  
NELL'ALLEGATO CON ACCORDO CARBONIO SRL. DATI A VISTA.

The position of all connectors and all other things is schematically indicated. See  
the notes and the related plan in each sheet of project.

5. PER LE COMBINAZIONI SUL MANTELLO, FORI DEL BULLONE DELL'ALA, LARGHEZZA  
DELL'APPARECCHIO, PARTE CONNESSIONE ALI, FORI E FORI DEL BULLONE DELLA  
PLASTICA SONO INDICATI NELL'ALLEGATO CON ACCORDO CARBONIO SRL.

NON È POSSIBILE INTEGRARE TUTTI I PUNTI PARALLELI CON UNA LINEA, PER  
QUESTA RAGIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE NON SONO INDICATI I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO. PER QUESTA RAGIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO.

6. TUTTI I CONNETTORI SONO PROGETTATI CON UNA PESANTEZZA DI 100 G.  
L'ACCORCIAMENTO DELLA PARAFACCHIO E' DI 100 MM. IL PUNTO DI CONNESSIONE  
ALLA PARAFACCHIO E' INDICATO NELL'ALLEGATO CON ACCORDO CARBONIO SRL.

NON È POSSIBILE INTEGRARE TUTTI I PUNTI PARALLELI CON UNA LINEA, PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO.

7. TUTTI I CONNETTORI SONO PROGETTATI CON UNA PESANTEZZA DI 100 G.  
L'ACCORCIAMENTO DELLA PARAFACCHIO E' DI 100 MM. IL PUNTO DI CONNESSIONE  
ALLA PARAFACCHIO E' INDICATO NELL'ALLEGATO CON ACCORDO CARBONIO SRL.

NON È POSSIBILE INTEGRARE TUTTI I PUNTI PARALLELI CON UNA LINEA, PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO.

8. TUTTI I CONNETTORI SONO PROGETTATI CON UNA PESANTEZZA DI 100 G.  
L'ACCORCIAMENTO DELLA PARAFACCHIO E' DI 100 MM. IL PUNTO DI CONNESSIONE  
ALLA PARAFACCHIO E' INDICATO NELL'ALLEGATO CON ACCORDO CARBONIO SRL.

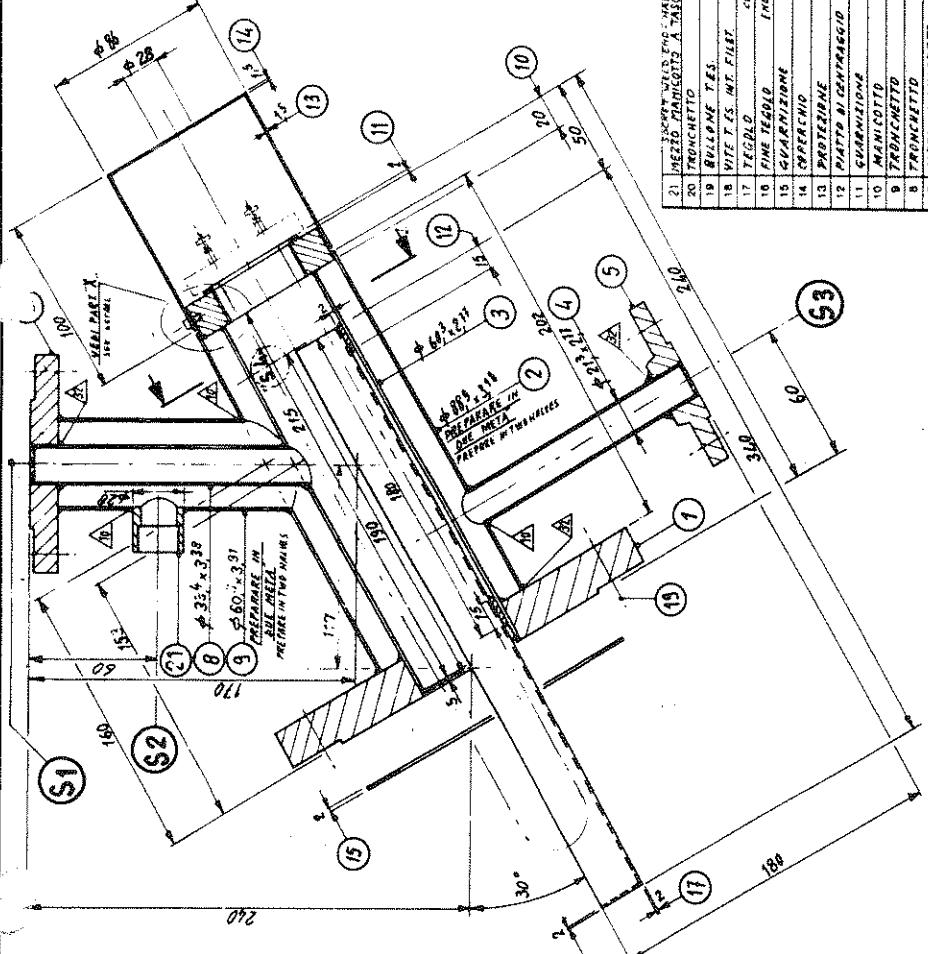
NON È POSSIBILE INTEGRARE TUTTI I PUNTI PARALLELI CON UNA LINEA, PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO.

9. TUTTI I CONNETTORI SONO PROGETTATI CON UNA PESANTEZZA DI 100 G.  
L'ACCORCIAMENTO DELLA PARAFACCHIO E' DI 100 MM. IL PUNTO DI CONNESSIONE  
ALLA PARAFACCHIO E' INDICATO NELL'ALLEGATO CON ACCORDO CARBONIO SRL.

NON È POSSIBILE INTEGRARE TUTTI I PUNTI PARALLELI CON UNA LINEA, PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI PIU' VISTOSI. PER QUESTA  
RAZIONE SONO INDICATI SOLO I PUNTI DI CONNESSIONE DELLA PLASTICA ALLA  
PARAFACCHIO.

10. PER INTRUTTA SUPERPIRETTA VERDE S. 1185  
Per experimental training see 1185

NOTA II. TECGOL. POS. 17. NUOVA ESSERE OPOSTO AL  
BOCC. S. 1  
Per training. Plate must be fixed to the note "S. 1".



BALLESTRA S.p.A.  
MILANO (ITALIA)



DIS. ST. 46471  
Dwg. 1 of 26  
FOGLIO Sheet 1 of 26  
CODICE COMPUTER Computer code 46471\_1

## TYPICAL DETAILS FOR PIPING SYSTEM STEAM JACKETED

ANSI

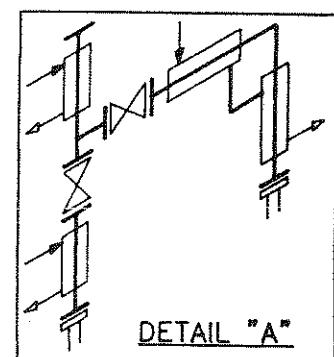
THIS SPECIFICATION CANCELS & SUPERSEDES ST.46343

REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTROLLED	APPR. APPROD.	DATE
8	REVISED SHEETS: 1-16	FG	■■■■■	■■■■■	15.05.97
7	REVISED SHEETS: 1-2-4	Bianco	■■■■■	■■■■■	28-1-97
6	REVISED SHEETS: 1-5-6-7-10	Bianco	■■■■■	■■■■■	16.11.96
5	REVISED SHEETS 1-5-6-10	FB	■■■■■	■■■■■	6.4.93
4	REVISED Sh.1 AND SHEETS 2-26	DP	■■■■■	■■■■■	22-2-93
3	REVISED SHEET 1 AND ADDED SHEETS 1/A-1/B-1/C	DP	■■■■■	■■■■■	00-01-00

- LA NORMA COMPRENDE LE INDICAZIONI RIGUARDANTI I CRITERI DI INCAMICIATURA E I RIFERIMENTI COSTRUTTIVI (FORME E DIMENSIONI).  
IN CASO DI CONTRASTO TRA LA PRESENTE NORMA E L'EVENTUALE SPECIFICA DI PROGETTO, DEVE ESSERE CONSIDERATA PREVALENTE QUEST'ULTIMA.  
This standard includes the information concerning jacketing criteria and construction references (shapes and dimensions).  
In case of conflict between this standard and eventual project specification, the latter shall govern.
- LE LINEE DI ALIMENTAZIONE E DI SCARICO DI OGNI Camicia DEVONO PREVEDERE UN'INTERCETTAZIONE.  
The feeding and discharge lines of every jacket shall be provided with interception valve.
- IL PERCORSO DEL FLUIDO INCAMICIANTE NON DEVE MAI SUBIRE DELLE BIFORCAZIONI. AD OGNI ALIMENTAZIONE DEVE CIOE' CORRISPONDERE UNA SOLA USCITA.  
The run of the jacketing fluid shall never have branches. Each feeding shall have a single outlet.
- LA Camicia DEVE PREVEDERE LA POSSIBILITA' DI SFIATO E SPURGO PER L'ESECUZIONE DELLA PROVA IDRAULICA, IMPIEGANDO INSTALLAZIONI TIPICHE DI CLASSE DEL TIPO TAPPATO.  
The jacket shall be provided with vents and drains for hydraulic test by using piping classes typical installations of the plugged type.
- LE Camicie DEI TRATTI DI LINEA IN MARCIA SALTUARIA O CON ORGANI SMONTABILI PER MANUTENZIONE DEVONO ESSERE ALIMENTATE IN MODO DA ASSICURARE LA CIRCOLAZIONE DEL FLUIDO INCAMICIANTE NEI TRATTI CHE RIMANGONO IN ESERCIZIO (vedere dettaglio "A").  
The jackets of the line sections with non continuous running or with demountable components for maintenance, shall be fed to ensure the circulation of the jacketing fluid in the utilized section (see det. A)
- L'ALIMENTAZIONE DEL VAPORE DEVE ESSERE FATTA NELLA PARTE PIU' ALTA DELLA LINEA E, NEI TRATTI ORIZZONTALI, NELLA PARTE SUPERIORE DELLA Camicia.  
The steam feeding shall be carried out in the upper part of the line and, in the horizontal sections, in the upper part of the jacket.
- LO SCARICO DEVE ESSERE FATTO NELLA PARTE PIU' BASSA DELLA LINEA E, NEI TRATTI ORIZZONTALI, NELL' PARTE INFERIORE DELLA Camicia.  
The discharge shall be carried out in the lowest part of the line and, in the horizontal sections, in the lower part of the jacket.

## MATERIAL:

- Camicia: MATERIALE COME DA CLASSE TUBAZIONI 205  
Jacket pipe: material as provided by piping class 205
- TUBO DI PROCESSO: MATERIALE COME DA CLASSE TUBAZIONI INDICATA SU P.& I.  
Process pipe: material as provided by piping class indicated on P.& I.
- IL MATERIALE DEI DISTANZIATORI, FLANGE, DISCHI E ALTRI COMPONENTI DEVE ESSERE UGUALE O EQUIVALENTE A QUELLO DEL TUBO DI PROCESSO SU CUI DEVONO ESSERE SALDATI  
The material of the spacers, flanges, partition disks and other components has to be equal or equivalent to the material of the process pipe on which they have to be welded 



REV.	DESCRIZIONE ~ DESCRIPTION	FC	CONTR.	APPR.	DATA
1	REVISED WHERE INDICATED				22-10-93
0	ISSUED				09-04-92



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# GENERAL NOTES

DIS. ST. 46471

Foglio 1/B di  
Sheet

CODICE COMPUTER  
Computer code 46471\_1B

- IN SEDE DI PROGETTO DEVONO ESSERE DEFINITI:  
During the design, the following shall be defined:

- 1) LA LUNGHEZZA DEL MASSIMO TRATTO DI CAMICIA CON UNICA ALIMENTAZIONE, CONTEMPORANEAMENTE ALL'UTILIZZO DI UNO O DUE CAVALLOTTI NEI TRATTI ORIZZONTALI.  
(LA LUNGHEZZA NON DEVE COMUNQUE SUPERARE 30 mt.)  
The maximum allowable length of the jacket with one feeding - Use of one or two jumps in the horizontal parts of the jackets.  
(Length not to exceed 30 mt.)
- 2) LA POSIZIONE DEI GIUNTI FLANGIATI E DEI DISCHI DI INTERRUZIONE CAMICIA  
The location of flanged joints and of the jacket breaking disks
- 3) QUOTE DI ALCUNI DETTAGLI TIPICI NON DEFINITE IN QUESTA NORMA  
Dimensions of some typical details not defined in this standard
- 4) DETTAGLI COSTRUTTIVI NON CONTEMPLATI IN QUESTA NORMA  
Construction details not defined in this standard

1	REVISED NOTE "1"	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	25-10-93
0	ISSUED	<i>[Signature]</i>			09-04-92
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE



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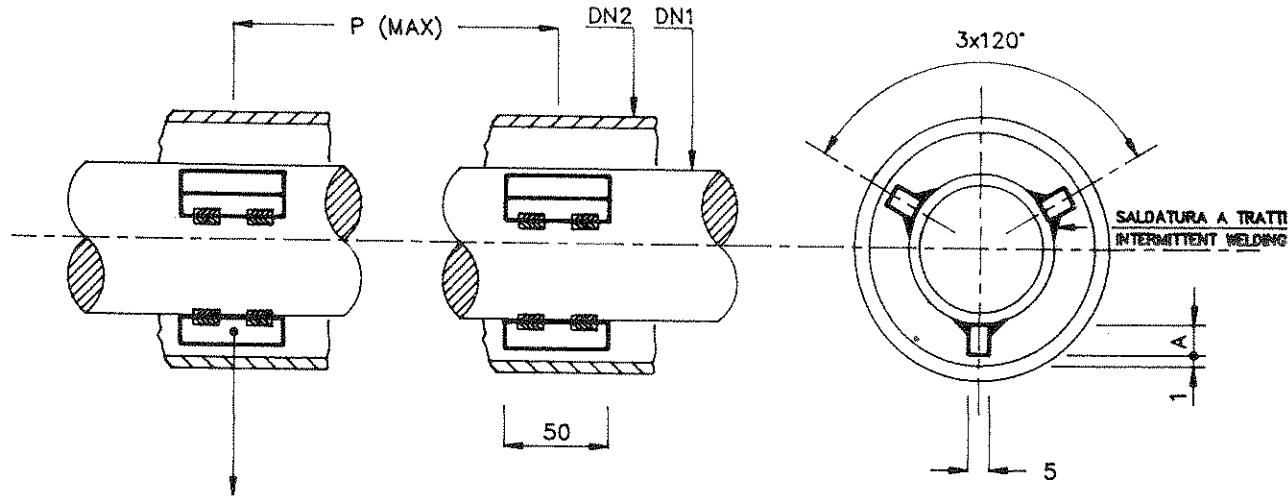
# DISTANZIATORI TUBO/CAMICIA

## Pipe/jacket spacers

DIS. ST. 46471  
Dwg. Sheet 1/C DI  
FOGLIO OF  
CODICE COMPUTER Computer code 46471\_1C

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NEI TRATTI ORIZZONTALI UNO DEI TRE DISTANZIATORI DEVE ESSERE POSIZIONATO SULLA GENERATRICE INFERIORE  
In the horizontal sections one of the three spacers shall be positioned on the bottom

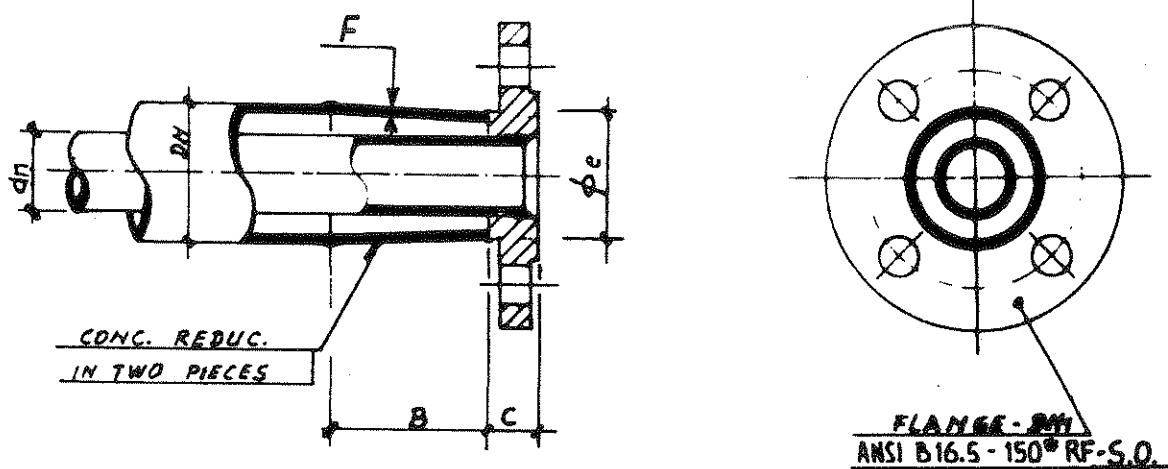
DN1	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"			
DN2	1 1/2"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"			
A	9	6	8.5	8	10	8.5	22	20.5			
P (MAX)	1000	1500	2500	3500	4500	4900					

### NOTES:

IN SEDE DI PROGETTO DEVE ESSERE DEFINITA LA POSIZIONE DEI DISTANZIATORI TUBO/CAMICIA RISPETTO AGLI ALTRI ELEMENTI DELLA CAMICIA (DEVONO CORRISPONDERE PREFERIBILMENTE CON I SUPPORTI TUBAZIONI E NON DEVONO CORRISPONDERE CON LE ALIMENTAZIONI, GLI SCARICHI, GLI SFATI E SPURGHI DELLA CAMICIA)

During the design, shall be defined the location of internal pipe/jacket spacers (they have to be placed, in preference, in correspondence of the piping supports and should not be put in correspondence of feedings, discharges and jacket vents and drains)

0	ISSUED		09-04-92
REV.		COMP.	CONTR.



TYPE	1	2	3	4	5	6	7	8
	dn DN	1/2" 1½"	3/4" 1½"	1" 2"	1½" 2½"	2" 3"	3" 4"	4" 6"
CONC. RED. DN	30	38	49	64	75	108	134	192
	1½"	1½"	2"	2½"	3"	4"	6"	8"
FLG. DN1	1/2"	3/4"	1"	1½"	2"	3"	4"	6"
B	100	100	100	100	100	100	100	150
C	15,9	15,9	17,5	22,3	25,4	30,2	33,3	39,7
F	3	3	3	3	3	3	4	6

FOR VENTS →

2      2

REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CHECKED	APPR. APPROD.	DATA DATE
2	REVISED WHERE INDICATED	Bianco	Anni	H.M.	28-1-97
1	REVISED WHERE INDICATED	Lanni	M.B.	G.M.	22-2-93

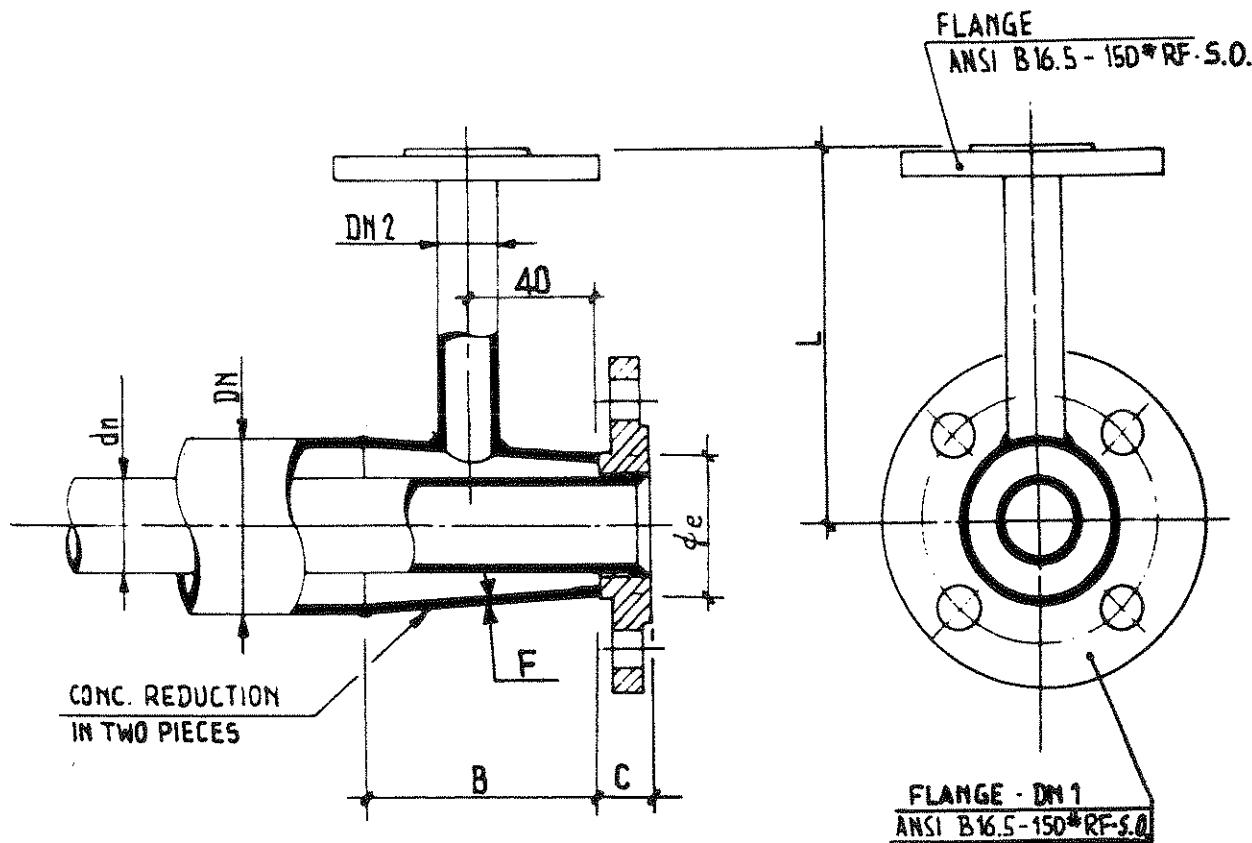


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DETAIL "2."

ST. 46471

SHEET 3



TYPE	1	2	3	4	5	6	7	8
dn	$1/2"$	$3/4"$	$1"$	$1\frac{1}{2}"$	$2"$	$3"$	$4"$	$6"$
DN	$1\frac{1}{2}"$	$1\frac{1}{2}"$	$1\frac{1}{2}"$	$2"$	$2\frac{1}{2}"$	$3"$	$4"$	$8"$
CONC. RED.	30	38	49	64	75	108	134	192
DN	$1\frac{1}{2}"$	$1\frac{1}{2}"$	$2"$	$2\frac{1}{2}"$	$3"$	$4"$	$6"$	$8"$
FLG. DN 1	$1/2"$	$3/4"$	$1"$	$1\frac{1}{2}"$	$2"$	$3"$	$4"$	$6"$
DN 2	$1/2"$	$1/2"$	$1/2"$	$1/2"$	$1/2"$	$1/2"$	$1/2"$	$1/2"$
B	100	100	100	100	100	100	100	150
C	15,9	15,9	17,5	22,3	25,4	30,2	33,3	39,7
F	3	3	3	3	3	3	4	6
L	100	110	110	120	130	150	170	200

1

0		1	H					
			22-2-93					



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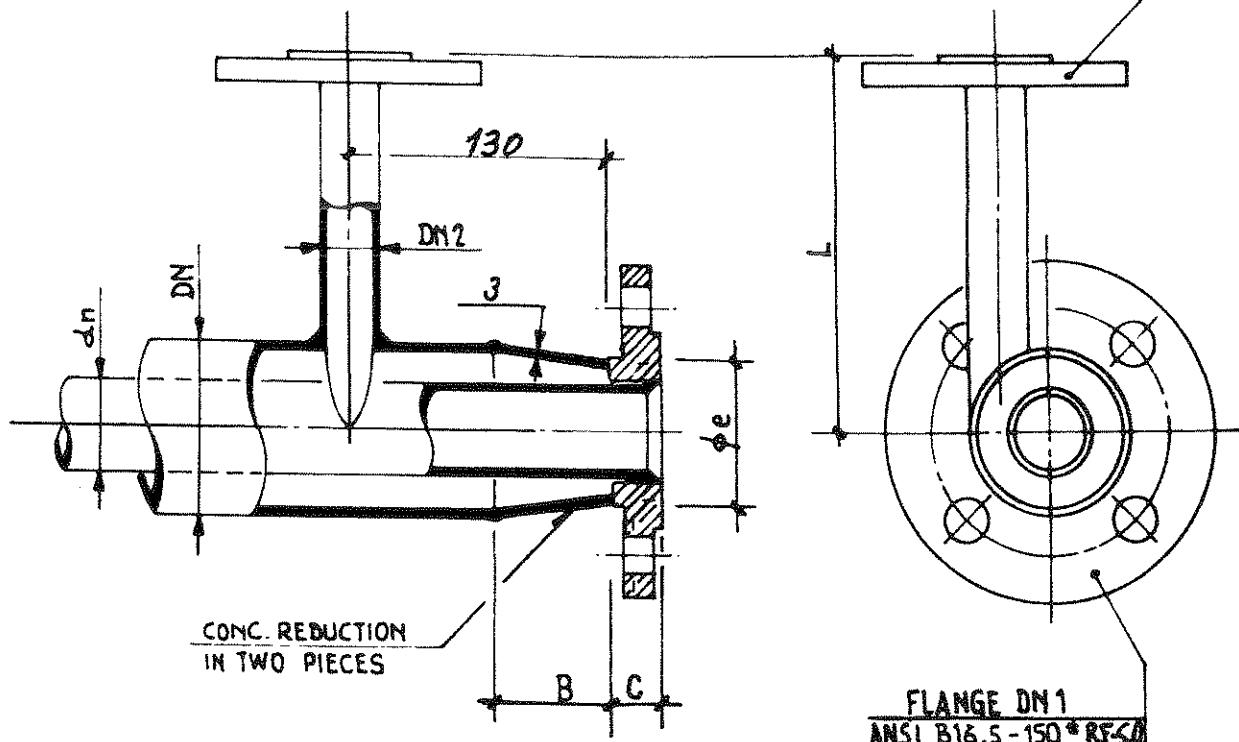
DETAIL "3."

ST. 46471

SHEET 4

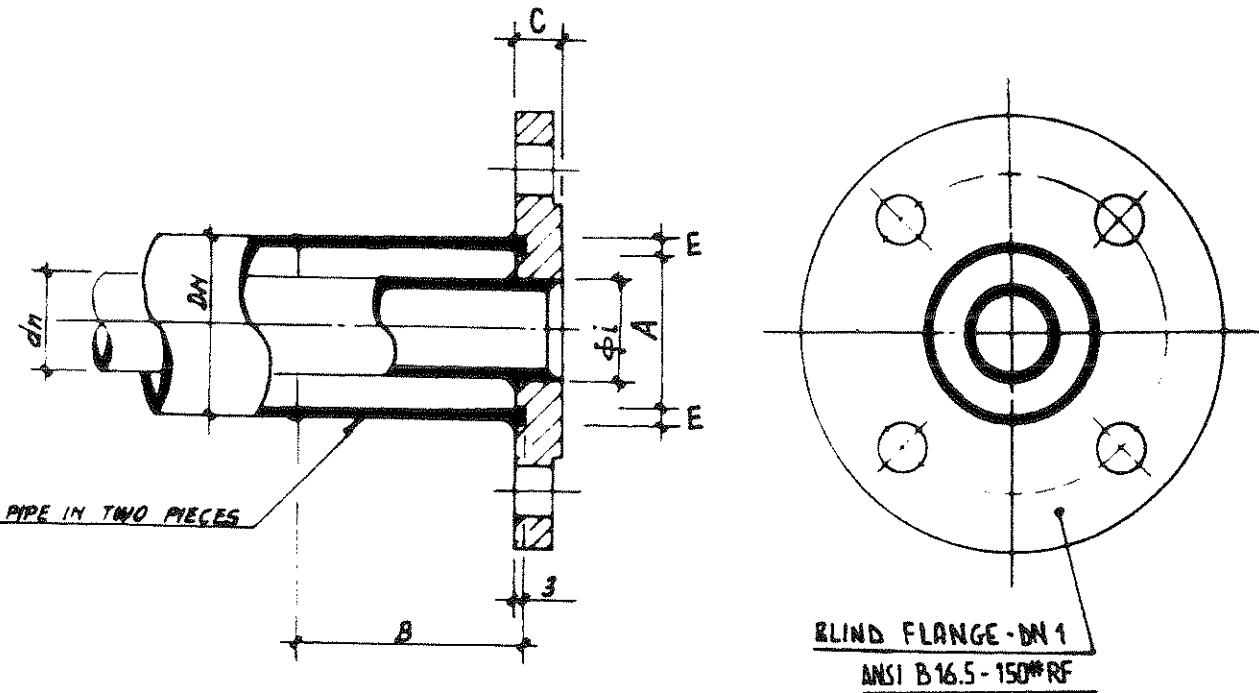
**FLANGE**

ANSI B16.5 - 150<sup>\*</sup> RF.SO.



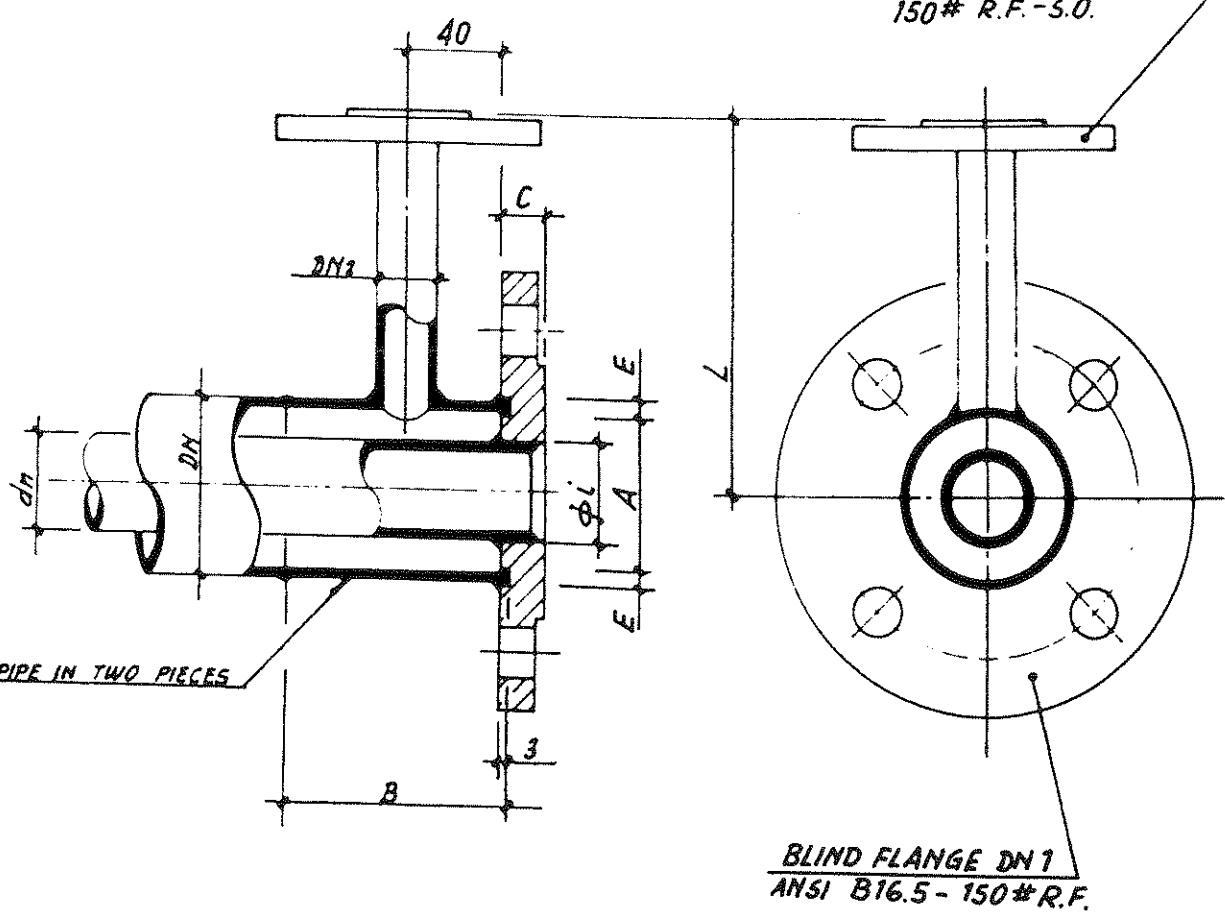
TYPE	1	2	3	4	5
dn \ DN	1/2"	3/4"	1"	1 1/2"	2"
CONC. RED.	Φ <sub>a</sub> 30	38	49	64	75
FLG. DN 1	1 1/2"	3/4"	1"	1 1/2"	2"
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"
B	100	100	100	100	100
C	15,9	15,9	17,5	22,3	25,4
L	100	100	110	120	130

2	REVISED WHERE INDICATED	Bianco	Bruno (Helle)	28-1-97
1	REVISED WHERE INDICATED	Lanni	M.B. G.H.	22-2-93
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREPD.	CONT. CHECKED	APPR. APPROD.
				DATA DATE



TYPE	1	2	3	4	5	6	7	8	9	10
dn. DN	1/2" 1 1/2"	3/4" 1 1/2"	1" 2"	1 1/2" 2 1/2"	2" 3"	1" 2"	1 1/2" 2 1/2"	2" 3"	3" 4"	4" 6"
FLG. DN 1	1 1/2"	1 1/2"	1 1/2"	2"	2 1/2"	2"	2 1/2"	3"	4"	6"
φi	23	29	35	50	62	35	50	62	91	116
A	39	39	50	64	80	50	64	80	105	158
B	100	100	100	100	100	100	100	100	100	100
C	17,5	17,5	17,5	19	22,2	19	22,2	23,8	23,8	25,4
E	5,5	5,5	6	5,5	5,5	6	5,5	5,5	5,5	6

REV.	DESCRIPTION - DESCRIPTION	COMP.	CONTR.	APPR.	DATA
3	REVISED TYPE 2-4 AND ADDED TYPE 6-10	Bianco	Amici	Molli	16.12.96
2		B.M.	B.M.	M.G.	6.4.93
1		L.G.	B.M.	M.G.	22.2.93
0		S.C.		A.D.	1988

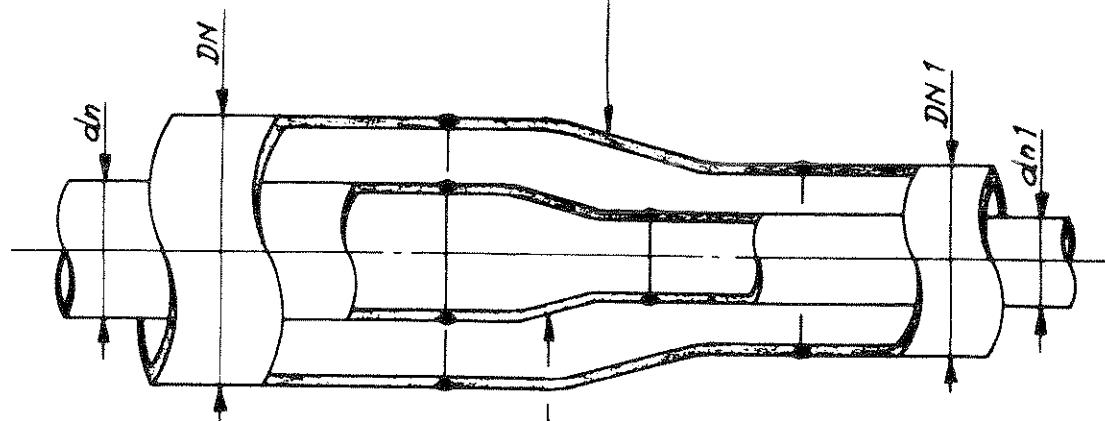


TYPE	1	2	3	4	5	6	7	8	9	10
dn / DN	1/2" / 1 1/2"	3/4" / 1 1/2"	1" / 2"	1" / 2"	1 1/2" / 2"	2" / 2 1/2"	2" / 3"	2" / 3"	3" / 4"	4" / 6"
FLG. DN 1	1 1/2"	1 1/2"	1 1/2"	2"	2"	2 1/2"	3"	4"	6"	
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
$\phi_i$	23	29	35	35	50	62	62	91	116	
A	39	39	50	50	64	80	80	105	158	
B	100	100	100	100	100	100	100	100	100	
C	17,5	17,5	17,5	19	19	22,2	23,8	23,8	25,9	
E	5,5	5,5	6	6	5,5	5,5	5,5	5,5	6	
L	120	120	120	130	130	140	140	160	185	

REV	DESCRIPTION - DESCRIPTION	COPIES PREPARED	COPIES CHECKED	APPROVED	DATA
4	REVISED TYPE 2-5 AND ADDED TYPE 8-9	Bianco	Alumi	Helt	16.12.96
3		B.M.	B.M.	M.G.	6.4.93
2		L.G.	B.M.	M.G.	22.2.93
1		B.A.		A.D	17.4.89
0		S.C.		A.D	1988



CONC. REDUCTION  
 $DN \times DN_1$  ANSI B16.9



CONC. REDUCTION  
 $dn \times dn_1$  ANSI B16.9

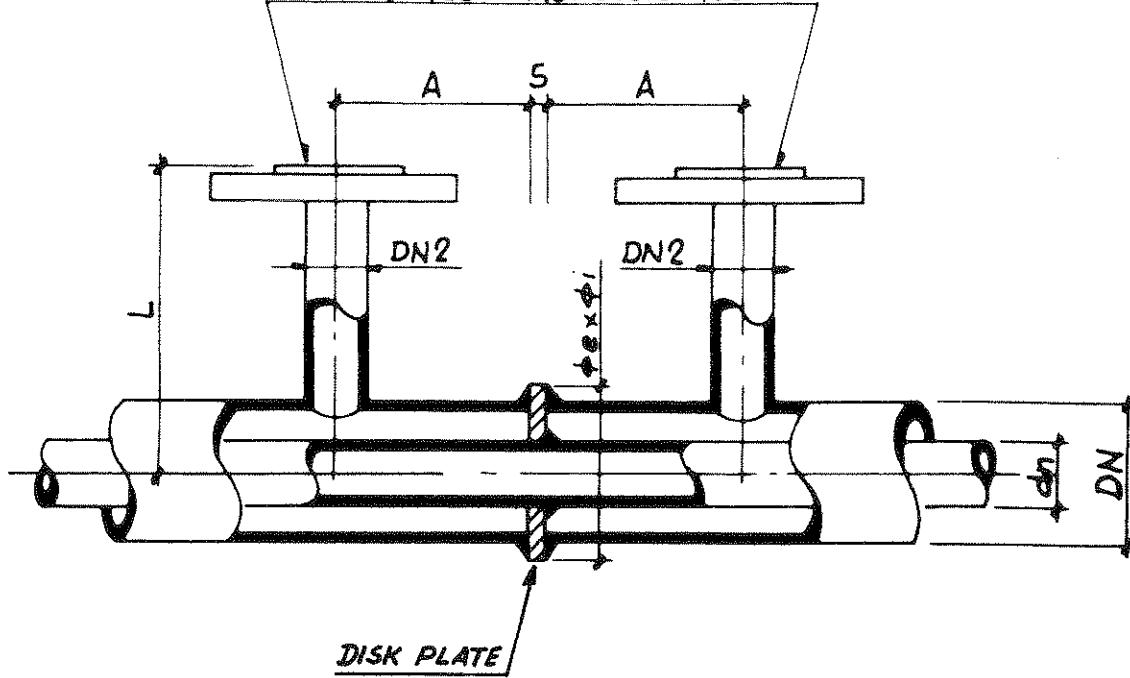
TYPE	1	2	3	4	5	6	7	8	9	10
$dn$	1"	1"	1 1/2"	1 1/2"	2"	2"	3"	3"	4"	
$DN$	2"	2"	2 1/2"	2 1/2"	3"	3"	4"	4"		
$dn_1$	1/2"	3/4"	3/4"	1 1/2"	1 1/2"	1 1/2"	2 1/2"	2 1/2"	3 1/2"	
$DN_1$	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2 1/2"	2 1/2"	3 1/2"	
<u>CONC.</u>	<u>DN</u>	2"	2"	2 1/2"	2 1/2"	3"	3"	4"	4"	
<u>RED.</u>	<u>DN_1</u>	1 1/2"	1 1/2"	1 1/2"	2"	2"	2 1/2"	2 1/2"	3 1/2"	
<u>CONC.</u>	<u>dn</u>	1"	1"	1 1/2"	1 1/2"	2"	2"	3"	3"	
<u>RED.</u>	<u>dn_1</u>	1/2"	3/4"	3/4"	1 1/2"	1"	1 1/2"	1 1/2"	2 1/2"	

2 ADDED TYPE 7

1	Bianco	Durini	16.12.96
0	L.G.	B.M.	M.G.
	S.C.	A.O.	22.2.93
			1968



S.D. FLANGE - ANSI B16.5 - 150# R.F.



TYPE	1	2	3	4	5
dn / DN	1/2" / 1 1/2	3/4" / 1 1/2	1" / 2"	1 1/2" / 2 1/2	2" / 3"
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"
$\phi_e \times \phi_i$	65 x 23	65 x 28	80 x 35	90 x 50	110 x 62
A	70	70	70	70	70
L	100	100	110	120	130

1

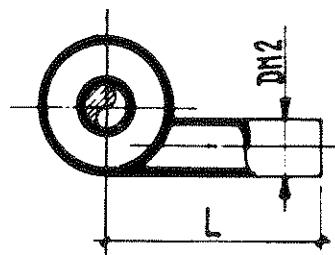
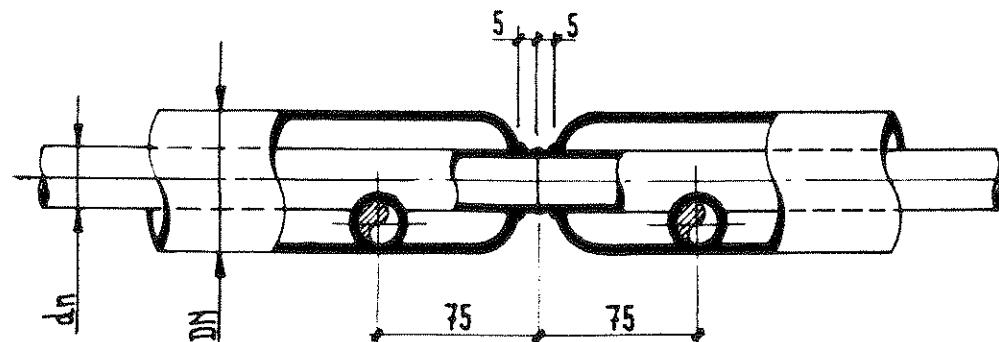


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "8"

ST.46471

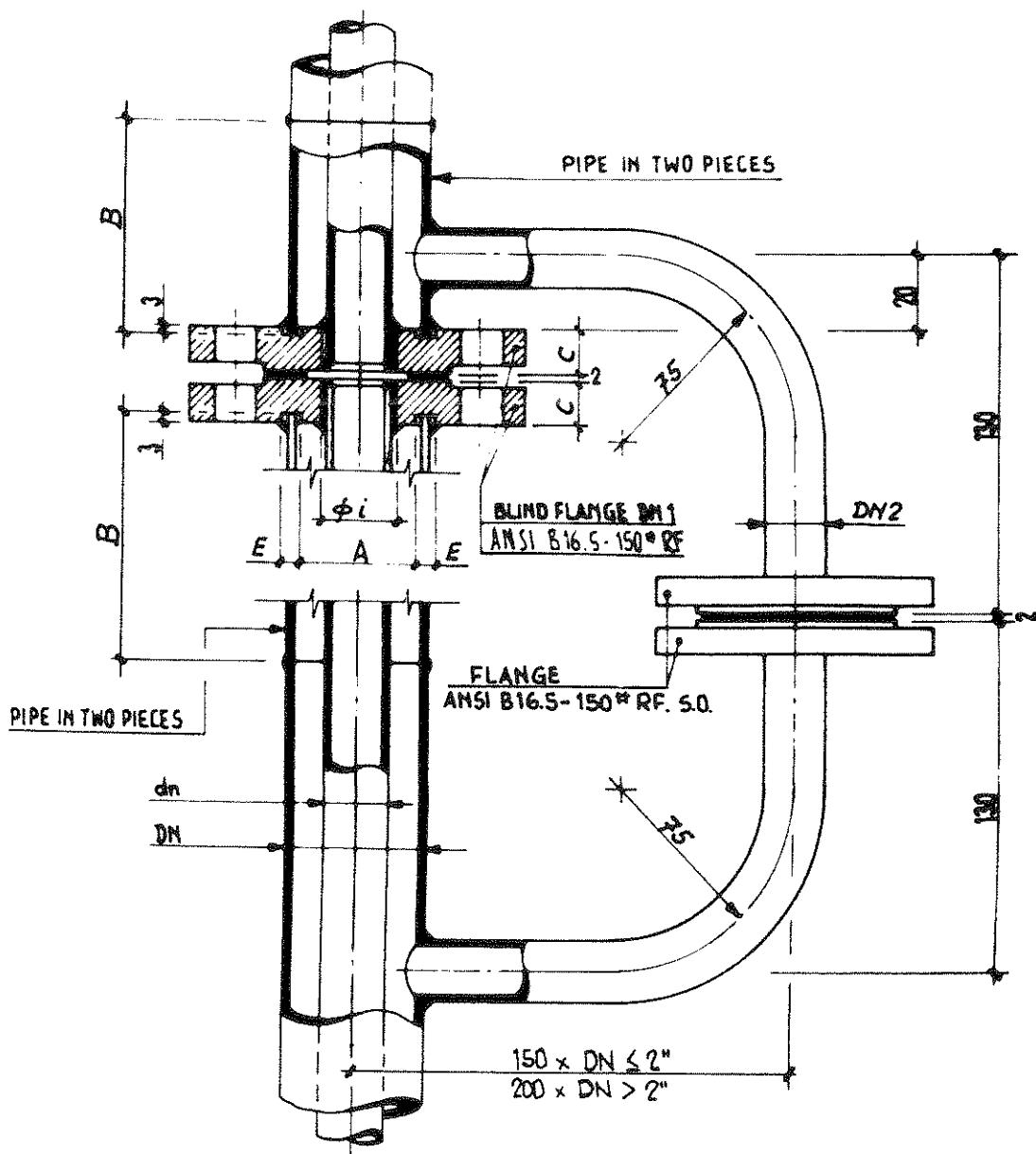
SHEET 9



TYPE	1	2	3	4	5
dn	1/2"	3/4"	1"	1 1/2"	2"
DN	1 1/2"	1 1/2"	2"	2 1/2"	3"
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"
L	100	100	110	120	130

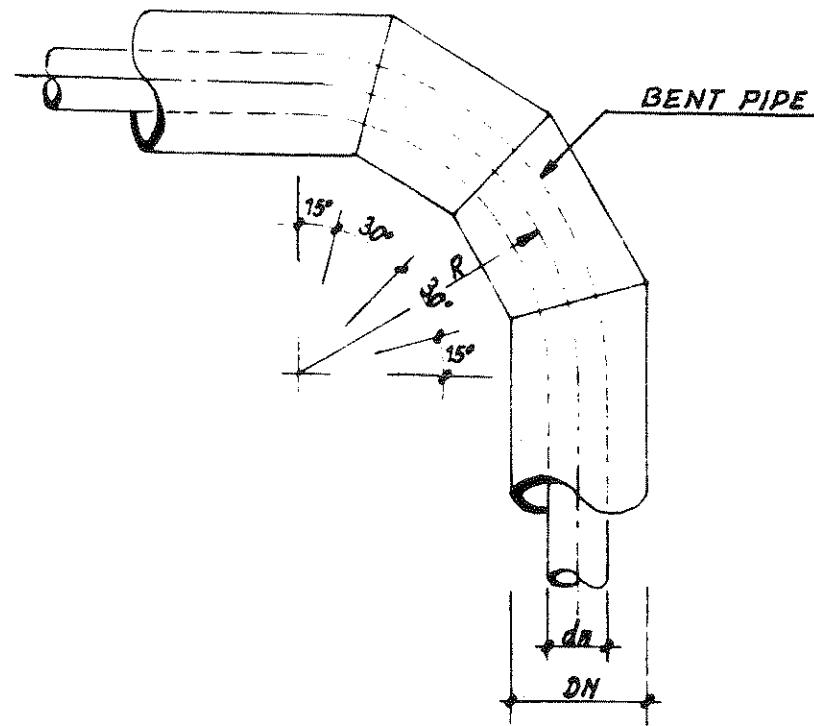
1

0	1	H						
		22-2-93						



TYPE	1	2	3	4	5	6	7	8	9	10
dn	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"			
DN	1 1/2"	1 1/2"	1 1/2"	2"	2 1/2"	3"				
BL.FLG.DN1	1 1/2"	1 1/2"	1 1/2"	2"	2 1/2"	3"				
DN2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"				
phi_i	23	29	35	50	62					
A	39	39	50	64	80					
B	70	70	70	70	70					
C	17,5	17,5	17,5	19	22,2					
E	5,5	5,5	6	5,5	5,5					

3	REVISED TYPE 2-4	Bianco	Rummi	16.12.96
2		B.M.	B.M.	M.G.
1		L.G.	B.M.	M.G.
0		S.C.		A.D.
REV	DESCRIZIONE - DESCRIPTION	CONTR. PREP.D	CONTR. COTTO/CO	DATA APPRO. APPRO.



TYPE	1	2	3
dn / DN	1/2" / 11/2"	3/4" / 11/2"	1" / 2"
R	75	100	125

1

0	1	H							
		22-2-93							

\*\*\*

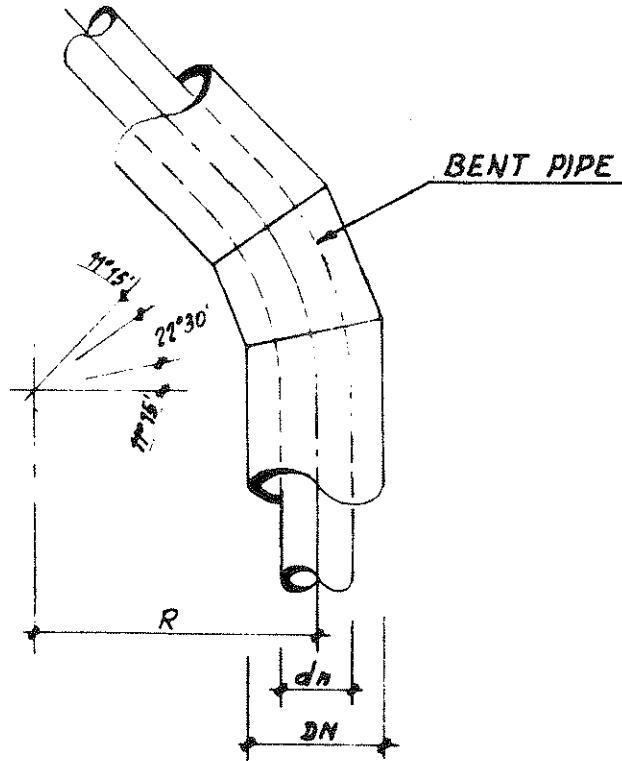


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "11"

ST.46471

SHEET 12



TYPE	1	2	3
dn	1/2"	3/4"	1"
DN	1 1/2"	1 1/2"	2"
R	75	100	125

1

0		1	H								
			22-2-93								

\*\*\*

11.6 217 x 297

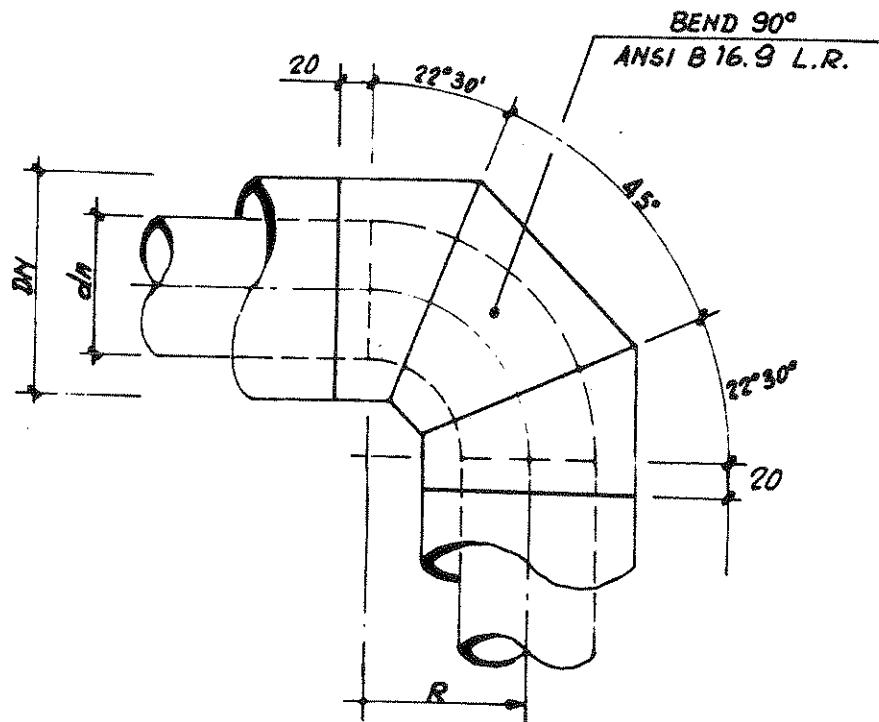


BALLESTRA S.p.A.  
MILANO (ITALIA)

- DETAIL "92" -

ST. 46471

SHEET 13



TYPE	1	2
dn DN	1½"	2"
R	57	76

1

0		1	A								
			22-2-93								

★ ★ ★

PRINT A4 717 + 297

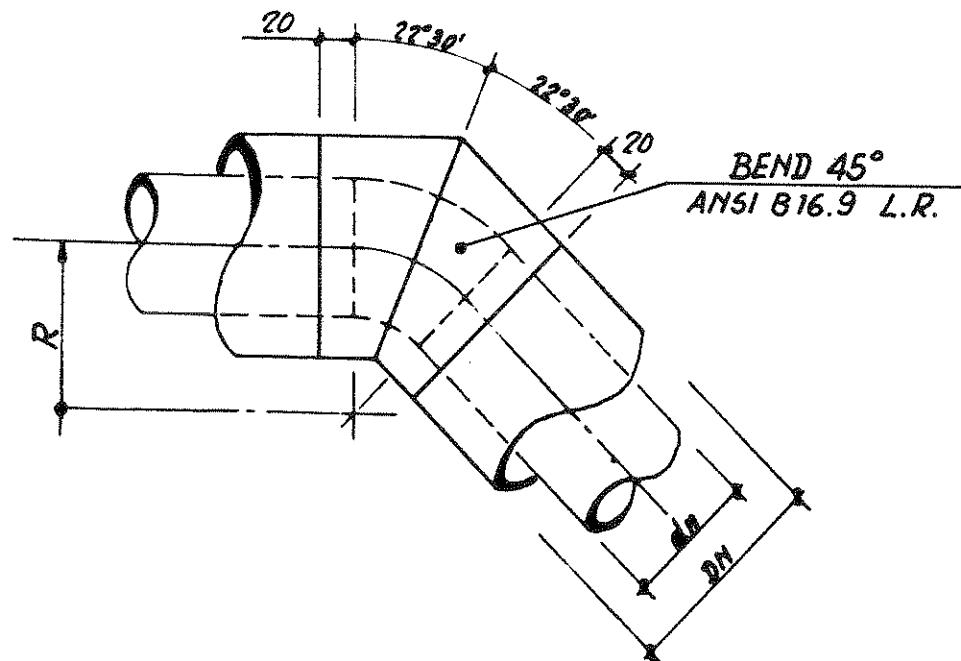


**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DETAIL "13."**

ST. 46471

SHEET 14



TYPE	1	2
dn DN	1½" 2½"	2" 3"
R	57	76

1

0		1	H						
			22-2-93						

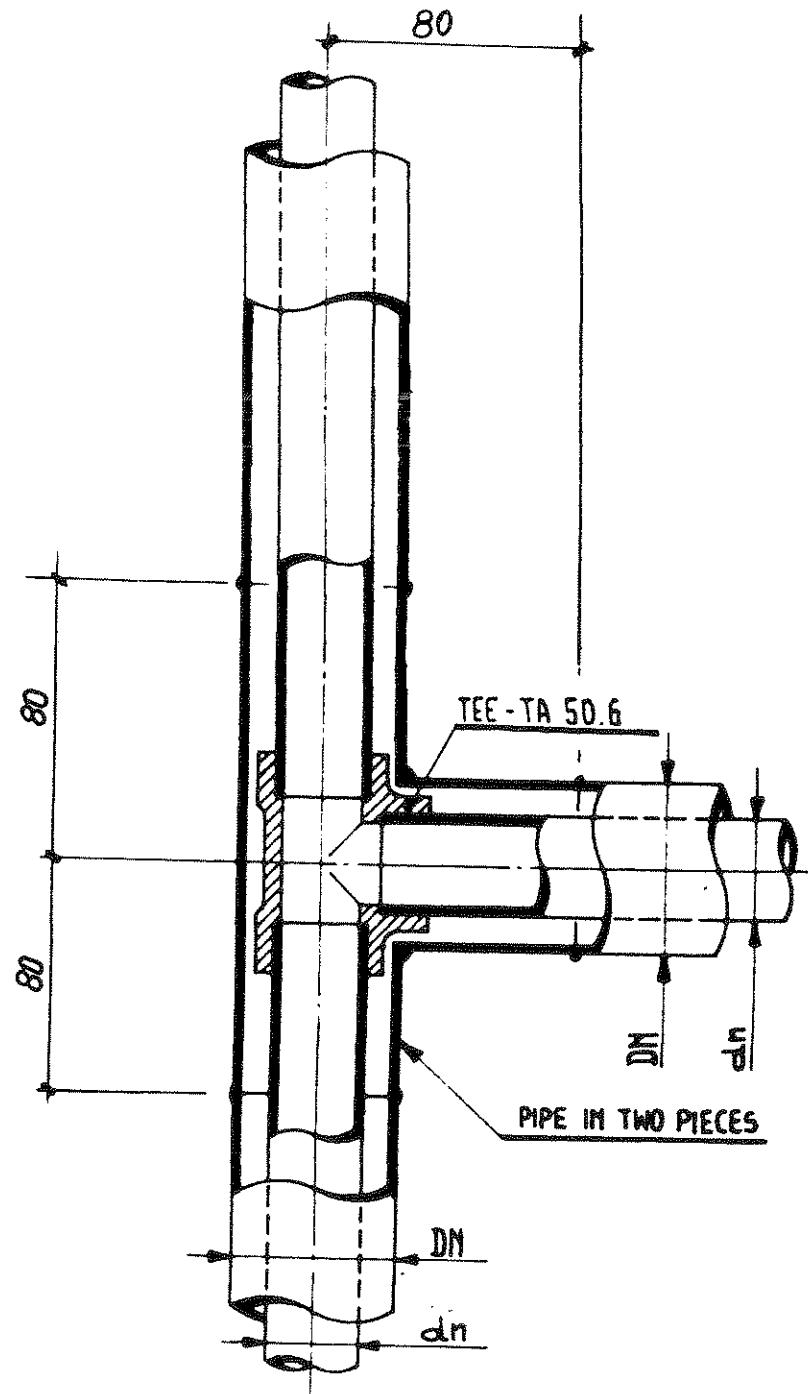


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "14"

ST. 46471

SHEET 15



TYPE	1	2
dn \ DN	1/2"	1 1/2"
TEE	1/2"	1"

1

0	1	8									
	22-2-93										

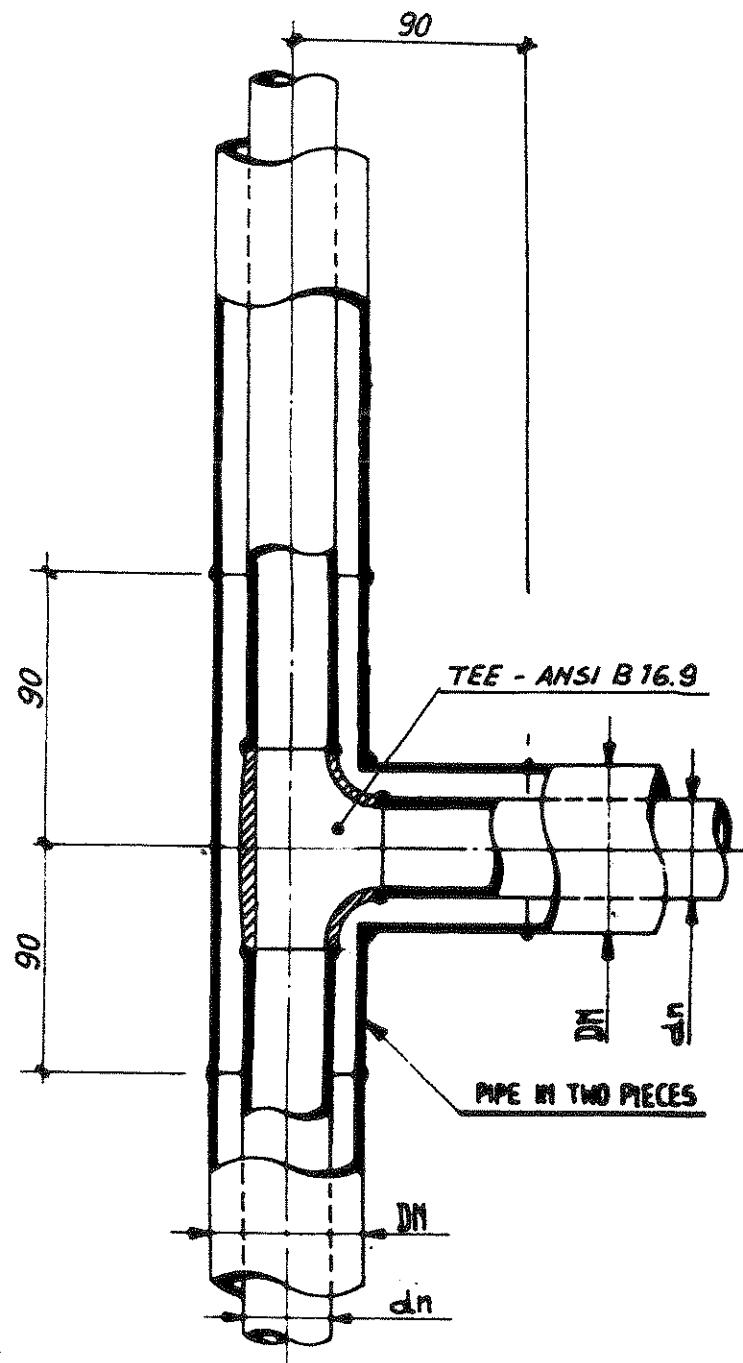


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "15"

ST. 46471

SHEET 16



TYPE	1	2	3
dn	$\frac{1}{2}''$	$2\frac{1}{2}''$	$3''$
DN	$2\frac{1}{2}''$	$3''$	$4''$
TEE	$1\frac{1}{2}''$	$2''$	$3''$

2

0		1	$\varnothing$	2 FG							
		22-2-93	14.05.'97								

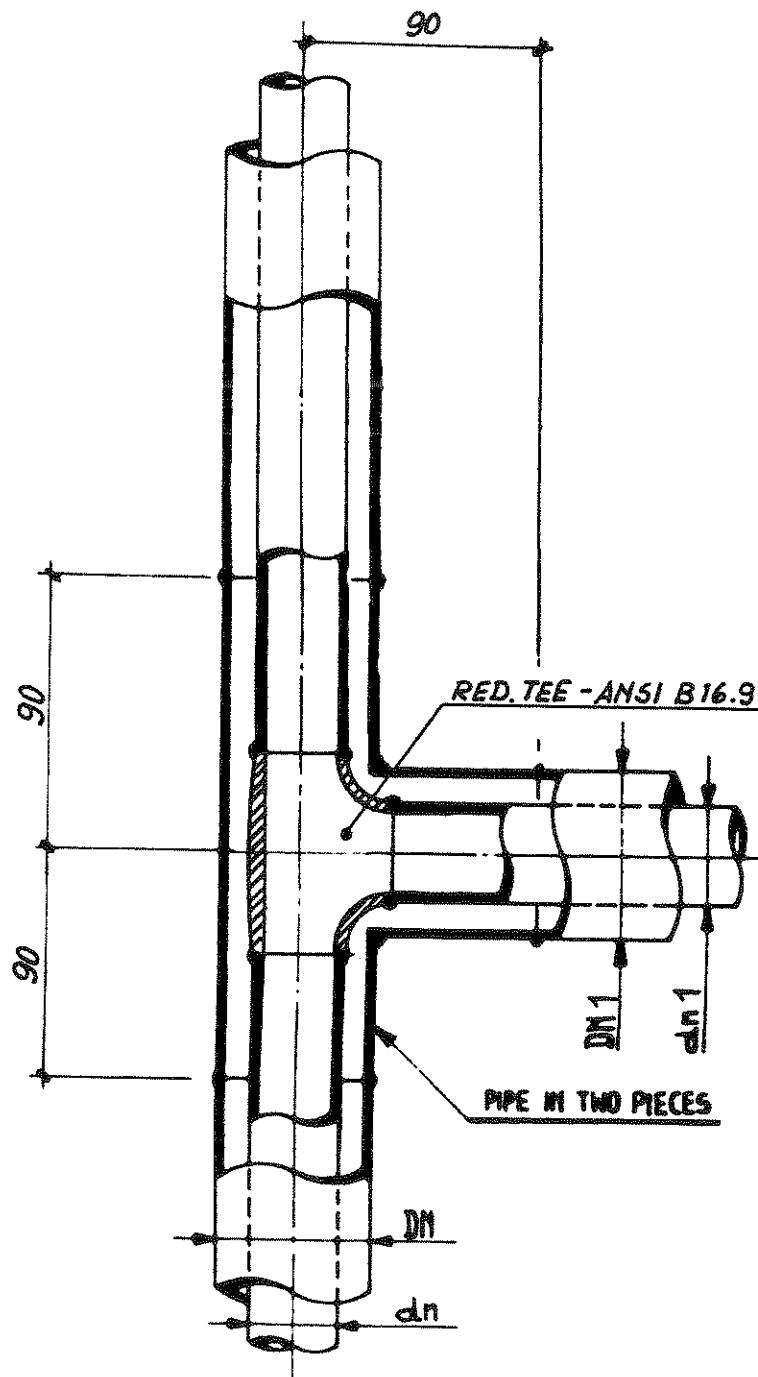


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "16."

ST. 46471

SHEET 17



TYPE	1	2	3
dn	DN	1½"	2½"
dn1	DN1	1"	1½"
RED. TEE	1½" x 1"	2" x 1½"	2" x 1"



0	1	8						
		22-2-93						

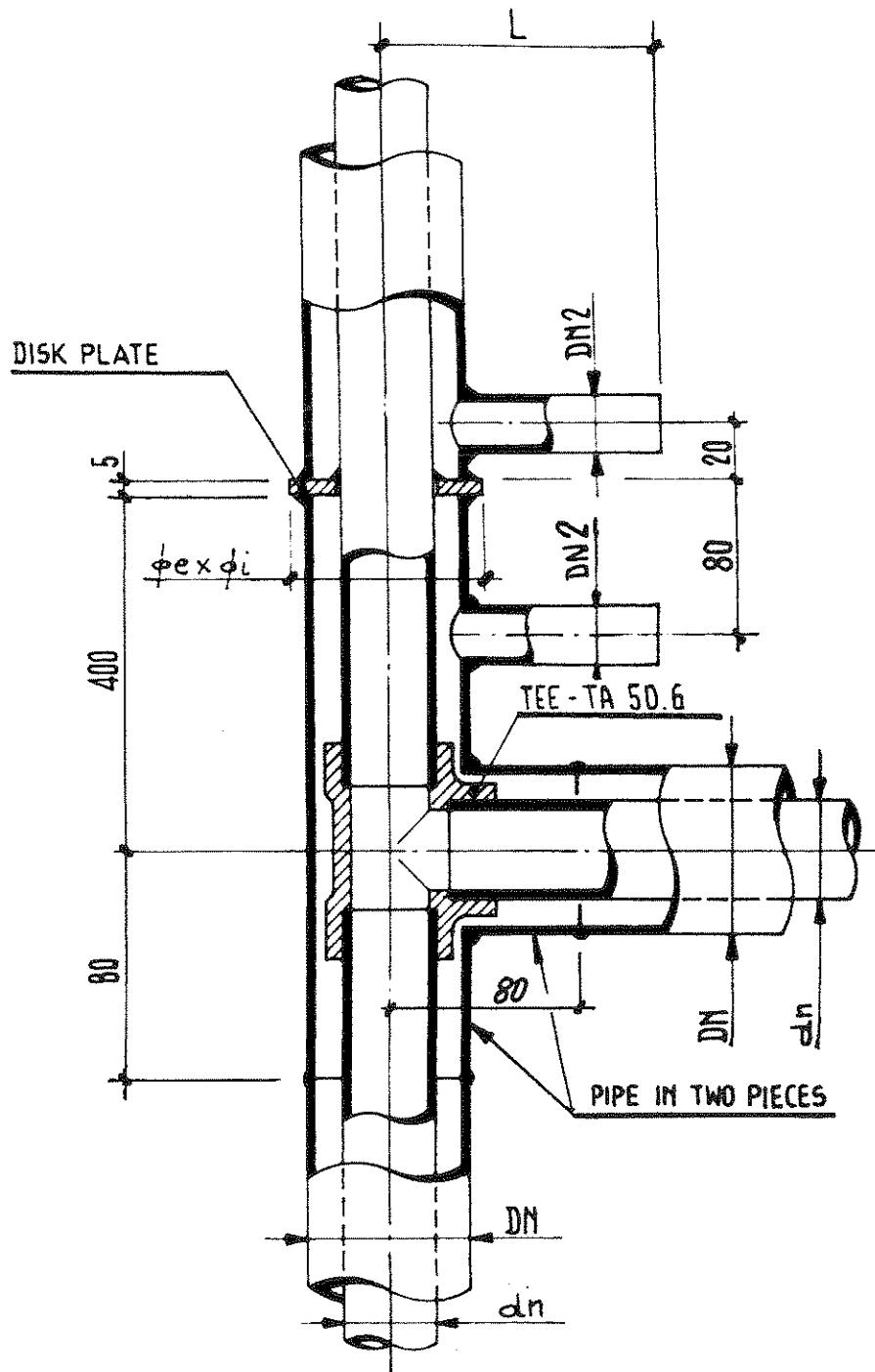


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "17"

ST. 46471

SHEET 18



TYPE	1	2
dn	1/2"	1 1/2"
DN	1/2"	1"
TEE	1/2"	1"
phi x di	65 x 23	80 x 35
L	100	110

0	1	H					
		22-2-93					

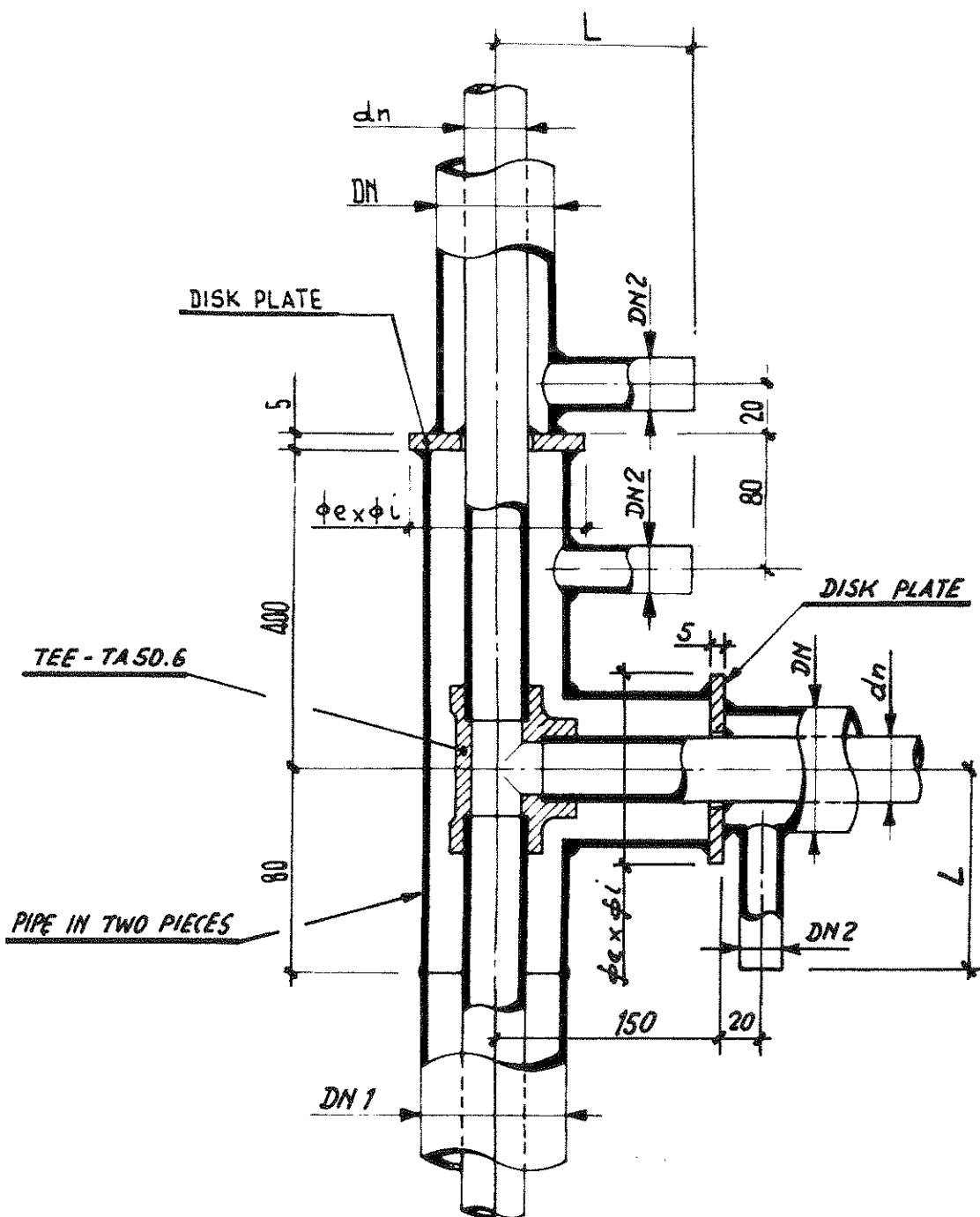


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "18"

ST. 46471

SHEET 19



TYPE	1	1
dn DN	3/4" 1 1/2"	
DN 1	2"	
DN 2	1/2"	
φe x φi	80x28	
TEE	3/4"	
L	110	

0 1 ♂  
222-93



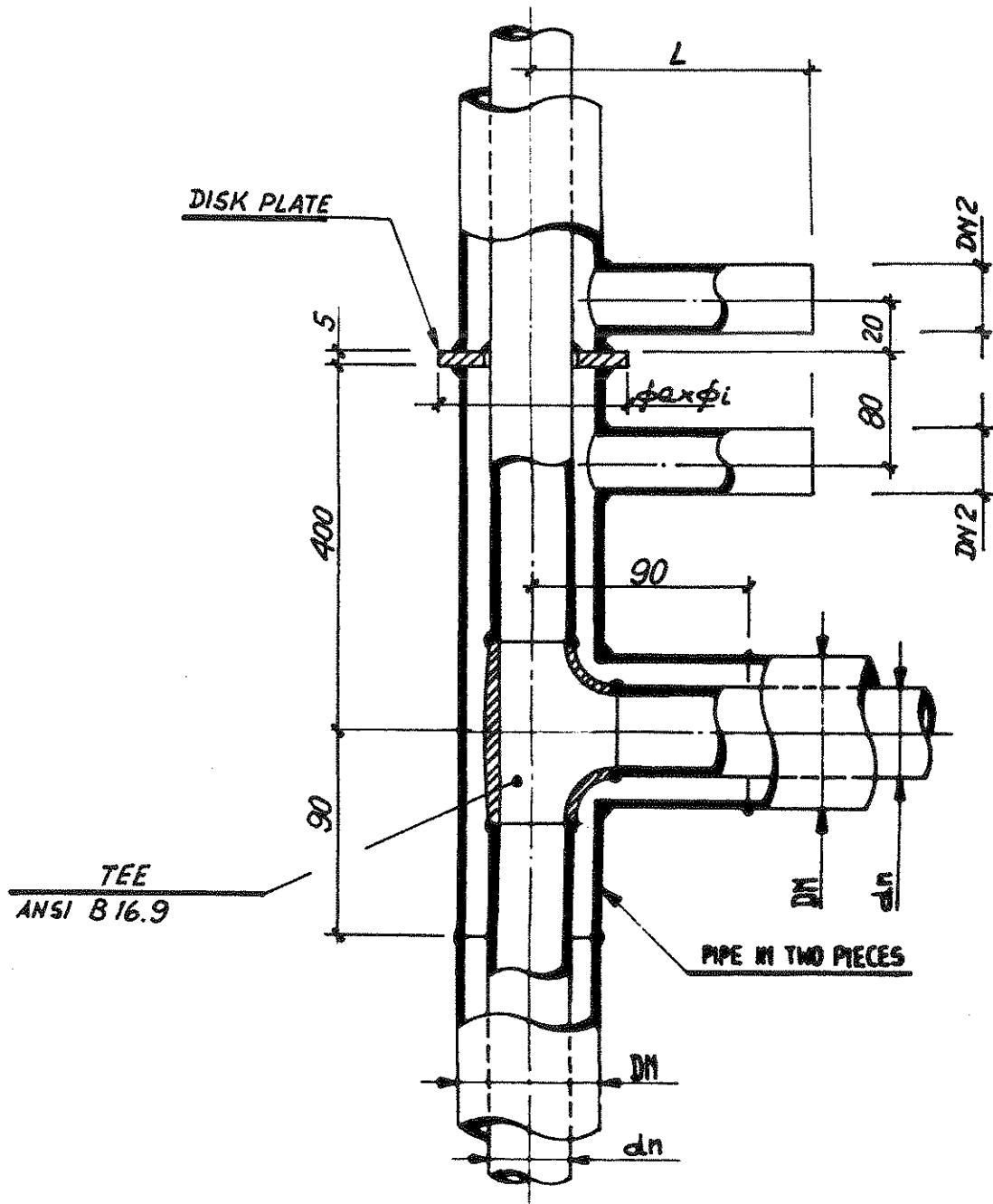
**BALLESTRA S.p.A.**  
**MILANO (ITALIA)**

**DETAIL "19."**

ST.46471

SHEET 20

Mr. C. L. Clegg, Mr. W. H. Gandy, and Mr. J. R. Thompson, of the Canadian Pacific Railway, were invited to speak on the subject of "The Canadian Pacific Railway and its Relation to the West." The speakers were introduced by Mr. J. C. Ross.



TYPE	1	2
dn DN	1½" / 2½"	2" / 3"
DN 2	1/2"	1/2"
TEE	1½"	2"
ΦexΦj	90 x 50	110 x 62
L	120	130

0		1	H					
		22-2-93						

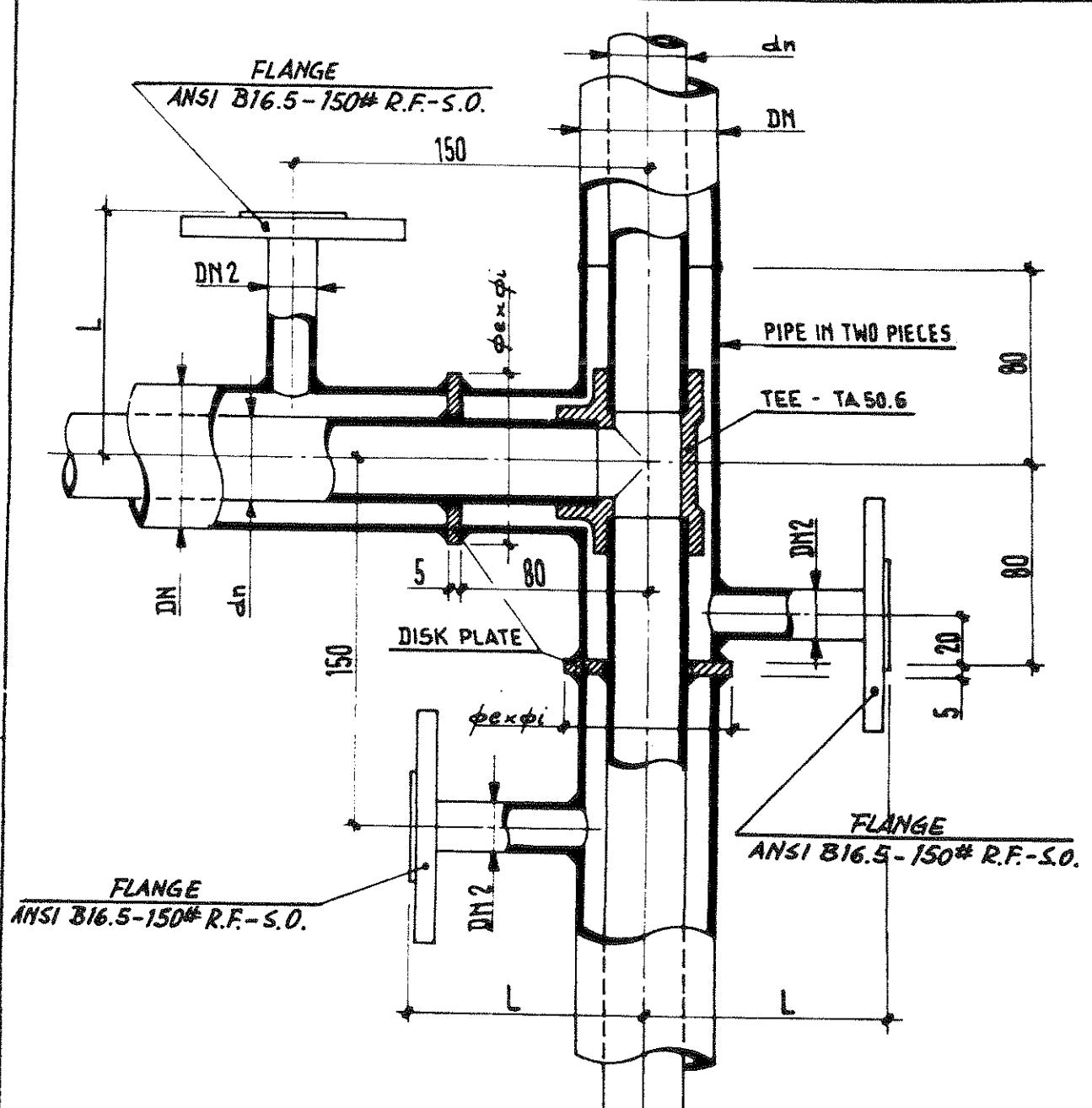


**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DETAIL "20."**

ST.46471

SHEET 21



TYPE	1	2
$d_n$	$\frac{1}{2}''$	$\frac{1}{2}''$
DN		
DN 2	$\frac{1}{2}''$	$\frac{1}{2}''$
TEE	$\frac{1}{2}''$	$\frac{1}{2}''$
$\phi_6 \times \phi_6$	$65 \times 23$	$80 \times 35$
L	100	110

1

0		1	H						
			22-2-93						

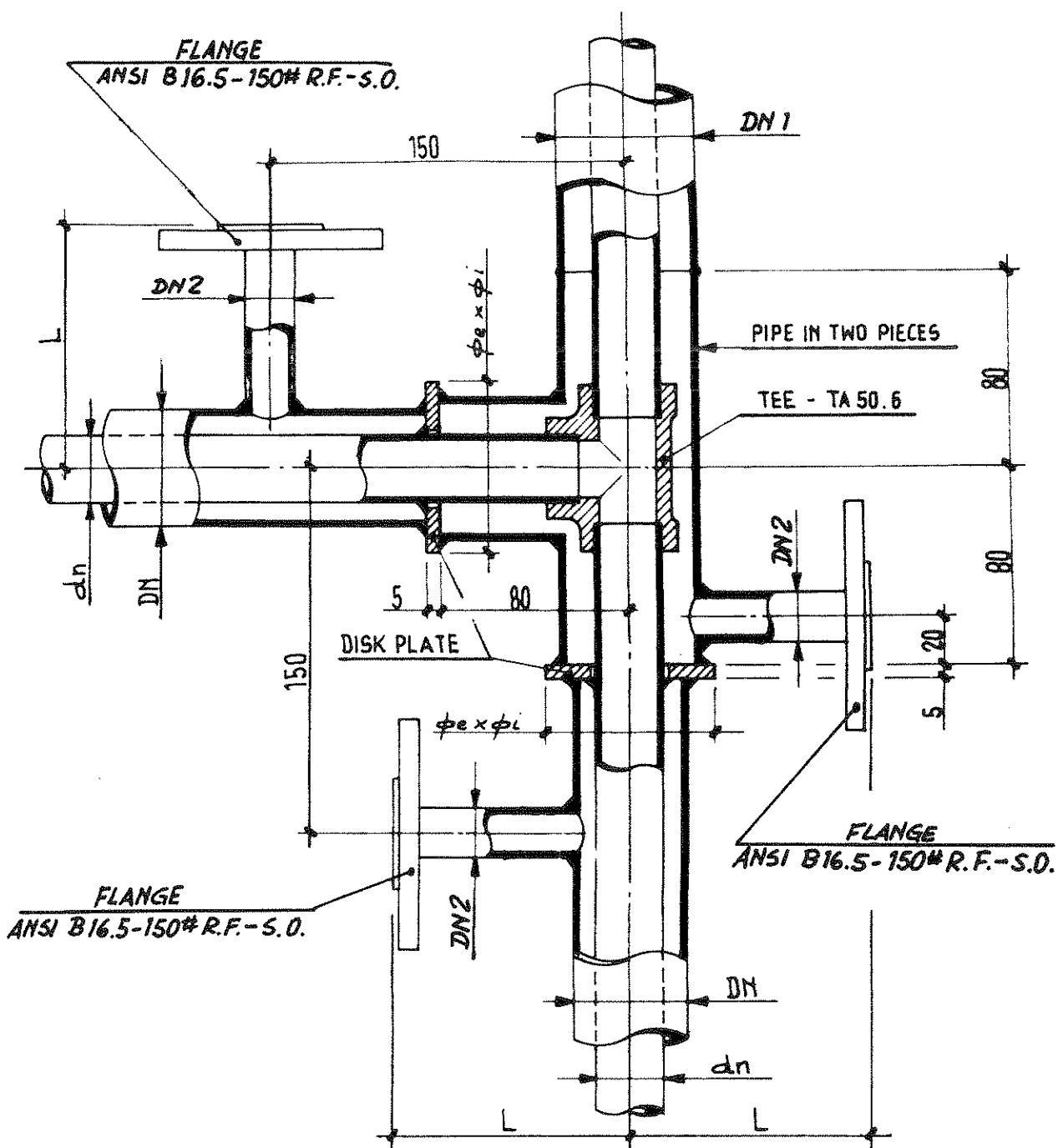


**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DETAIL '21.**

ST. 46471

SHEET 22



TYPE	1	1
$dn$	$3/4"$	
$DN$	$1\frac{1}{2}"$	
$DN\ 1$	$2"$	
$DN\ 2$	$1/2"$	
$TEE$	$3/4"$	
$\phi e \times \phi i$	$80 \times 28$	
$L$	$110$	

0		1	H
		22-2-93	



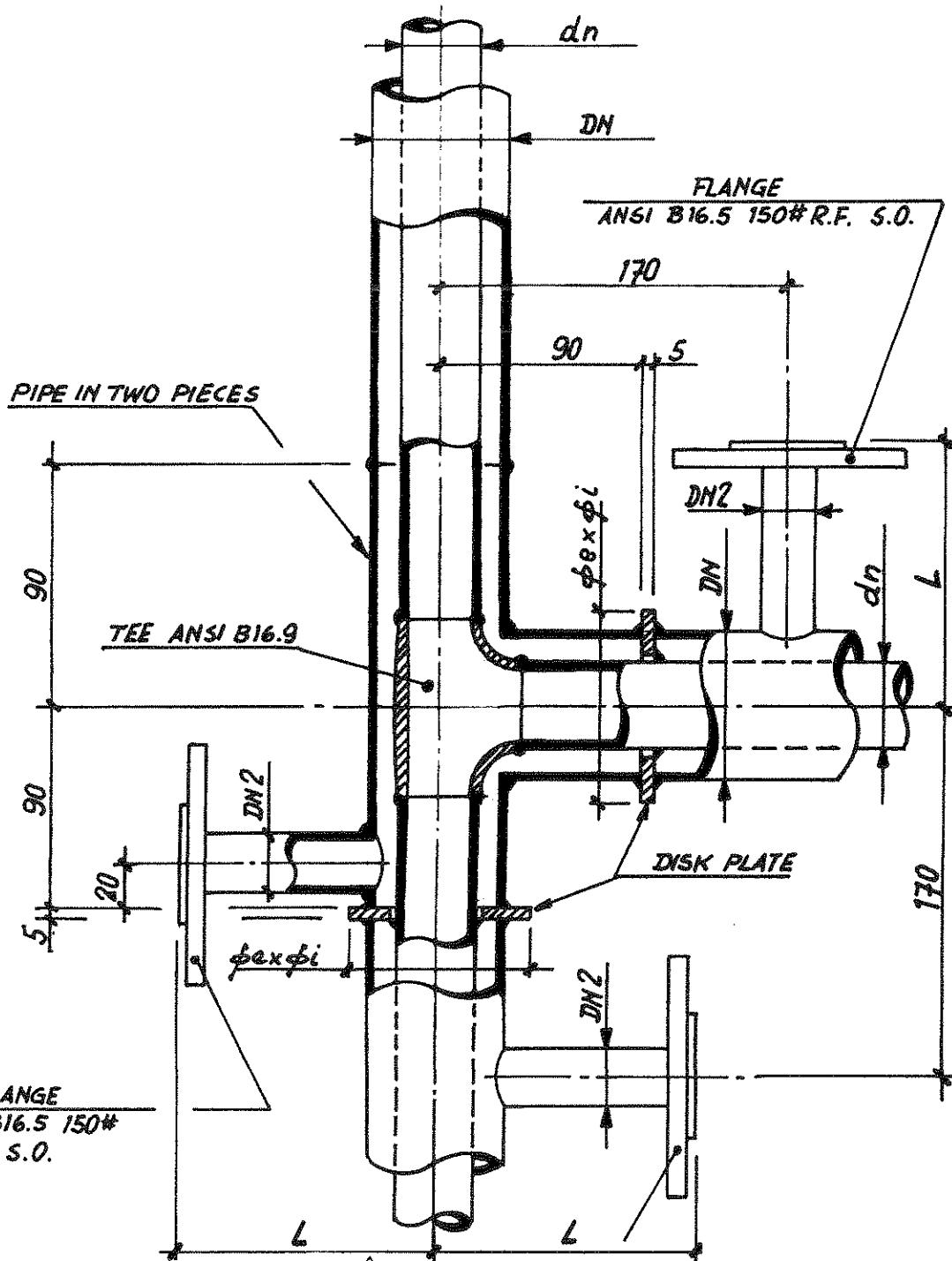
**BALLESTRA s.p.a.**  
**MILANO (ITALIA)**

**DETAIL '22.**

ST.46471

SHEET 23

As far as the company under the law of the state with products of coal from foreign countries, shall not be without the written authorization.



TYPE	1	2
dn	1½"	2"
DN	2½"	3"
DN2	1/2"	1/2"
TEE	1½"	2"
φa = φi	90x50	110x62
L	120	130

FLANGE



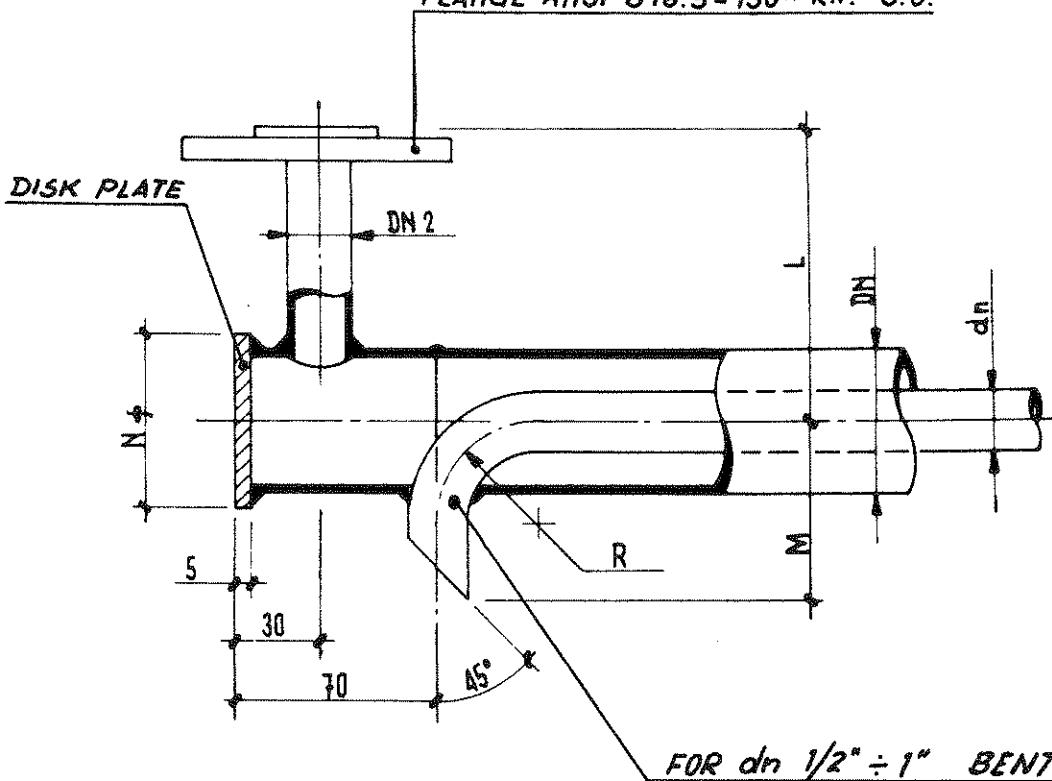
BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "23.."

ST. 46471

SHEET 24

FLANGE ANSI B16.5 - 150# R.F. - S.O.



FOR VENTS

TYPE	1	2	3	4	5	6	7	8
dn / DN	1/2" / 1/2"	3/4" / 1 1/2"	1" / 2"	1 1/2" / 2 1/2"	2" / 3"	3" / 4"	4" / 6"	6" / 8"
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
L	100	100	110	120	130	150	170	200
M	100	130	160	140	170	240	300	440
N	65	65	80	90	110	125	180	230
R	75	100	125	57	76	114	152	229





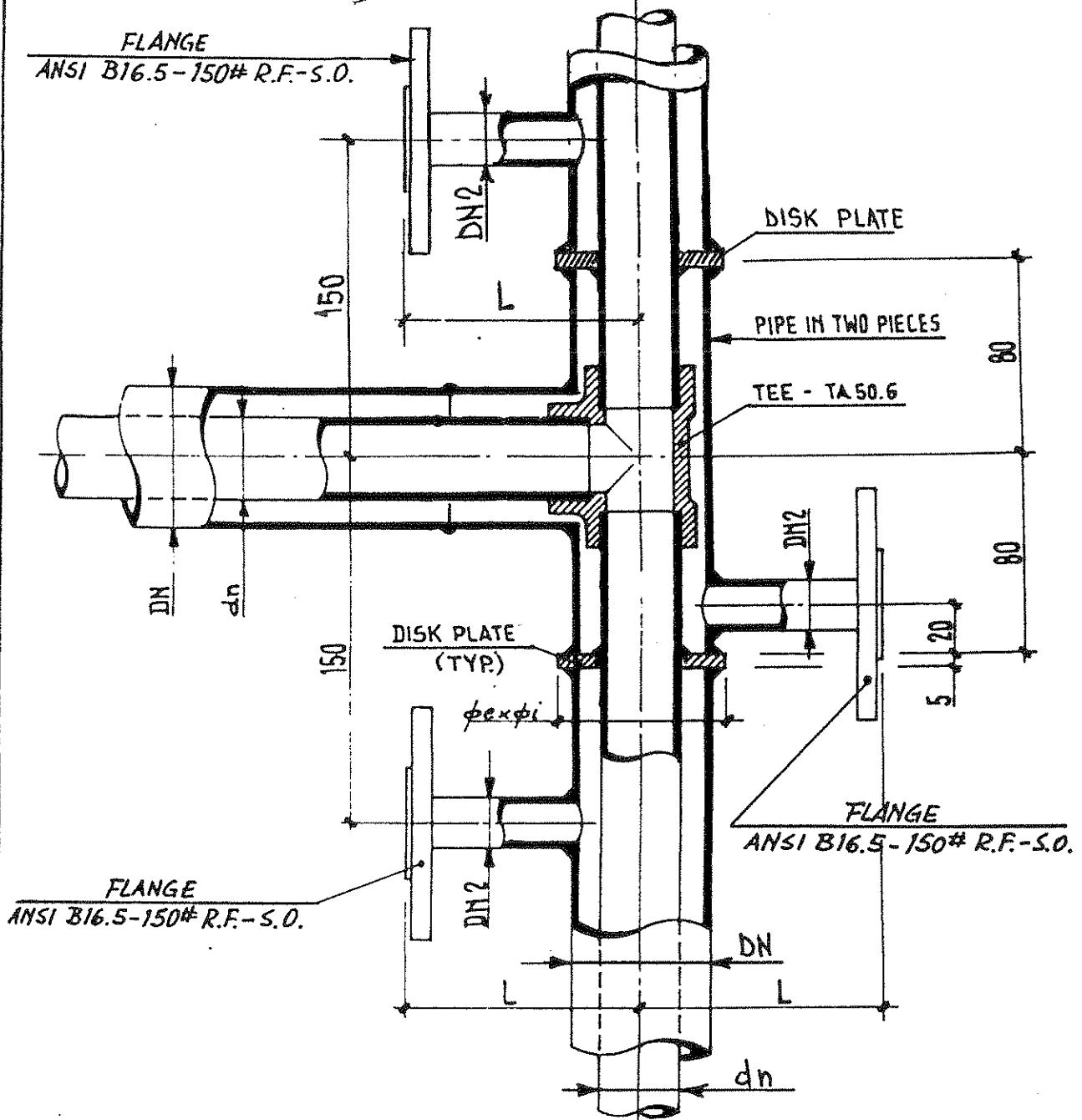
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DETAIL "24.**

ST.46471

SHEET 25

FLANGE  
ANSI B16.5-150# R.F.-S.O.



TYPE	1	2
$d_n$	$\frac{1}{2}''$	$\frac{1}{2}''$
$DN$	$\frac{1}{2}''$	$\frac{1}{2}''$
$DN\ 2$	$\frac{1}{2}''$	$\frac{1}{2}''$
$TEE$	$\frac{1}{2}''$	$\frac{1}{2}''$
$\phi_6 \times \phi_i$	$65 \times 23$	$80 \times 35$
$L$	$100$	$110$

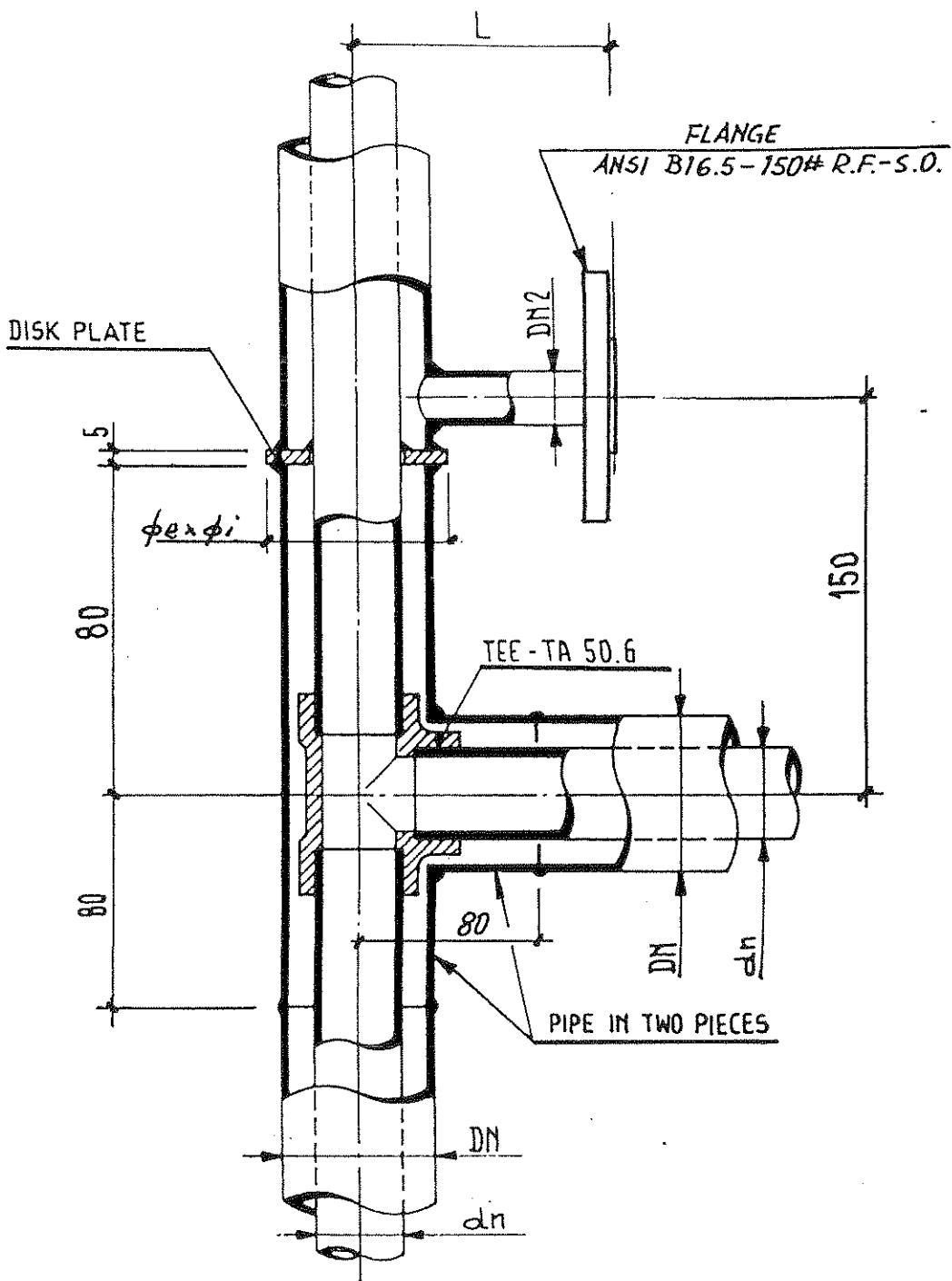


BALLESTRA S.p.A.  
MILANO (ITALIA)

DETAIL "25."

ST. 464.71

SHEET 26



TYPE	1	2
dn \ DN	1/2"	1 1/2"
DN2	1/2"	1/2"
TEE	1/2"	1"
$\phi_a \times \phi_i$	65 x 23	80 x 35
L	100	110

0 FT 1 H  
1.10.91 22-2-93



BALLESTRA s.p.a.  
MILANO (ITALIA)

DIS. ST. 46472

Dwg. Sheet 1 of 21  
FOGLIO Sheet 1 of 21  
CODICE COMPUTER Computer code 46472\_1

## TYPICAL DETAILS FOR PIPING SYSTEM WATER JACKETED

ANSI

THIS SPECIFICATION CANCELS & SUPERSEDES ST. 46344

10	REVISED SHEETS : 1-2-3	Bianco	Brunito	Verde	28-1-97
9	REVISED Sh. 1, 6, 12 AND 13	Giallo			21-5-96
8	REVISED Sh 1-5	Grigio			25-3-93
7	REVISED Sh 1-5	Di Vino			0-3-93
6	REVISED Sh.1 AND SHEETS 2-21	Arancione			22-2-93
5	REVISED Sh. 1-3-6-12-13-15-16-18-19-20	Blu			13-11-92
4	REVISED SH. 1-4/C	Verde			29-10-92
3	REVISED SHEET 1 AND ADDED SHEETS 1/A-1/B-1/C	Arancione			09-04-92

BALLESTRA s.p.a.  
MILANO (ITALIA)

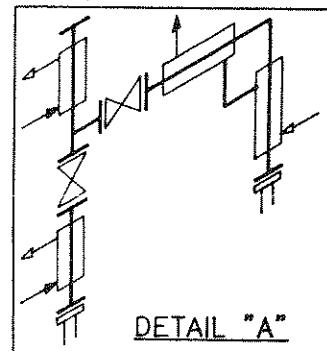
# GENERAL NOTES

DIS. ST. 46472  
Dwg. Sheet 1/A DI  
CODICE COMPUTER Computer code 46472\_1A

- LA NORMA COMPRENDE LE INDICAZIONI RIGUARDANTI I CRITERI DI INCAMICIATURA E I RIFERIMENTI COSTRUTTIVI (FORME E DIMENSIONI).  
IN CASO DI CONTRASTO TRA LA PRESENTE NORMA E L'EVENTUALE SPECIFICA DI PROGETTO, DEVE ESSERE CONSIDERATA PREVALENTE QUEST'ULTIMA.  
This standard includes the information concerning jacketing criteria and construction references (shapes and dimensions).  
In case of conflict between this standard and eventual project specification, the latter shall govern.
- LE LINEE DI ALIMENTAZIONE E DI SCARICO DI OGNI CAMICIA DEVONO PREVEDERE UN'INTERCETTAZIONE.  
The feeding and discharge lines of every jacket shall be provided with interception valve.
- IL PERCORSO DEL FLUIDO INCAMICIANTE NON DEVE MAI SUBIRE DELLE BIFORCAZIONI. AD OGNI ALIMENTAZIONE DEVE CIOE' CORRISPONDERE UNA SOLA USCITA.  
The run of the jacketing fluid shall never have branches. Each feeding shall have a single outlet.
- LA CAMICIA DEVE PREVEDERE LA POSSIBILITA' DI SFIATO E SPURGO PER L'ESECUZIONE DELLA PROVA IDRAULICA, IMPIEGANDO INSTALLAZIONI TIPICHE DI CLASSE DEL TIPO TAPPATO.  
The jacket shall be provided with vents and drains for hydraulic test by using piping classes typical installations of the plugged type.
- LE CAMICIE DEI TRATTI DI LINEA IN MARCIA SALTUARIA O CON ORGANI SMONTABILI PER MANUTENZIONE DEVONO ESSERE ALIMENTATE IN MODO DA ASSICURARE LA CIRCOLAZIONE DEL FLUIDO INCAMICIANTE NEI TRATTI CHE RIMANGONO IN ESERCIZIO (vedere dettaglio "A").  
The jackets of the line sections with non continuous running or with demountable components for maintenance, shall be fed to ensure the circulation of the jacketing fluid in the utilized section (see det. A.)
- L'ALIMENTAZIONE DELL'ACQUA DEVE ESSERE FATTA NELLA PARTE PIU' BASSA DELLA LINEA E, NEI TRATTI ORIZZONTALI, NELLA PARTE INFERIORE DELLA CAMICIA.  
The steam feeding shall be carried out in the lowest part of the line and, in the horizontal sections, in the lower part of the jacket.
- LO SCARICO DEVE ESSERE FATTO NELLA PARTE PIU' ALTA DELLA LINEA E, NEI TRATTI ORIZZONTALI, NELLA PARTE SUPERIORE DELLA CAMICIA.  
The discharge shall be carried out in the upper part of the line and, in the horizontal sections, in the upper part of the jacket.

## MATERIAL:

- CAMICIA: MATERIALE COME DA CLASSE TUBAZIONI 203  
Jacket pipe: material as provided by piping class 203
- TUBO DI PROCESSO: MATERIALE COME DA CLASSE TUBAZIONI INDICATA SU P.& I.  
Process pipe: material as provided by piping class indicated on P.& I.
- IL MATERIALE DEI DISTANZIATORI, FLANGE, DISCHI E ALTRI COMPONENTI DEVE ESSERE UGUALE O EQUIVALENTE A QUELLO DEL TUBO DI PROCESSO SU CUI DEVONO ESSERE SALDATI  
The material of the spacers, flanges, partition disks and other components has to be equal or equivalent to the material of the process pipe on which they have to be welded 



REV.	DESCRIZIONE - DESCRIPTION	FC	BB	22-10-93
1	REVISED WHERE INDICATED	APPR.	MM	09-04-92
0	ISSUED	APPR.	MM	09-04-92
		COMP. PREP.D	CONTR. CONTR.D	DATA DATE



BALLESTRA S.p.A.  
MILANO (ITALIA)

# GENERAL NOTES

DIS. ST. 46472

FOGLIO 1/B DI  
Sheet Of

CODICE COMPUTER 46472\_1B  
Computer code

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## - IN SEDE DI PROGETTO DEVONO ESSERE DEFINITI:

During the design, the following shall be defined:

- 1) LA LUNGHEZZA DEL MASSIMO TRATTO DI CAMICIA CON UNICA ALIMENTAZIONE, CONTEMPORANEAMENTE ALL'UTILIZZO DI UNO O DUE CAVALLOTTI NEI TRATTI ORIZZONTALI.  
(LA LUNGHEZZA NON DEVE COMUNQUE SUPERARE 15 mt.)  
The maximum allowable length of the jacket with one feeding - Use of one or two jumps in the horizontal parts of the jackets.  
(Length not to exceed 15 mt.)
- 2) LA POSIZIONE DEI GIUNTI FLANGIATI E DEI DISCHI DI INTERRUZIONE CAMICIA  
The location of flanged joints and of the jacket breaking disks
- 3) QUOTE DI ALCUNI DETTAGLI TIPICI NON DEFINITE IN QUESTA NORMA  
Dimensions of some typical details not defined in this standard
- 4) DETTAGLI COSTRUTTIVI NON CONTEMPLATI IN QUESTA NORMA  
Construction details not defined in this standard

1	REVISED NOTE "1"	JAN	MAR	K	25-10-93
0	ISSUED	APR	JUN	L	09-04-92



BALLESTRA S.p.A.  
MILANO (ITALIA)

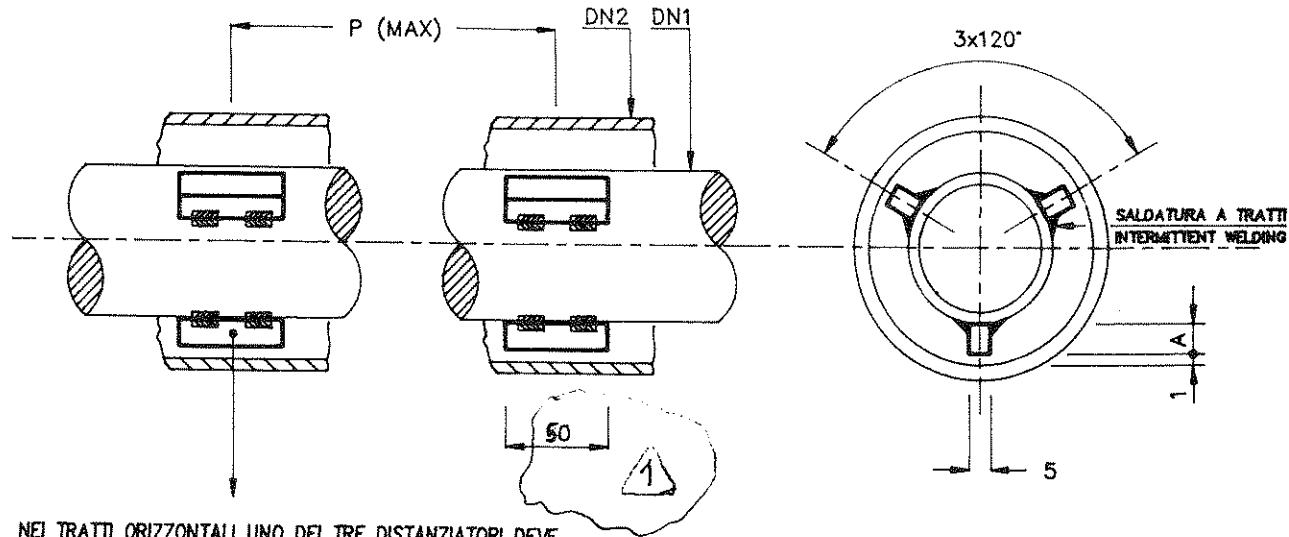
# DISTANZIATORI TUBO/CAMICIA

## Pipe/jacket spacers

DIS. ST. 46472  
Dwg. Sheet 1/C DI  
FOGLIO OF  
CODICE COMPUTER Computer code 46472\_1C

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NEI TRATTI ORIZZONTALI UNO DEI TRE DISTANZIATORI DEVE ESSERE POSIZIONATO SULLA GENERATRICE INFERIORE  
In the horizontal sections one of the three spacers shall be positioned on the bottom

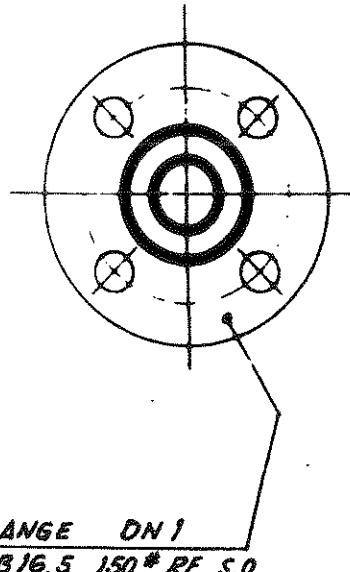
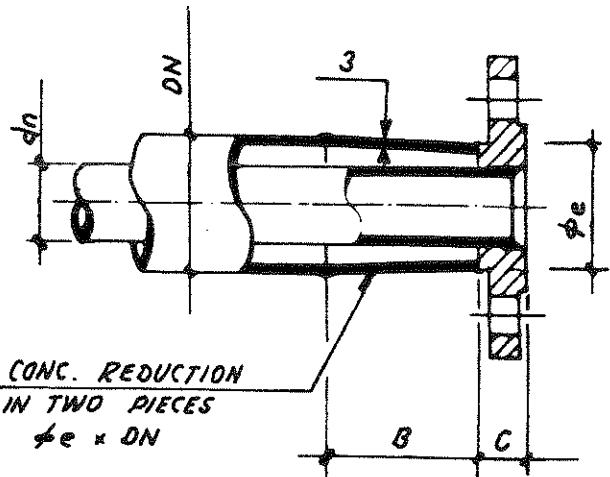
DN1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"				
DN2	1 1/2"	1 1/2"	2"	2 1/2"	2 1/2"	3"	4"	4"				
A	9	6	8.5	11	8	10	16.5	8.5				
P (MAX)	1000	1500		2500		3500	4500					

### NOTES:

IN SEDE DI PROGETTO DEVE ESSERE DEFINITA LA POSIZIONE DEI DISTANZIATORI TUBO/CAMICIA RISPETTO AGLI ALTRI ELEMENTI DELLA CAMICIA (DEVONO CORRISPONDERE PREFERIBILMENTE CON I SUPPORTI TUBAZIONI E NON DEVONO CORRISPONDERE CON LE ALIMENTAZIONI, GLI SCARICHI, GLI SFIATI E SPURGHI DELLA CAMICIA)

During the design, shall be defined the location of internal pipe/jacket spacers (they have to be placed, in preference, in correspondence of the piping supports and should not be put in correspondence of feedings, discharges and jacket vents and drains)

1	REVISED WHERE INDICATED	23-10-92
0	ISSUED	09-04-92



FLANGE DN 1  
ANSI B16.5 150# RF S.O.

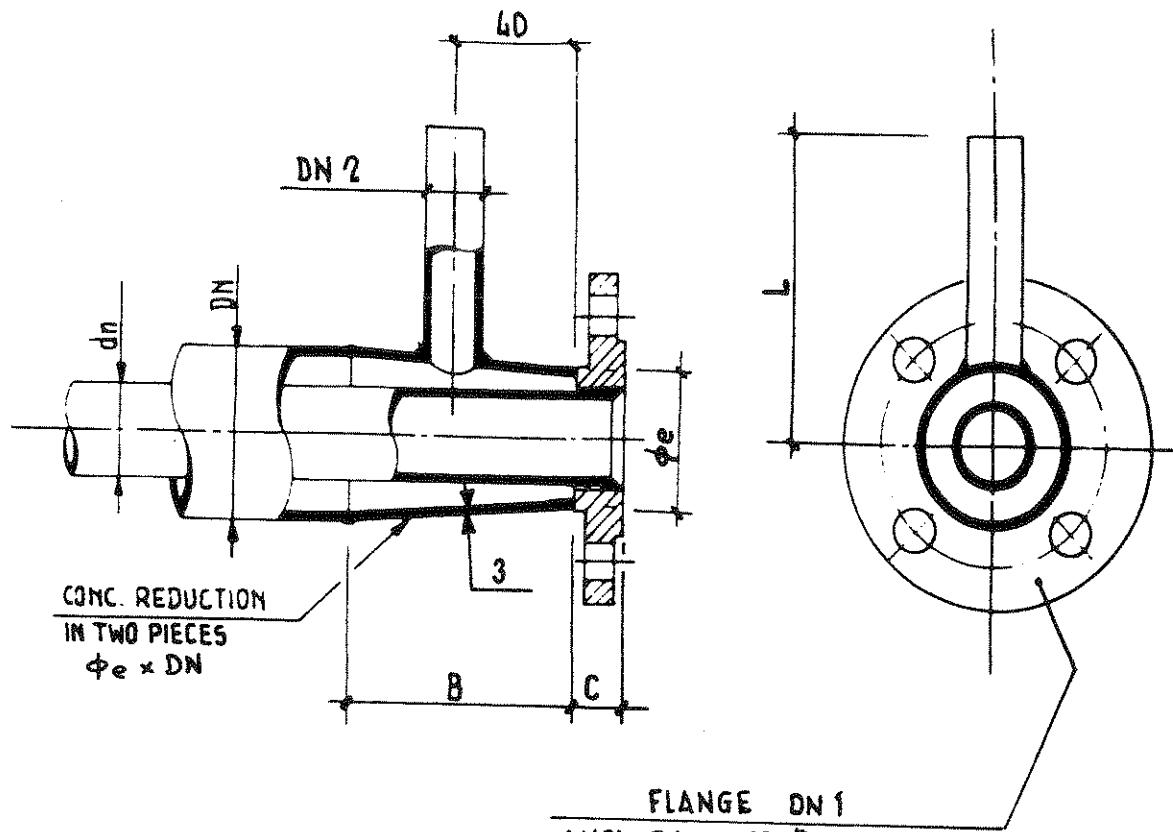
TYPE	1	2	3	4	5	6	7	8		
dn	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	2 1/8"	3"
DN	1 1/2"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	4"	4"	4"
CONC. RED.	30	38	49	58	64	75	90	108		
DN	1 1/2"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	4"		
FLG. DN 1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"		
B	100	100	100	100	100	100	100	100		
C	15,9	15,9	17,5	20,7	22,3	25,4	28,6	30,2		

2 REVISED WHERE INDICATED  
1 REVISED WHERE INDICATED

Bianco  
Lanni

Ann.  
M.B.  
G.H.

28-1-97  
22-2-93



TYPE	1	2	3	4	5	6	7	8	9	10
dn	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3"	4"
DN	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	10"
CONC. phi_e RED.	30	38	49	58	64	75	90	108	108	135
DN	1 1/2"	1 1/2"	2"	2 1/2"	2 1/2"	3"	6"	6"	5"	6"
FLG. DN1	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3"	4"
DN2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
B	100	100	100	100	100	100	100	100	100	100
C	15,9	15,9	17,5	20,7	22,3	25,4	28,6	30,2	30,2	33,3
L	100	110	110	110	120	130	140	150	150	150

3 3

3 REVISED WHERE INDICATED  
2 REVISED WHERE INDICATED  
1 REVISED WHERE INDICATED

Bianco

28-1-97

Lanni

G.M.

Lanni

G.M.

M.B.

13-11-92

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONT'L  
CHECKED

APPR.  
APPROD.

DATA  
DATE



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

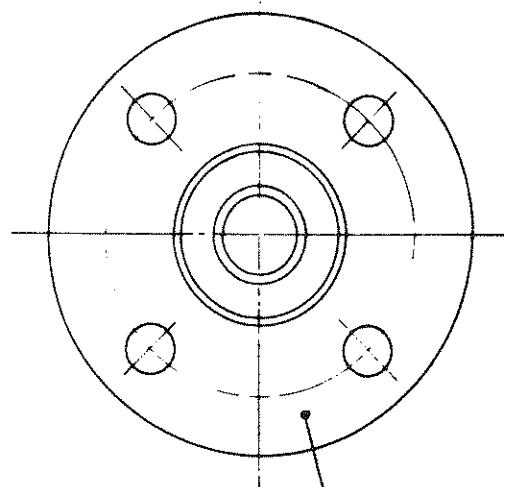
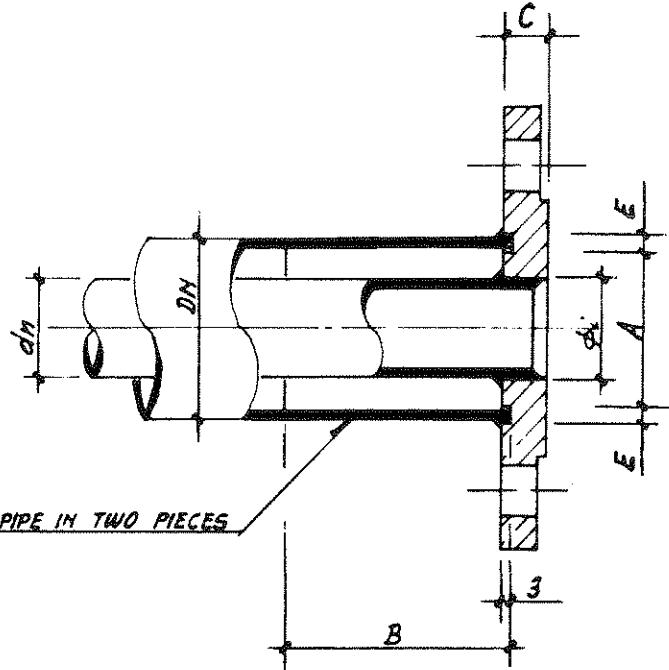
## **DETAIL "3."**

ST. 46472

SHEET 4

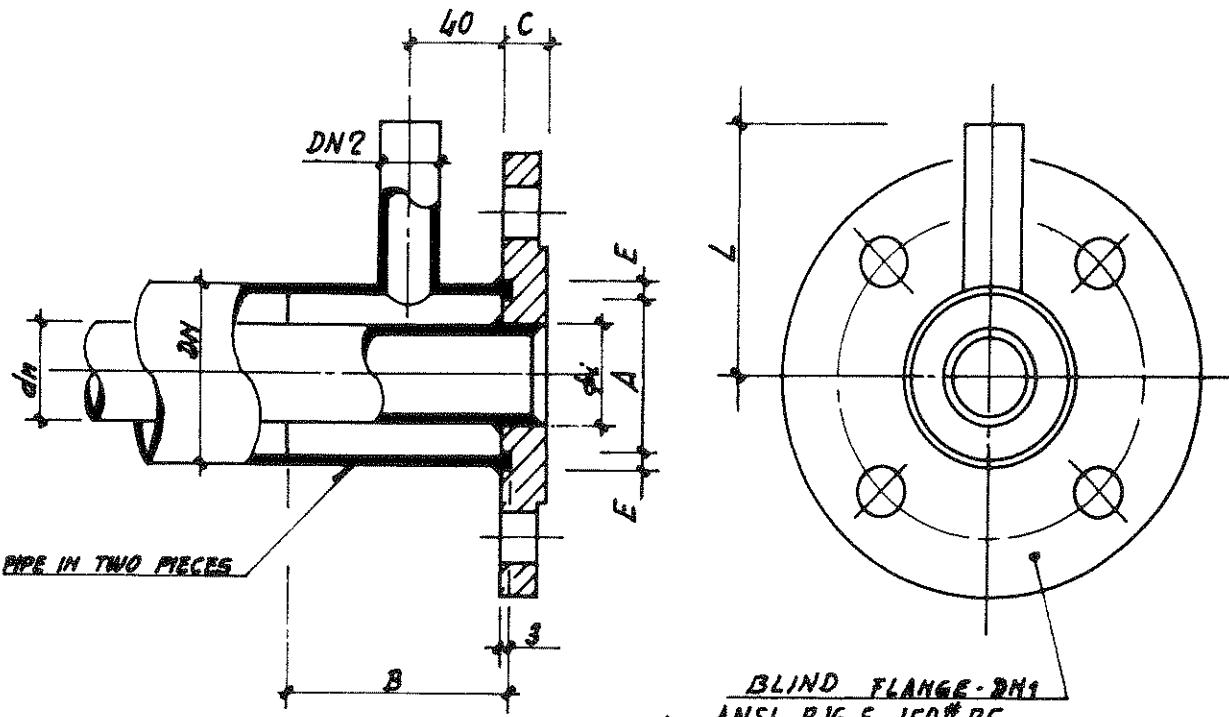
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RISERVAMO LA PROPRIETÀ A TERMINI DI LEGGE DI QUESTO DISEGNO CON DIVIETO DI RIPRODURLO ANCHE IN PARTE O DI RENDERLO  
TERZI SENZA NOSTRA AUTORIZZAZIONE SCRITTA



BLIND FLANGE - DN1  
ANSI B16.5 ISO# RF

1 H  
22-2-93



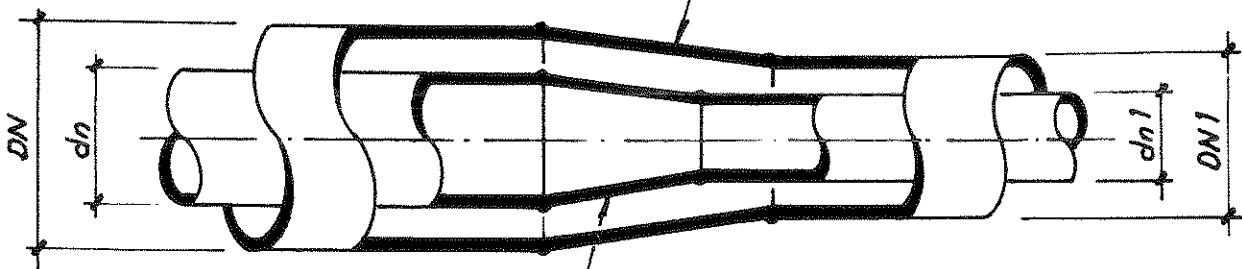
TYPE	1	2	3	4	5	6					
dn	1/2"	3/4"	1"	1 1/2"	2"	3"					
DN	1 1/2"	2"	2 1/2"	3 1/2"	4"	5"					
FLG DN1	1 1/2"	1 1/2"	1 1/2"	2"	2 1/2"	3"					
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"					
$\phi_i$	23	28	35	50	62	35					
A	39	39	50	60	80	50					
B	100	100	100	100	100	100					
C	17,5	17,5	17,5	19	22,2	19					
E	5,5	5,5	6	7,5	5,5	6					
L	120	120	120	130	140	130					

1	2	3	4	5	6	7	8	9	10	11	12
22-2-93	A-2-Q2	75-2-92									



CONC. REDUCTION DN x DN1

(AS INDICATED ON THE PIPING  
SPECIFICATION)



CONC. REDUCTION dn x dn1

(AS INDICATED ON THE PIPING SPECIFICATION)

3

TYPE	1	2	3	4	5	6	7	8	9	10
dn	1"	1"	1 1/2"	1 1/2"	2"	2"	2"	2"	2 1/2"	2 1/2"
DN	2"	2"	2 1/2"	2 1/2"	3"	3"	3"	3"	4"	4"
dn1	1/2"	3/4"	3/4"	1 1/2"	2"	3/4"	1 1/4"	1 1/4"	1 1/2"	2"
DN1	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	3 1/2"	2"	2 1/2"	2 1/2"	3"
CONC. RED.	DN	2"	2"	2 1/2"	2 1/2"	3"	3"	3"	4"	4"
RED.	DN1	1 1/2"	1 1/2"	1 1/2"	2"	1 1/2"	2"	2 1/2"	2 1/2"	3"
CONC. dn	1"	1"	1 1/2"	1 1/2"	2"	2"	2"	2"	2 1/2"	2 1/2"
RED.	dn1	1/2"	3/4"	3/4"	1"	3/4"	1"	1 1/4"	1 1/2"	2"

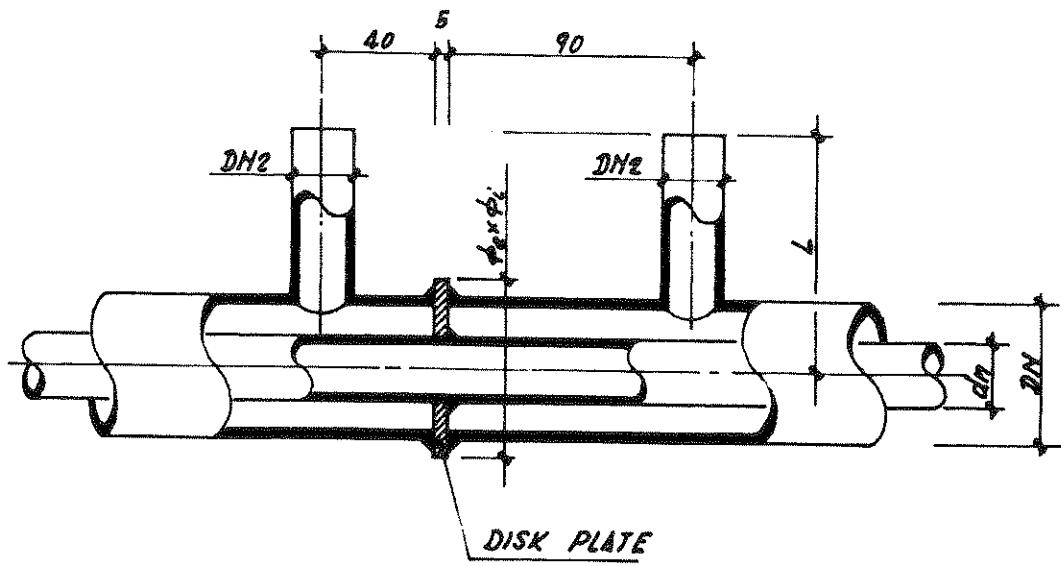
TYPE	11	12	13	14	15	16	3
dn	3"	3"	3"	3"	4"	3/4"	
DN	4"	4"	4"	5"	6"	1 1/2"	
dn1	1 1/2"	2"	2"	2 1/2"	2"	1/2"	
DN1	2 1/2"	3"	3"	4"	3"	1 1/2"	
CONC. RED.	DN	4"	4"	5"	6"	-	
RED.	DN1	2 1/2"	3"	3"	4"	-	
CONC. dn	3"	3"	3"	3"	4"	3/4"	
RED.	dn1	1 1/2"	2"	2"	2 1/2"	1 1/2"	

1 ♂ 2 ♂ 3 galli

13-11-92

22-2-93

21-5-96



TYPE	1	2	3	4	5	6	7	1
dn	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	2 1/2"
DN	1 1/2	2	2 1/2	3	4	5	6	7
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
$\phi_e \times \phi_i$	65x23	65x28	80x35	90x50	110x62	125x75	125x91	
6	100	110	110	120	130	140	150	

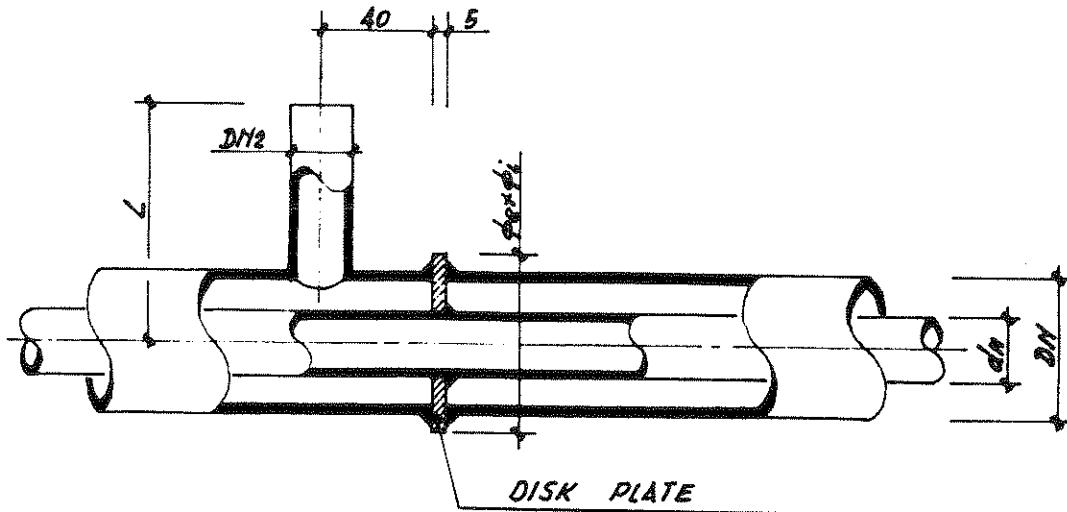


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MILANO (ITALIA)

DETAIL "7"

ST. 46472

SHEET 8

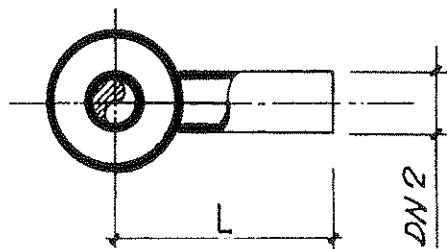
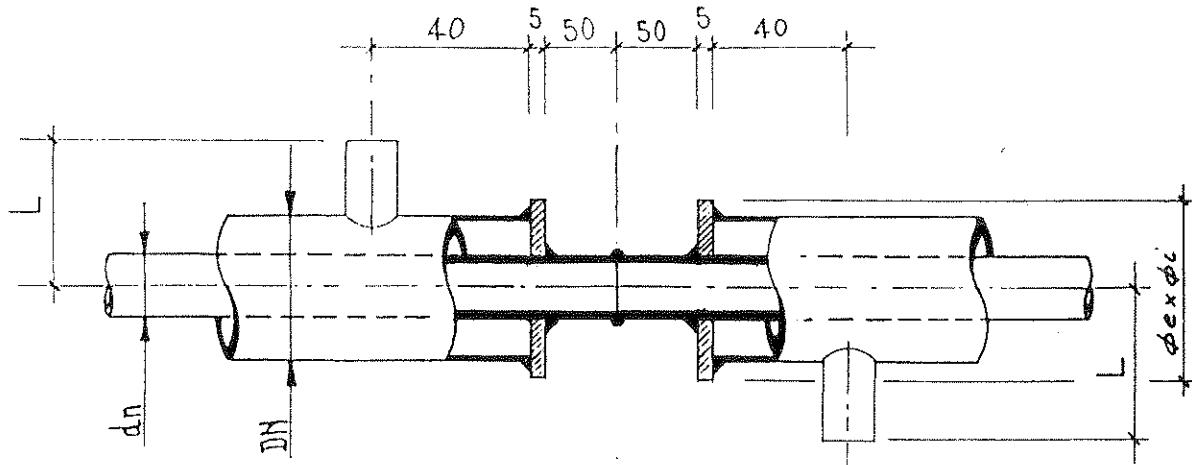


TYPE	1	2	3	4	5	6	7	1
$d_n$	$1/2''$	$3/4''$	$1''$	$1\frac{1}{2}''$	$2''$	$2\frac{1}{2}''$	$3''$	
DN	$1\frac{1}{2}''$	$1\frac{1}{2}''$	$1\frac{1}{2}''$	$2''$	$2\frac{1}{2}''$	$3''$	$4''$	
DN 2	$1/2''$	$1/2''$	$1/2''$	$1/2''$	$1/2''$	$1/2''$	$1/2''$	
$\phi_e \times \phi_i$	$65 \times 23$	$65 \times 28$	$80 \times 35$	$90 \times 50$	$110 \times 62$	$125 \times 75$	$125 \times 91$	
L	100	110	110	120	130	140	150	



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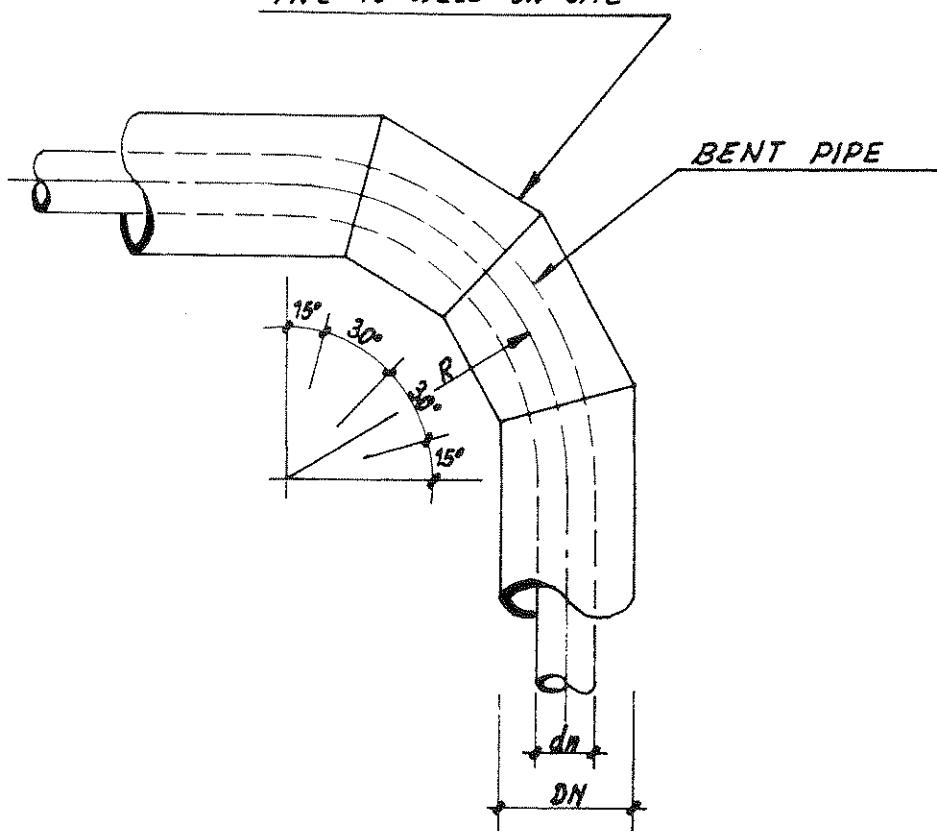
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TYPE	1	2	3	4	5	6	7	2
dn	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
DN	1 1/2"	1 1/2"	1 1/2"	2 1/2"	3"	4"	4"	
DN 2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	
L	100	110	110	120	130	160	150	
$\phi_{ex}\phi_i$	65x23	65x28	80x35	90x50	110x62	125x75	125x91	



MITER BEND MADE FROM  
PIPE TO WELD ON SITE



TYPE	1	2	3	1								
dn	1/2"	3/4"	1"	2"								
DN	11/2	11/2	11/2	2"								
R	75	100	125									



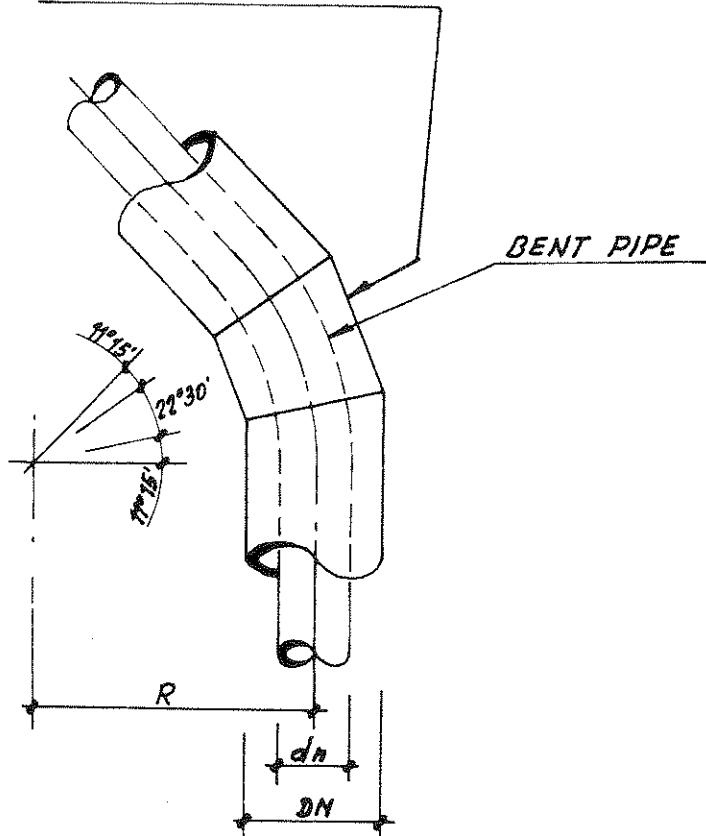
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MILANO (ITALIA)

ST. 46472

DETAIL "10."

SHEET 11

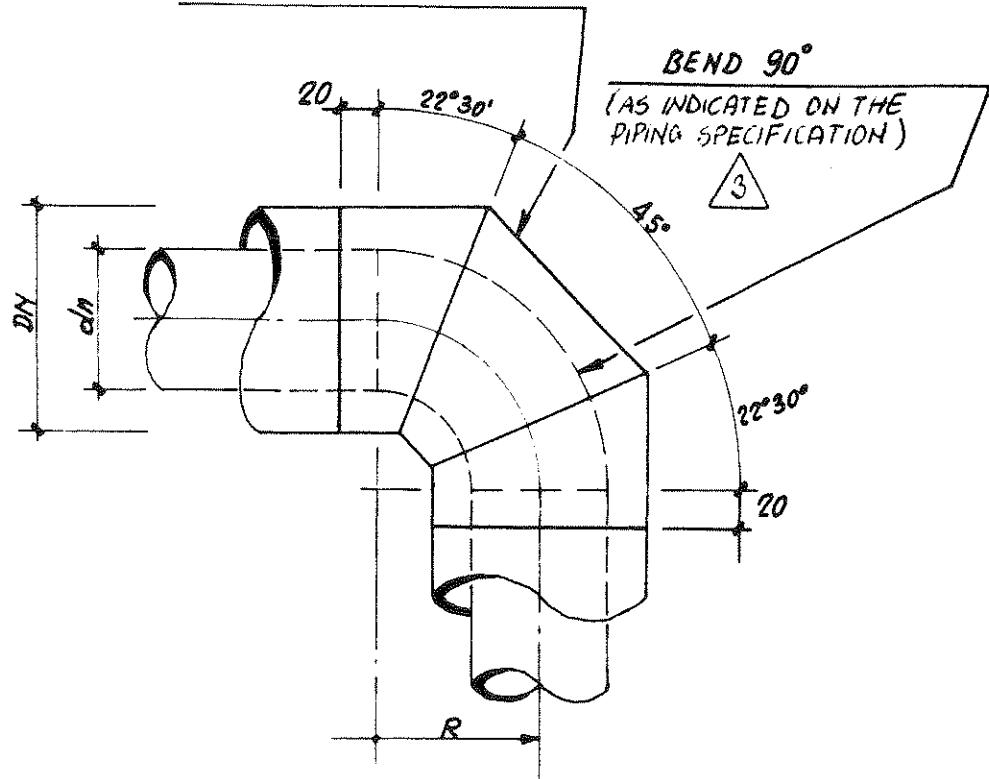
MITER BEND MADE FROM  
PIPE TO WELD ON SITE



1 8  
22-2-93



MITER BEND MADE FROM  
PIPE TO WELD ON SITE



TYPE	1	2	3	4	5	6	7				
dn	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	7"	8"	9"
DN	2 1/2	2 1/2	2 1/2	3	4	5	6	7	8	9	10
R	48	57	76	95	114	114	152				

1	d	2	H	3	Galli						
13-11-92		22-2-93		21-5-96							



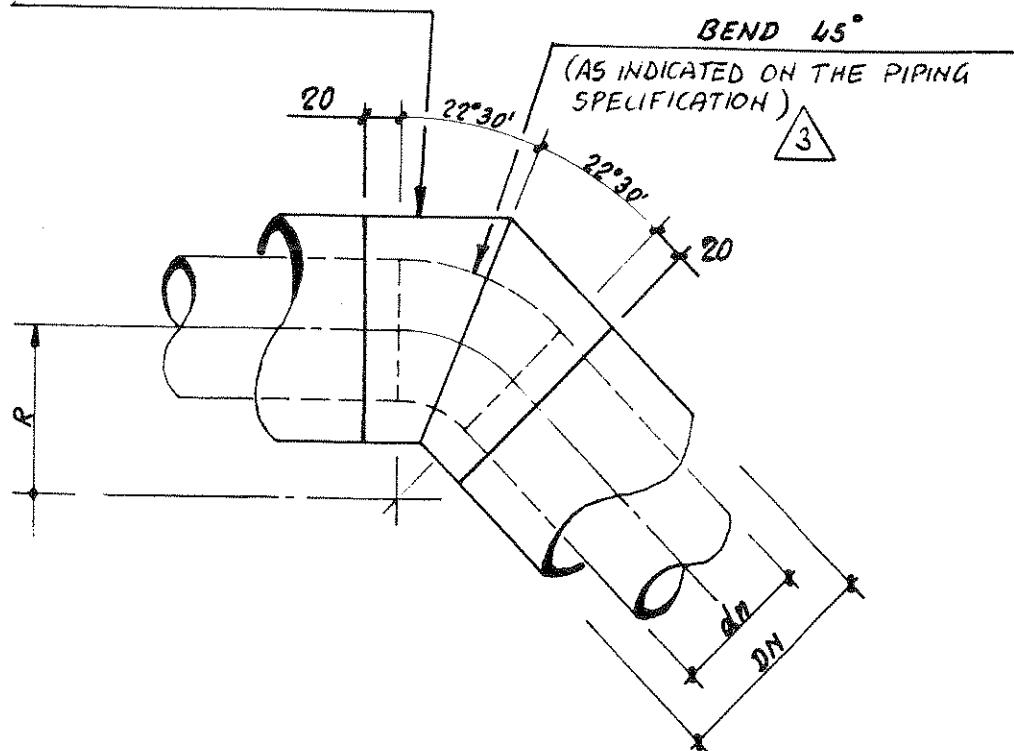
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MILANO (ITALIA)

DETAIL "12."

ST. 46472

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MITER BEND MADE FROM  
PIPE TO WELD ON SITE



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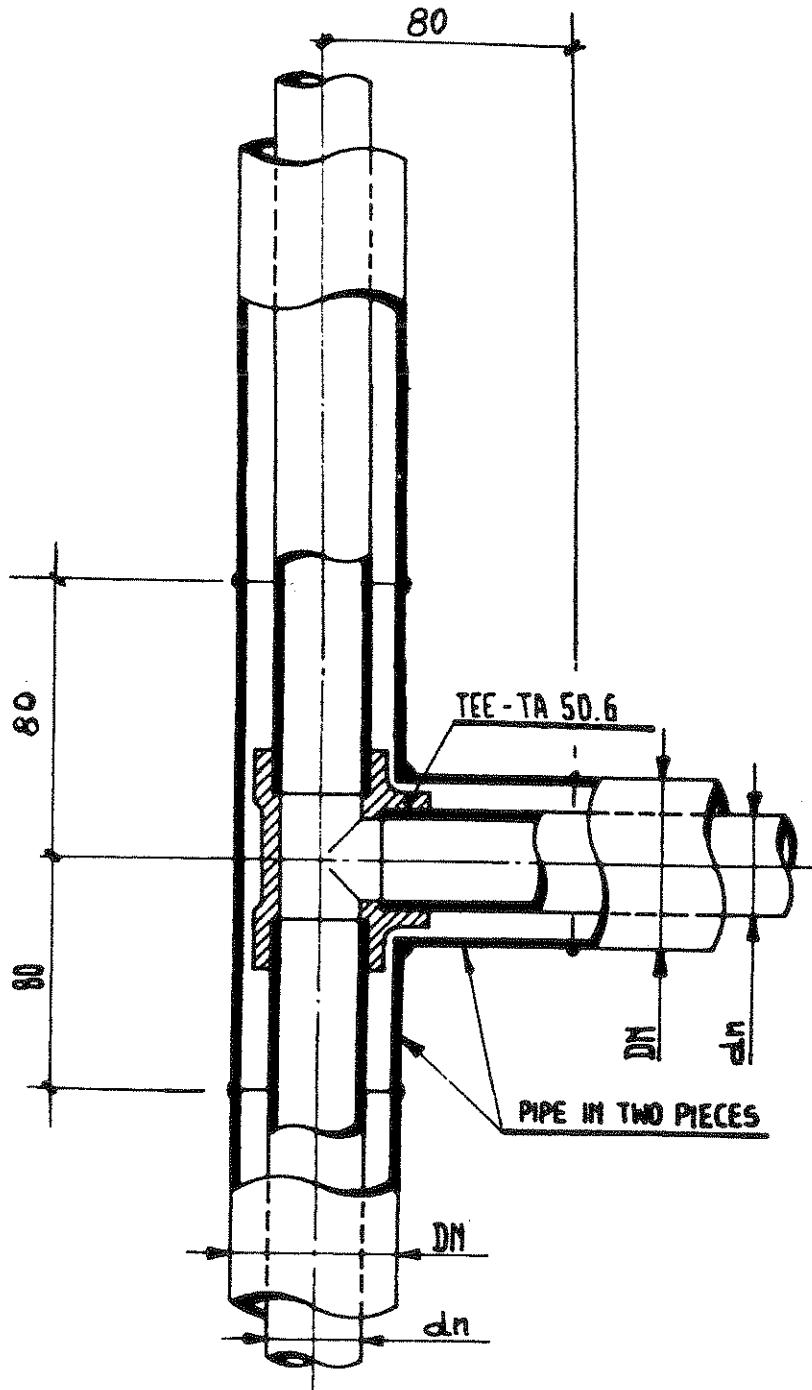
DETAIL "13.

ST. 46472

SHEET 14

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condiviso di questo disegno con diritto di riproduzione anche in parte o di renderlo



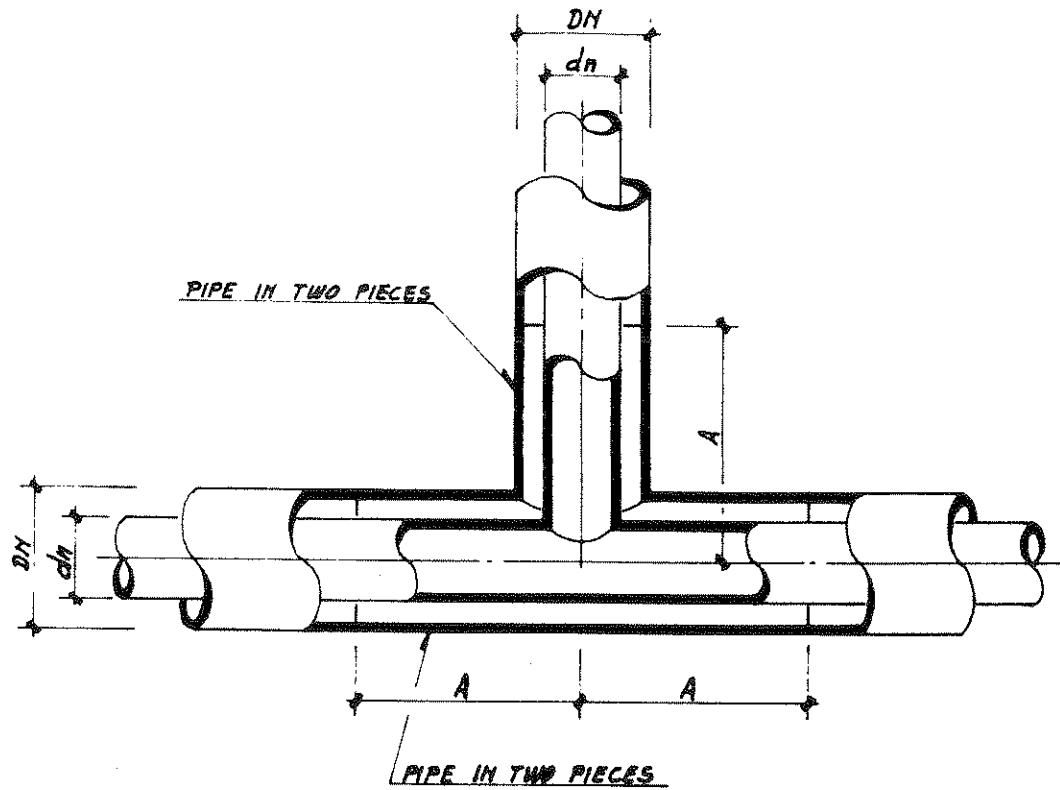
TYPE	1	1					
dn	$\frac{1}{2}''$	$\frac{1}{4}''$					
DN							

TEE	$\frac{1}{8}''$						

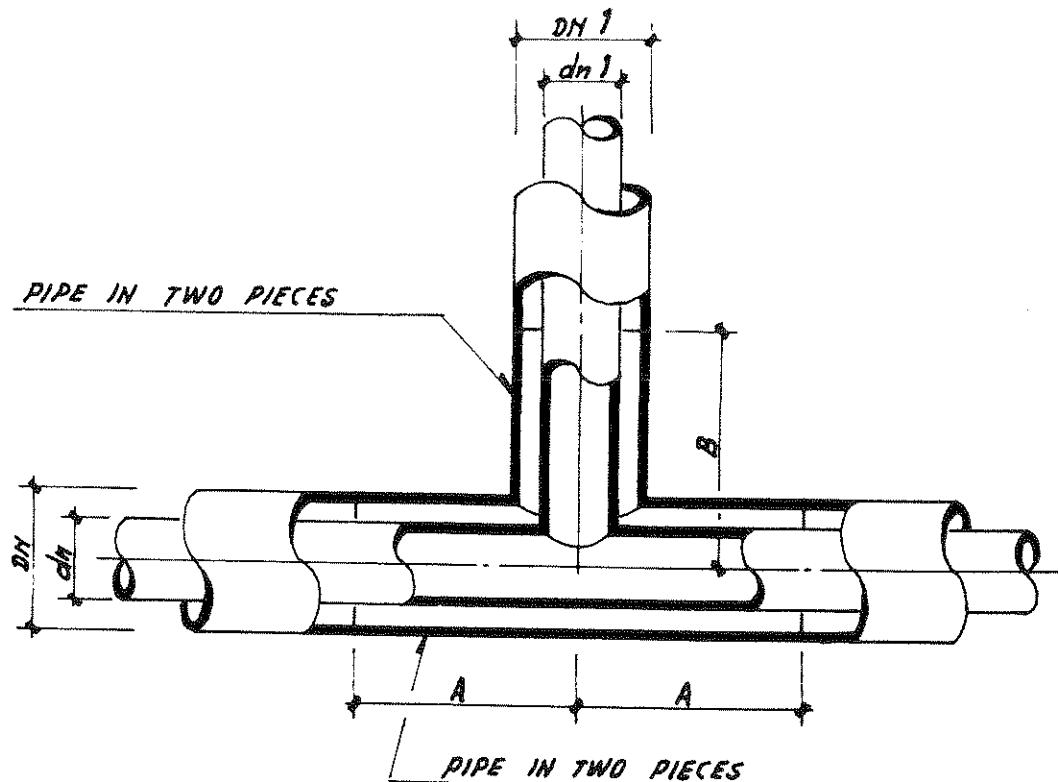
1

22-2-93



TYPE	1	2	3	4	5	6	7	8	2
dn	3/4"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	
ON	1 1/2"	2"	2 1/2"	3"	4"	4 1/2"	5"	6"	
A	80	80	90	90	100	100	120	130	

1	2	3	4	5	6	7	8	9	10
13-11-92	22-2-93								



TYPE	1	2	3	4	5	6	7	8	9	10
dn	3/4"	1 1/2"	1"	1"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
DN	1 1/2"	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	3"	3"	3"
dn1	1/2"	3/4"	1/2"	1 1/2"	1 1/2"	3/4"	1/2"	1 1/2"	1 1/2"	1 1/2"
DN1	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
A	80	80	80	90	80	80	80	90	90	80
B	80	80	80	90	90	90	90	90	90	90

TYPE	11	12	13	14	15	16	17	18	19	20
dn	2"	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	3"	3"
DN	3"	3"	4"	4"	4"	4"	4"	4"	4"	4"
dn1	3/4"	1 1/2"	1 1/2"	2"	1 1/2"	1 1/2"	1"	3/4"	1 1/2"	2 1/2"
DN1	1 1/2"	1 1/2"	1 1/2"	3"	2 1/2"	2 1/2"	2"	1 1/2"	1 1/2"	2"
A	80	80	90	90	90	80	80	80	100	90
B	90	90	100	100	100	100	100	100	100	100

TYPE	21	22	23	24	25	26
dn	3"	3"	3"	3"	3"	3"
DN	4"	4"	4"	4"	4"	5"
dn1	1 1/2"	1 1/2"	1"	3/4"	1/2"	2"
DN1	2 1/2"	2 1/2"	2 1/2"	2"	1 1/2"	3"
A	90	90	80	80	80	90
B	100	100	100	100	100	120

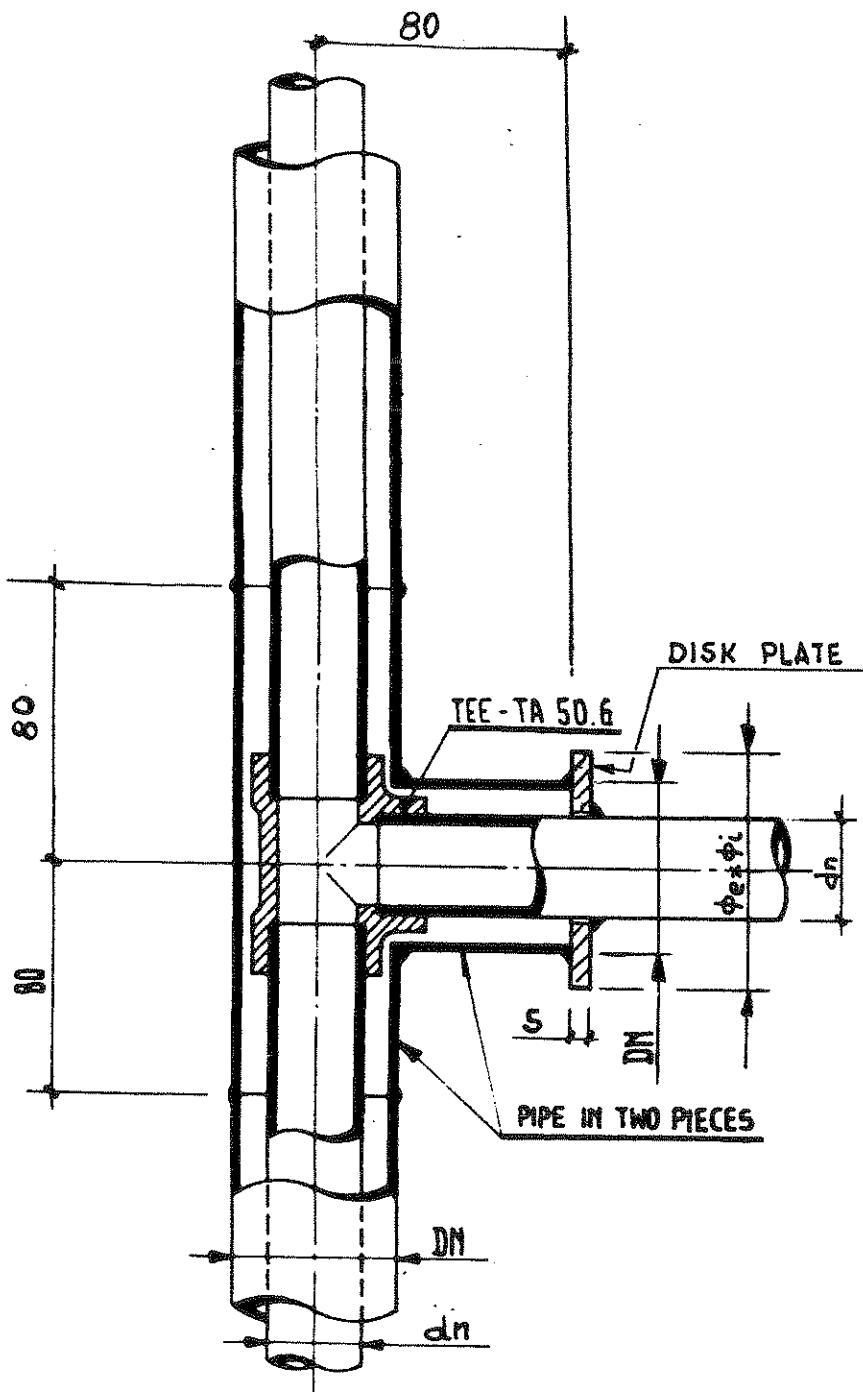


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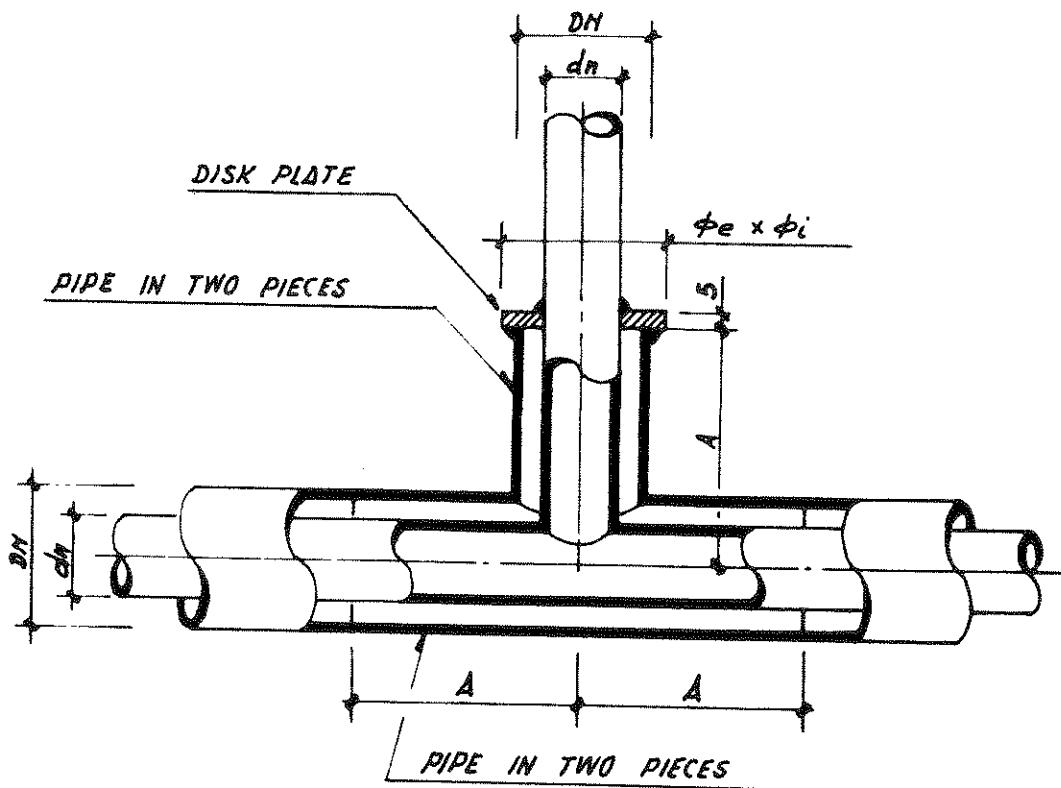
ST. 46472

DETAIL "16."

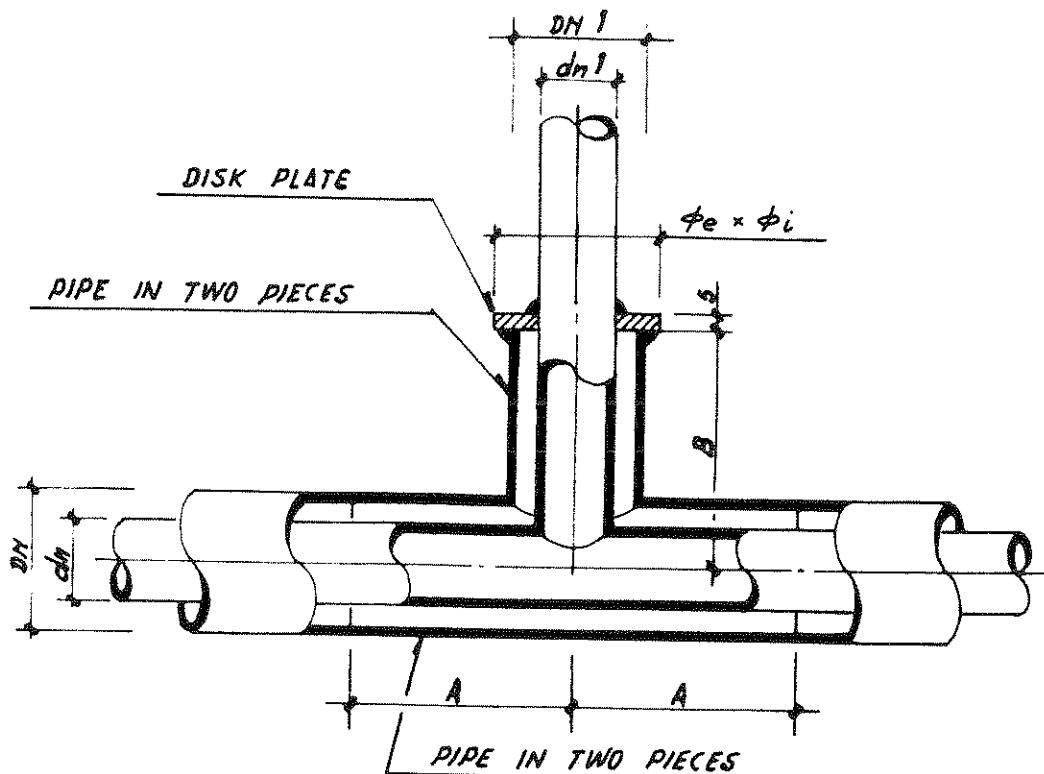
SHEET 17



TYPE	1	1						
dn	1/2"	1 1/2"						
DN								
TEE	1/2"							
φe x φi	65x23							



TYPE	1	2	3	4	5	6	7	2
dn	3/4"	1 1/2"	2"	2 1/2"	3"	2 1/2"	4"	
DN	1 1/2"	2"	2 1/2"	3"	4"	4"	6"	
A	80	80	90	90	100	100	130	
$\phi_e \times \phi_i$	65x28	80x35	90x50	110x62	125x75	125x91	180x116	

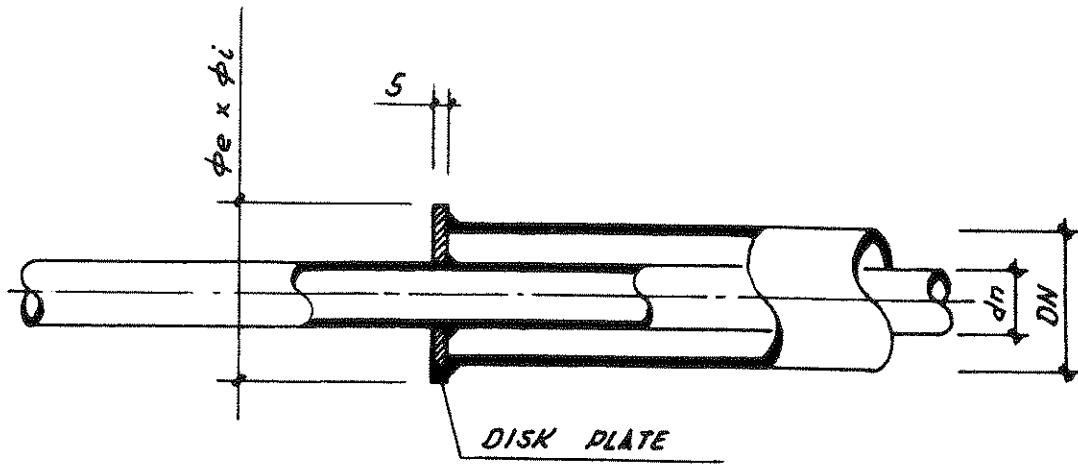


TYPE	1	2	3	4	5	6	7	8	9	10
dn	3/4"	1 1/2"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
DN	DN 1									
dn1	1/2"	3/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
DN1	DN 1									
A	80	80	80	90	80	80	80	90	90	80
B	80	80	80	90	90	90	90	90	90	90
phi_e x phi_i	65 x 23	65 x 28	65 x 23	90 x 44	80 x 35	65 x 28	65 x 23	90 x 50	90 x 44	80 x 35

TYPE	11	12	13	14	15	16	17	18	19	20
dn	2"	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	3"	3"
DN	DN	DN	DN	DN	DN	DN	DN	DN	DN	DN
dn1	3/4"	1 1/2"	1 1/2"	2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2 1/2"
DN1	DN 1	DN 1	DN 1	DN 1	DN 1	DN 1	DN 1	DN 1	DN 1	DN 1
A	80	80	90	90	90	80	80	80	100	90
B	90	90	100	100	100	100	100	100	100	100
phi_e x phi_i	65 x 28	65 x 23	110 x 62	90 x 50	90 x 44	80 x 35	65 x 28	65 x 23	125 x 75	110 x 62

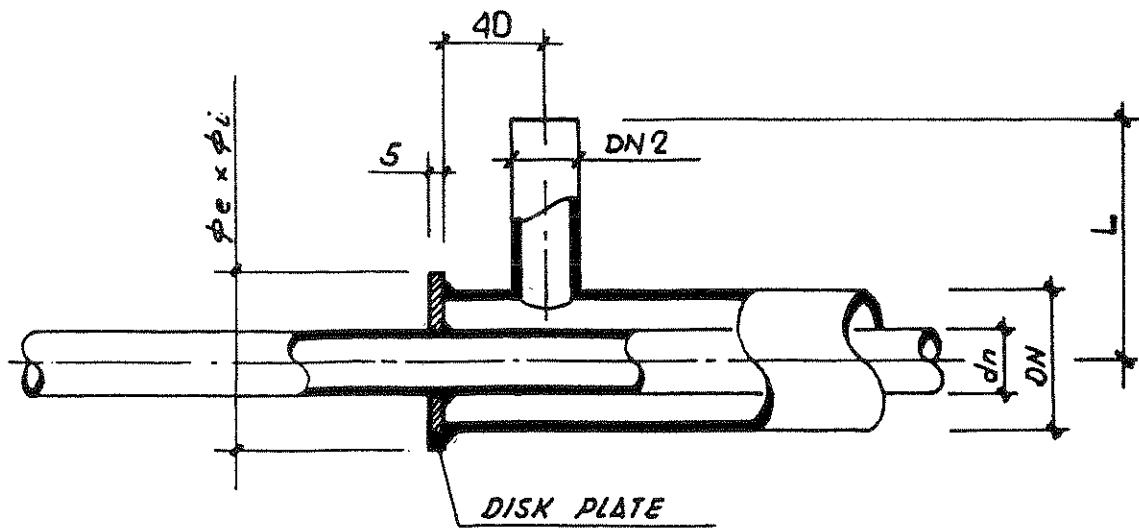
TYPE	21	22	23	24	25	26	27	28
dn	3"	3"	3"	3"	3"	3"	4"	4"
DN	DN	DN	DN	DN	DN	DN	DN	DN
dn1	1 1/2"	1 1/4"	1"	3/4"	1/2"	2"	1/2"	2"
DN1	DN 1	DN 1	DN 1					
A	90	90	80	80	80	90	90	90
B	100	100	100	100	100	120	120	120
phi_e x phi_i	90 x 50	90 x 44	80 x 35	65 x 28	65 x 23	110 x 62	90 x 23	110 x 62

1	2	3	4	5	6	7	8	9	10
93-11-92	22-2-93								



TYPE	1	2	3	4	5	6	7	8	9	2
dn DN	1/2" 1/2	3/4" 1 1/2	1" 1 1/2	2" 2 1/2	2" 2 1/2	3" 2 1/2	4" 3"	4" 3"	4" 3"	4" 6"
phi e x phi i	65x23	65x28	80x35	90x50	110x62	125x75	125x91	142x91	180x116	

1	df	2	df							
12.11.97		09.9.92								



TYPE	1	2	3	4	5	6	7	1
dn / DN	1/2" / 1/2"	3/4" / 1 1/2"	1" / 2"	1 1/2" / 2 1/2"	2" / 3"	2 1/2" / 4"	3" / 6"	
$\phi_e \times \phi_i$	65x23	65x28	80x35	90x50	110x62	125x75	125x91	
DN2	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	
L	100	100	110	120	140	150	150	



BALLESTRA S.p.A.  
MILANO (ITALIA)

**TIPO A CHIUSURA CON TIRANTI**  
**BOLT CLOSING TYPE**

**DWG. ST.400078**

Comp.Code 81400078\_1

SHEET 1 OF 5

TITOLO DIS.  
DWG. TITLE

# SIGHT GLASS DN 50 / 2"

CALCOLO DEL CRISTALLO SECONDO NORME ISPESL ADDENDA M/13/C ED. 1980 TIPO B DA -200 °C A 250°  
CRYSTAL CALCULATION ACCORDING TO ISPESL CODE ADDENDUM M/13/C ED. 1980 TYPE B FROM -200° TO 250°

$$S = 0.5 \times D \times \sqrt{\frac{P}{100 \times F}} = 36.25 \times \sqrt{\frac{8}{80}} = 11.46$$

P = PRESSIONE MAX. DI PROGETTO kg/cm<sup>2</sup> = **8**

D = DIAMETRO MEDIO GUARNIZIONE mm

S = SPESORE DEL VETRO mm

F = SOLLECITAZIONE MAX. AMMISSIBILE 0,8 kg/mm<sup>2</sup>

CARICO DI ROTTURA A FLESSIONE 16 kg/mm<sup>2</sup>

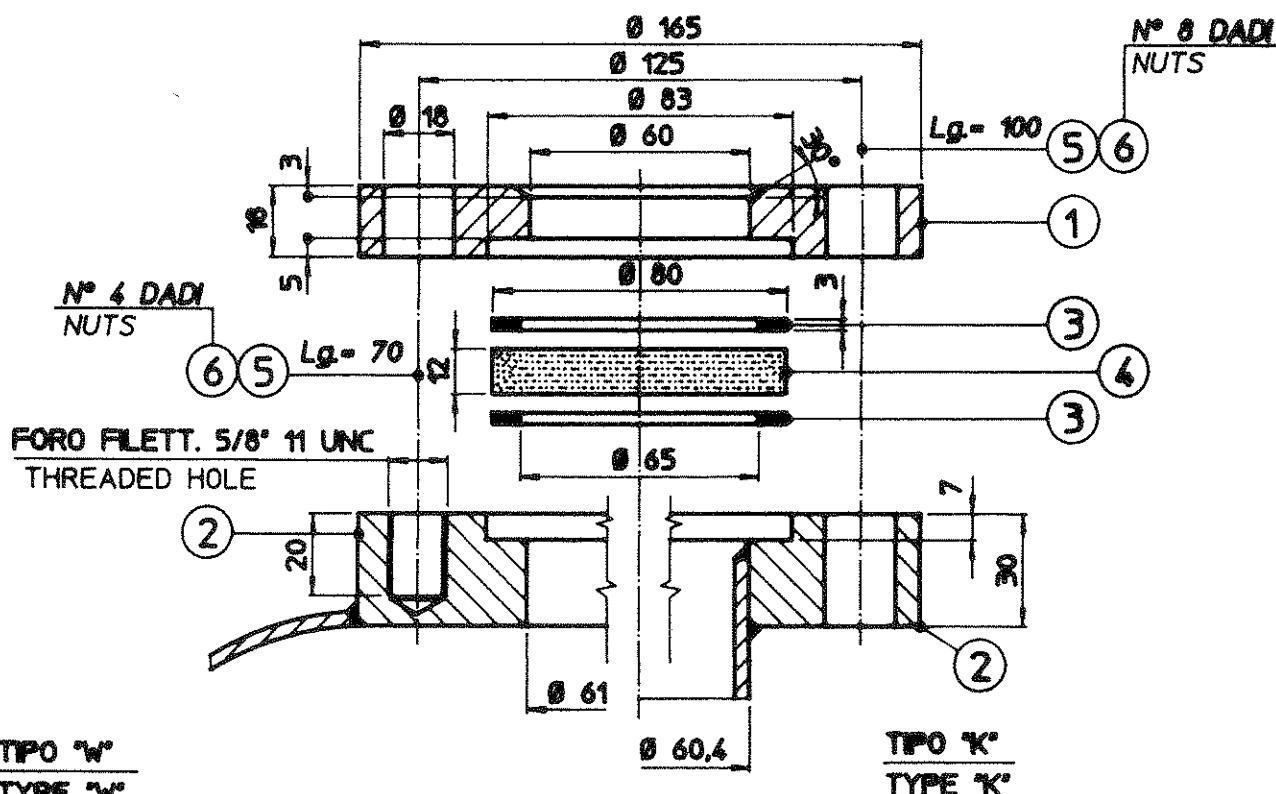
MAX. DESIGN PRESSURE

MEAN GASKET DIAMETER

GLASS THICKNESS

MAX. ALLOWABLE STRESS

FLEXION TENSILE STRESS



POS.	DADO ES.	- HEAVY EX. NUT	-	A 194 - 2H	F	Ø 5/8"-11UNC 2A
5	TIRANTE	- STUB BOLT	4	A 193 - B7	F	Ø 5/8"-11UNC 2A
4	CRISTALLO	- GLASS	1	VETRO AL BOROSILICATO BOROSILICATE GLASS	F / C	AS DWG.
3	GUARNIZIONE	- GASKETS	2	SP. 1444	F	Ø 80 / 65 SP. 3
2	FLANGIA	- FLANGE	1	105	F	AS DWG.
1	FLANGIA	- FLANGE	1	105	F	AS DWG.
	DENOMINATION	N°	MATERIAL	TEST SYMBOL	DESCRIPTION	

1: PER FINITURA FACCIA DI CONTATTO GUARNIZIONE VEDI SP. 1343 TIPO 3  
FOR GASKET CONTACT FACE FINISHING SEE SP. 1343 TYPE 3

F: CERTIFICATO DI FERRIERA E/O ORIGINE - IRON WORKS AND ORIGIN CERTIFICATE

C: CERTIFICATO DI COLLAUDO ISPESL - MATERIAL TESTED BY ISPESL

REV.	REVISION	DESCRIPTION	A. B. C/W	PREPD	CHECK	APPRD	DATE
1	RIDISEGNATO						



BALLESTRA S.p.A.  
MILANO (ITALIA)

**TIPO A CHIUSURA CON TIRANTI**  
**BOLT CLOSING TYPE**

**DWG. ST.400073**

Comp.Code st400073\_2

SHEET 2 OF 5

TITOLO DIS.  
DWG. TITLE

# SIGHT GLASS DN 80 / 3"

CALCOLO DEL CRISTALLO SECONDO NORME ISPESL ADDENDA M/13/C ED. 1980 TIPO B DA -200 °C A 250°  
CRYSTAL CALCULATION ACCORDING TO ISPESL CODE ADDENDUM M/13/C ED. 1980 TYPE B FROM -200° TO 250°

$$S = 0.5 \times D \times \sqrt{\frac{P}{100 \times F}} = 56.25 \times \sqrt{\frac{5}{80}} = 14.06$$

P = PRESSIONE MAX. DI PROGETTO kg/cm<sup>2</sup> = **5**

D = DIAMETRO MEDIO GUARNIZIONE mm

S = SPESORE DEL VETRO mm

F = SOLLECITAZIONE MAX. AMMISSIBILE 0,8 kg/mm<sup>2</sup>

CARICO DI ROTTURA A FLESSIONE 16 kg/mm<sup>2</sup>

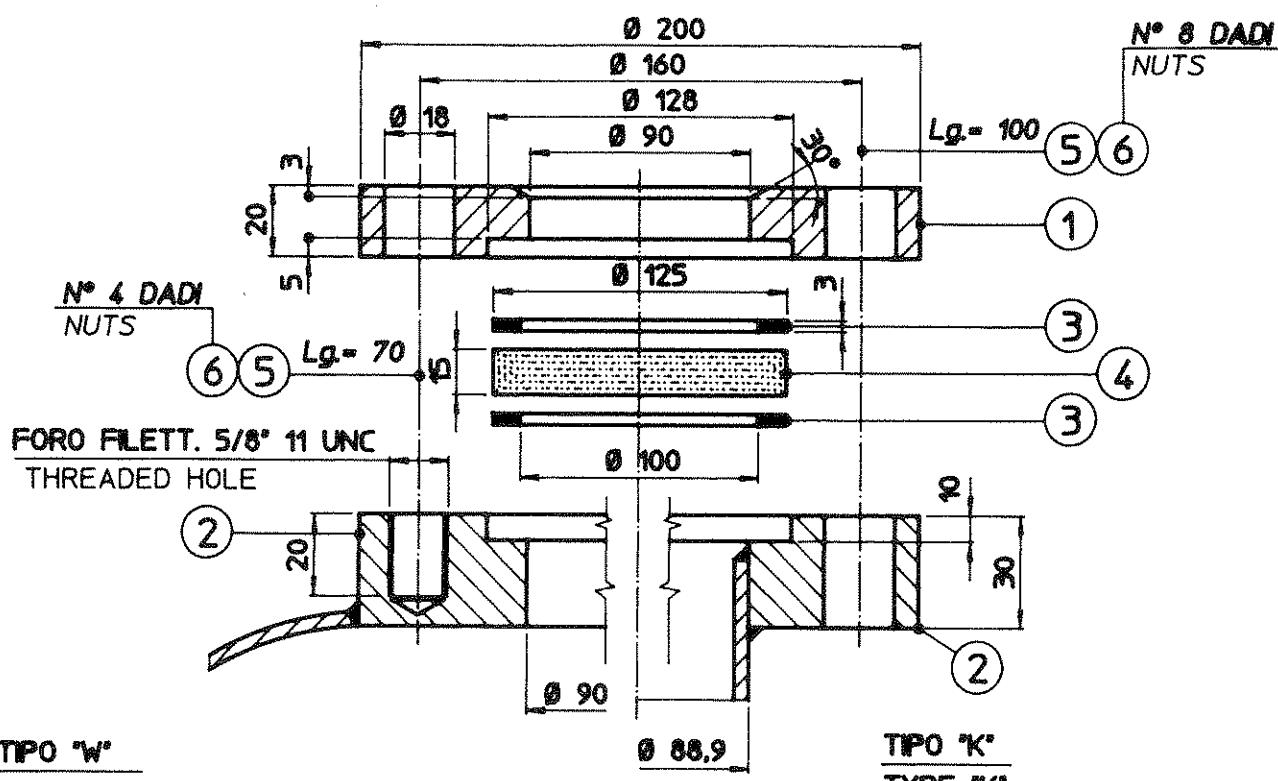
MAX. DESIGN PRESSURE

MEAN GASKET DIAMETER

GLASS THICKNESS

MAX. ALLOWABLE STRESS

FLEXION TENSILE STRESS



**TIPO "W"**  
**TYPE "W"**

**TIPO "K"**  
**TYPE "K"**

POS.	DENOINMENT	N°	MATERIAL	TEST SYMBOL	DESCRIPTION
6	DADO ES.	-	A 194 - 2H	F	Ø 5/8"-11UNC 2B
5	TIRANTE	4	A 193 - B7	F	Ø 5/8"-11UNC 2A
4	CRISTALLO	1	VETRO AL BOROSIL TEMP. BOROSIL TEMP. GLASS	F / C	AS DWG.
3	GUARNIZIONE	2	SP. 1444	F	Ø 125/100 SP. 3
2	FLANGIA	1	105	F	AS DWG.
1	FLANGIA	1	105	F	AS DWG.

**F: PER FINITURA FACCIA DI CONTATTO GUARNIZIONE VEDI SP. 1343 TIPO 3  
FOR GASKET CONTACT FACE FINISHING SEE SP. 1343 TYPE 3**

**F: CERTIFICATO DI FERRIERA E/O ORIGINE - IRON WORKS AND ORIGIN CERTIFICATE**

**C: CERTIFICATO DI COLLAUDO I.S.P.E.S.L. - MATERIAL TESTED BY I.S.P.E.S.L.**

1	RIDISEGNATO	A. B.	G.W	30.11.93
REV.	DESCRIPTION	PREP'D	CHECK.	APPR'D DATE



BALLESTRA S.p.A.  
MILANO (ITALIA)

TIPO A CHIUSURA CON TIRANTI  
BOLT CLOSING TYPE

DWG. ST.400073

Comp.Code st400073\_3

SHEET 3 OF 5

TITOLO DIS.  
DWG. TITLE

# SIGHT GLASS DN 100 / 4"

CALCOLO DEL CRISTALLO SECONDO NORME ISPESL ADDENDA M/13/C ED. 1980 TIPO B DA -200 °C A 250°  
CRYSTAL CALCULATION ACCORDING TO ISPESL CODE ADDENDUM M/13/C ED. 1980 TYPE B FROM -200° TO 250°

$$S = 0.5 \times D \times \sqrt{\frac{P}{100 \times F}} = 68.75 \times \sqrt{\frac{6}{80}} = 18.83$$

P = PRESSIONE MAX. DI PROGETTO kg/cm<sup>2</sup> = 6

D = DIAMETRO MEDIO GUARNIZIONE mm

S = SPESSORE DEL VETRO mm

F = SOLLECITAZIONE MAX. AMMISSIBILE 0,8 kg/mm<sup>2</sup>

CARICO DI ROTTURA A FLESSIONE 16 kg/mm<sup>2</sup>

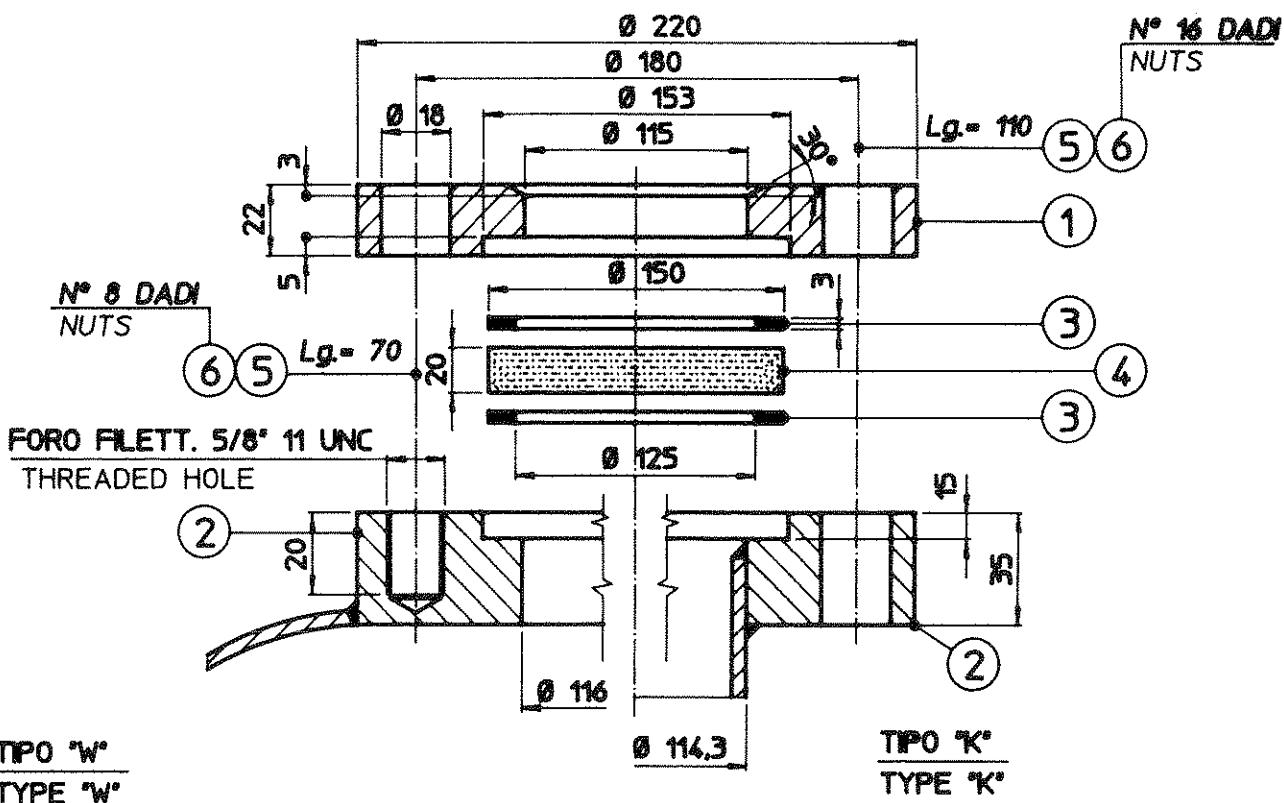
MAX. DESIGN PRESSURE

MEAN GASKET DIAMETER

GLASS THICKNESS

MAX. ALLOWABLE STRESS

FLEXION TENSILE STRESS



POS.	DENO. & DESCRIPTION	N°	MATERIAL	TEST SYMBOL	DESCRIPTION
6	DADO ES. - HEAVY EX. NUT	-	A 194 - 2H	F	Ø 5/8"-11UNC 2B
5	TIRANTE - STUB BOLT	8	A 193 - B7	F	Ø 5/8"-11UNC 2A
4	CRISTALLO - GALSS	1	VETRO AL BOROSIL TEMP. BOROSIL TEMP. GLASS	F / C	AS DWG.
3	GUARNIZIONE - GASKETS	2	SP. 1444	F	Ø 150/125 SP. 3
2	FLANGIA - FLANGE	1	105	F	AS DWG.
1	FLANGIA - FLANGE	1	105	F	AS DWG.

1 PER FINITURA FACCIA DI CONTATTO GUARNIZIONE VEDI SP. 1343 TIPO 3  
FOR GASKET CONTACT FACE FINISHING SEE SP. 1343 TYPE 3

F. CERTIFICATO DI FERRIERA E/O ORIGINE - IRON WORKS AND ORIGIN CERTIFICATE

C. CERTIFICATO DI COLLAUDO I.S.P.E.S.L. - MATERIAL TESTED BY I.S.P.E.S.L.

1	RIDISEGNATO	A. B.	GK	30.11.93
REV.	DESCRIPTION	PREP'D	CHECK	APPR'D



BALLESTRA S.p.A.  
MILANO (ITALIA)

TIPO A CHIUSURA CON TIRANTI  
BOLT CLOSING TYPE

DWQ. ST.400073

Comp. Code st400073\_4

SHEET 4 OF 5

TITOLO DIS.  
DWG. TITLE

# SIGHT GLASS DN 150 / 6"

CALCOLO DEL CRISTALLO SECONDO NORME ISPESL ADDENDA M/13/C ED. 1980 TIPO B DA -200 °C A 250°  
CRYSTAL CALCULATION ACCORDING TO ISPESL CODE ADDENDUM M/13/C ED. 1980 TYPE B FROM -200° TO 250°

$$S = 0.5 \times D \times \sqrt{\frac{P}{100 \times F}} = 93.75 \times \sqrt{\frac{5}{80}} = 23.44$$

P = PRESSIONE MAX. DI PROGETTO kg/cm<sup>2</sup> = 5

D = DIAMETRO MEDIO GUARNIZIONE mm

S = SPESORE DEL VETRO mm

F = SOLLECITAZIONE MAX. AMMISSIBILE 0,8 kg/mm<sup>2</sup>

CARICO DI ROTTURA A FLESSIONE 16 kg/mm<sup>2</sup>

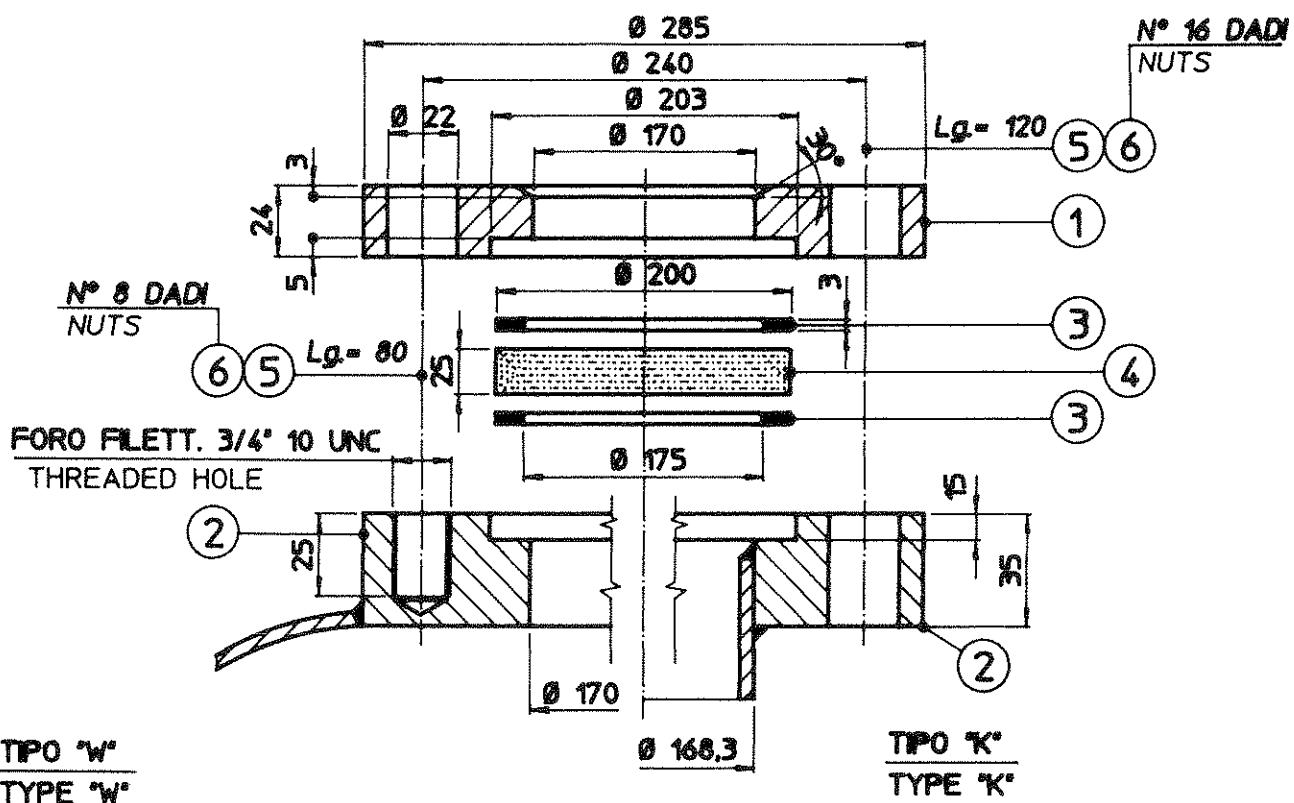
MAX. DESIGN PRESSURE

MEAN GASKET DIAMETER

GLASS THICKNESS

MAX. ALLOWABLE STRESS

FLEXION TENSILE STRESS



POS.	DENOMINATION	N°	MATERIAL	TEST SYMBOL	DESCRIPTION
6	DADO ES.	- HEAVY EX. NUT	-	A 194 - 2H	Ø 3/4"-10UNC 2B
5	TIRANTE	- STUB BOLT	8	A 193 - B7	Ø 3/4"-10UNC 2A
4	CRISTALLO	- GLASS	1	VETRO AL BOROSIL TEMP. BOROSIL TEMP. GLASS	F / C AS DWG.
3	GUARNIZIONE	- GASKETS	2	SP. 1444	Ø 200/175 SP. 3
2	FLANGA	- FLANGE	1	105	AS DWG.
1	FLANGA	- FLANGE	1	105	AS DWG.

F: PER FINITURA FACCIA DI CONTATTO GUARNIZIONE VEDI SP. 1343 TIPO 3  
FOR GASKET CONTACT FACE FINISHING SEE SP. 1343 TYPE 3

F: CERTIFICATO DI FERRIERA E/O ORIGINE - IRON WORKS AND ORIGIN CERTIFICATE

C: CERTIFICATO DI COLLAUDO I.S.P.E.S.L. - MATERIAL TESTED BY I.S.P.E.S.L.

1	RIDISEGNATO	A. B.	SA	30.11.93
REV	DESCRIPTION	PREP'D	CHECK	APPROV'D



BALLESTRA S.p.A.  
MILANO (ITALIA)

TIPO A CHIUSURA CON TIRANTI  
BOLT CLOSING TYPE

DWG. ST.400073

Comp.Code st400073\_5

SHEET 5 OF 5.

TITOLO DIS.  
DWG. TITLE

# SIGHT GLASS DN 200 / 8"

CALCOLO DEL CRISTALLO SECONDO NORME ISPESL ADDENDA M/13/C ED. 1980 TIPO B DA -200 °C A 250°  
CRYSTAL CALCULATION ACCORDING TO ISPESL CODE ADDENDUM M/13/C ED. 1980 TYPE B FROM -200° TO 250°

$$S = 0.5 \times D \times \sqrt{\frac{P}{100 \times F}} = 118.75 \times \sqrt{\frac{5}{80}} = 29.69$$

P = PRESSIONE MAX. DI PROGETTO kg/cm<sup>2</sup> - **5**

D = DIAMETRO MEDIO GUARNIZIONE mm

S = SPESSORE DEL VETRO mm

F = SOLLECITAZIONE MAX. AMMISSIBILE 0,8 kg/mm<sup>2</sup>

CARICO DI ROTTURA A FLESSIONE 16 kg/mm<sup>2</sup>

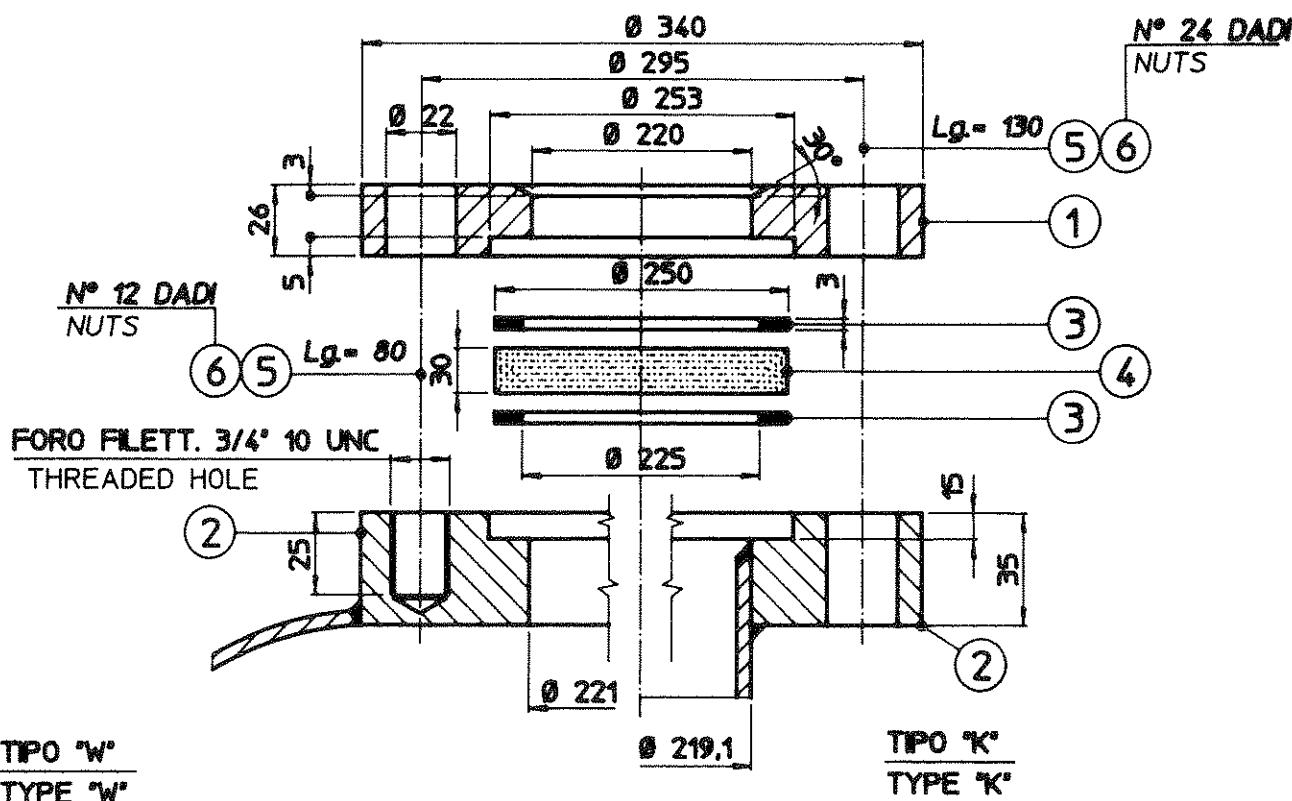
MAX. DESIGN PRESSURE

MEAN GASKET DIAMETER

GLASS THICKNESS

MAX. ALLOWABLE STRESS

FLEXION TENSILE STRESS



POS.	DENO	N°	MATERIAL	TEST SYMBOL	DESCRIPTION
6	DADO ES.	-	A 194 - 2H	F	Ø 3/4"-10UNC 2B
5	TIRANTE	-	A 193 - B7	F	Ø 3/4"-10UNC 2A
4	CRISTALLO	-	VETRO AL BOROSIL TEMP. BOROSIL TEMP. GLASS	F / C	AS DWG.
3	GUARNIZIONE	-	SP. 1444	F	Ø 250/225 SP. 3
2	FLANGIA	-	105	F	AS DWG.
1	FLANGIA	-	105	F	AS DWG.

1 PER FINITURA FACCIA DI CONTATTO GUARNIZIONE VEDI SP. 1343 TIPO 3  
FOR GASKET CONTACT FACE FINISHING SEE SP. 1343 TYPE 3

F. CERTIFICATO DI FERRIERA E/O ORIGINE - IRON WORKS AND ORIGIN CERTIFICATE

C. CERTIFICATO DI COLLAUDO I.S.P.E.S.L. - MATERIAL TESTED BY I.S.P.E.S.L.

1 RIDISEGNATO

A. B. GM

30.11.93

REV. DESCRIPTION

PREP'D CHECK APPR'D DATE

**BALLESTRA s.p.a.**  
MILANO (ITALIA)

**GUARNIZIONI PER TUBAZIONI  
PIPING GASKETS**

**TA 50.5**

FOGLIO 1 DI 6  
CODICE COMPUTER Computer code TA505\_1

ESEMPIO D'IDENTIFICAZIONE  
EXAMPLE OF IDENTIFICATION

1° SIMBOLO - TIPO DI ESECUZIONE  
1st SYMBOL - TYPE OF EXECUTION

-B

3

2° SIMBOLO - DIMENSIONAMENTO  
2nd SYMBOL - DIMENSIONING

C

3° SIMBOLO - TIPO DI MATERIALE  
3rd SYMBOL - TYPE OF MATERIAL

1° SIMBOLO-TIPO DI ESECUZIONE - 1st SYMBOL-TYPE OF EXECUTION		
A	GUARNIZIONE PIANA AD ANELLO CON FORI PER BULLONI RING FLAT GASKETS WITH HOLES FOR BOLTS	- VEDERE FG. 2 - SEE SHEET 2
B	GUARNIZIONE PIANA FLAT GASKETS	- VEDERE FG. 3 - SEE SHEET 3
C	GUARNIZIONE PIANA CIECA BLIND FLAT GASKETS	- VEDERE FG. 5 - SEE SHEET 5
D	GUARNIZIONE PIANA A NORME "DIN" FLAT GASKETS AS "DIN" CODE	
E	GUARNIZIONE IN METALLO ONDULATO CORRUGATED METAL GASKET	
F	GUARNIZIONE A SPIRALE SPIRAL WOUND GASKET	

ESEMPIO DI ORDINAZIONE: GUARNIZIONE DN 100 SECONDO TA 50.5 TIPO B2C  
EXAMPLE OF ORDER: GASKET DN 100 ACCORDING TO TA 50.5 TYPE B2C

ESEMPIO DI MARCatura: 100/B2C/TA 50.5  
MARKING EXAMPLE: 100/B2C/TA 50.5

NOTE:

- 1) LE GUARNIZIONI DEVONO ESSERE FORNITE IN PACCHI, PROTETTI DALL'UMIDITÀ  
- THE GASKETS SHOULD BE SUPPLIED IN PACKAGE WITH PROTECTION AGAINST HUMIDITY
- 2) LA MARCatura DEVE ESSERE IMPRESSA SU OGNI PACCO  
- MARKING SHOULD BE IMPRESSED ON EACH PACKAGE

24	REDRAW	Bruni	Molteni	7-01-97
23	REVISED WHERE INDICATED	Gerelli	Bruni	Ing. Molteni 29-04-96
22	MATERIALS TYPE "M" ADDED AND TYPE "I" REVISED	J.	Bruni	Ing. Molteni 19-06-95
21	DIMENSIONING TYPE "17" ADDED	J.	Bruni	Ing. Molteni 08-06-95
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D
				DATA DATE



**BALLESTRA s.p.a.**  
**MILANO (ITALIA)**

# GUARNIZIONI PER TUBAZIONI PIPING GASKETS

TA 50.5

FOGLIO 1A DI 6  
CODICE COMPUTER Computer code TA505 1A

**ESEMPIO D'IDENTIFICAZIONE  
EXAMPLE OF IDENTIFICATION**

**1<sup>o</sup> SIMBOLO - TIPO DI ESECUZIONE**

**2º SÍMBOLO – DIMENSIONAMENTO**

**3° SIMBOLo - TIPO DI MATERIALE**  
**3rd SYMBOL - TYPE OF MATERIAL**

**2° SIMBOLO-DIMENSIONAMENTO – 2nd SYMBOL-DIMENSIONING**

1	PER FLANGE PIANE UNI PN 25 A GRADINO UNI 2229 FOR FLANGES UNI PN 25 WITH STEP UNI 2229	- VEDERE FG. 3-4-5 - SEE SHEET 3-4-5
2	PER FLANGE UNI PN 2.5 E UNI PN 6 A GRADINO UNI 2229 FOR FLANGES UNI PN 2.5 E UNI PN 6 WITH STEP UNI 2229	- VEDERE FG. 3-4-5 - SEE SHEET 3-4-5
3	PER FLANGE UNI PN 10 A GRADINO UNI 2229 FOR FLANGES UNI PN 10 WITH STEP UNI 2229	- VEDERE FG. 3-4-5 - SEE SHEET 3-4-5
4	PER FLANGE ANSI 150#600 LARGA MASCHIO E FEMMINA FOR FLANGES ANSI 150#600 LARGE MALE & FEMALE	- VEDERE FG. 3-4-5 - SEE SHEET 3-4-5
5	PER FLANGE ANSI 150 RF FOR FLANGES ANSI 150 RF	- VEDERE FG. 3-4 - SEE SHEET 3-4
6	PER FLANGE ANSI 300 RF FOR FLANGES ANSI 300 RF	- VEDERE FG. 3-4 - SEE SHEET 3-4
7	PER FLANGE UNI PN 16 A GRADINO UNI 2229 FOR FLANGES UNI PN 16 WITH STEP UNI 2229	- VEDERE FG. 3-4-5 - SEE SHEET 3-4-5
8	PER FLANGE UNI ≥ PN 10 A DOPPIA INCAMERATURA UNI 2226 FOR FLANGES UNI ≥ PN 10 TONGUE & GROOVE FACING UNI 2226	- VEDERE FG. 3-6 - SEE SHEET 3-6
9	PER FLANGE SECONDO TABELLA BALLESTRA TA 50.20 & TA 50.22 FOR FLANGES ACCORDING TO BALLESTRA TAB. 50.20 & TA 50.22	- VEDERE FG. 2 - SEE SHEET 2
10	PER FLANGE ANSI 600 RF FOR FLANGES ANSI 600 RF	- VEDERE FG. 3 - SEE SHEET 3
11	PER FLANGE ANSI 150 – 300 S.T.G. FOR FLANGES ANSI 150 – 300 S.T.G.	- VEDERE FG. 3 - SEE SHEET 3
12	PER FLANGE AWWA CLASSE "D" – "E" FOR FLANGES AWWA CLASS "D" – "E"	- VEDERE FG. 3-4 - SEE SHEET 3-4
13	DIMENSIONI CONFORMI TABELLA "DIN 2690" (PN A CLASSE TUBAZIONE) DIMENSIONS IN ACCORDANCE TO CODE "DIN 2690" (PN AS PIPING CLASS)	
14	DIMENSIONI CONFORMI TABELLA "DIN 2691" DIMENSIONS IN ACCORDANCE TO CODE "DIN 2691"	
15	PER FLANGE AWWA CLASSE "B" FOR FLANGES AWWA CLASS "B"	- VEDERE FG. 3-4 - SEE SHEET 3-4
16	PER FLANGE ANSI 150 – 300 S.T.G. FOR FLANGES ANSI 150 – 300 S.T.G.	- VEDERE FG. 6 - SEE SHEET 6
17	PER FLANGE DIN PN 10 + 100 A DOPPIA INCAMERATURA DIN 2512 FOR FLANGES DIN PN 10 + 100 TONGUE & GROOVE FACING DIN 2512	- VEDERE FG. 3-6 - SEE SHEET 3-6
18	PER FLANGE SECONDO TABELLA BALLESTRA ST.1045 – ST.1104 – ST.46738 FOR FLANGES ACCORDING TO BALLESTRA TAB. ST.1045 – ST.1104 – ST.46738	- VEDERE FG. 3-4 - SEE SHEET 3-4

24	ADDED TYPE "18" AND REVISED TYPE "8-10-11-17"	Bianco	Brumi	Molteni	7-01-97
23	REVISED WHERE INDICATED	Cerelli	Brumi	Ing. Molteni	29-04-96
22	MATERIALS TYPE "M" ADDED AND TYPE "I" REVISED	J.	Brumi	Ing. Molteni	19-06-95
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE



BALLESTRA S.p.A.  
MILANO (ITALIA)

# GUARNIZIONI PER TUBAZIONI PIPING GASKETS

**TA 50.5**

FOGLIO 18 DI 6  
CODICE COMPUTER Computer code TA505\_1B

ESEMPIO D'IDENTIFICAZIONE  
EXAMPLE OF IDENTIFICATION

1° SIMBOLO - TIPO DI ESECUZIONE  
1st SYMBOL - TYPE OF EXECUTION → **B**

2° SIMBOLO - DIMENSIONAMENTO  
2nd SYMBOL - DIMENSIONING

3° SIMBOLO - TIPO DI MATERIALE  
3rd SYMBOL - TYPE OF MATERIAL ← **C**

3° SIMBOLO-TIPO DI MATERIALE - 3rd SYMBOL-TYPE OF MATERIAL



**A** FIBRE ARTIFICIALI (ESENTI AMIANTO AFS), CARICHE MINERALI, PASTE VULCANIZZANTI, GRAFITE LAMELLARE PER IDROCARBURI NON CORROSI CON TEMPERATURA < 250°C  
SYNTHETIC FIBRE (AFS ASBESTOS-FREE SHEET), MINERAL LOADING, VULCANIZING PASTE, PURE GRAPHITE FOR NON CORROSIVE HYDROCARBONS. TEMPERATURE < 250°C



**B** FIBRE ARTIFICIALI (ESENTI AMIANTO AFS), CARICHE MINERALI, PASTE VULCANIZZANTI, GRAFITE LAMELLARE PER ACIDI E ALCALI, VAPORE E CONDENSA CON TEMPERATURA < 300°C  
SYNTHETIC FIBRE (AFS ASBESTOS-FREE SHEET), MINERAL LOADING, VULCANIZING PASTE, PURE GRAPHITE FOR ACIDS AND ALKALI, STEAM AND STEAM COND. WITH TEMPERATURE < 300°C



**C** FIBRE ARTIFICIALI (ESENTI AMIANTO AFS), CARICHE MINERALI, PASTE VULCANIZZANTI, GRAFITE LAMELLARE PER ARIA, ACQUA, CONDENSA, VAPORE, ZOLFO CON TEMPERATURA < 200°C  
SYNTHETIC FIBRE (AFS ASBESTOS-FREE SHEET), MINERAL LOADING, VULCANIZING PASTE, PURE GRAPHITE FOR AIR, WATER, CONDENSATE, STEAM, SULPHUR WITH TEMPERATURE < 200°C



**D** FIBRE ARTIFICIALI (ESENTI AMIANTO AFS), CARICHE MINERALI, FIBRA CERAMICA PER ARIA CON TEMPERATURA < 600°C  
SYNTHETIC FIBRE (AFS ASBESTOS-FREE SHEET), MINERAL LOADING, CERAMIC FIBRE FOR AIR WITH TEMPERATURE < 600°C



**E** GUARNIZIONE DI METALLO ONDULATO IN AISI 316 CON INSERTO DI FIBRA CERAMICA PER VAPORE SURR. TEMPERATURA > 450°C A 600°C E PRESSIONE 150 ATA  
CORRUGATED METAL (AISI 316) CERAMIC FIBRE FILLED FOR OVERHEATED STEAM TEMPERATURE > 450°C TO 600°C & PRESSURE 150 ATA



**F** POLITETRAFLUORETILENE  
PTFE



**G** GUARNIZIONE DI METALLO ONDULATO IN AISI 316 CON INSERTO DI FIBRA CERAMICA CON TEMPERATURA < 1000°C  
CORRUGATED METAL (AISI 316) CERAMIC FIBRE FILLED TEMPERATURE < 1000°C



**H** GUARNIZIONE IN METALLO ONDULATO IN AISI 316 CON INSERTO DI FIBRA CERAMICA TEMPERATURA 800°C  
CORRUGATED METAL (AISI 316) CERAMIC FIBRE FILLED TEMPERATURE 800°C



**I** GUARNIZIONE IN GRAFITE CON RINFORZO INTERNO IN AISI 304 PER TEMPERATURE FINO A 700°C PER GAS SO<sub>2</sub> - SO<sub>3</sub> E PER OLIO DIATERMICO CON TEMPERATURE FINO A 320°C  
GRAPHITE GASKET FOR SO<sub>2</sub> - SO<sub>3</sub> GAS WITH INTERNAL REINFORCEMENT IN AISI 304 FOR TEMPERATURE UP-TO 700°C AND FOR DIATHERMIC OIL WITH TEMPERATURE UP-TO 320°C



**L** GUARNIZIONE A SPIRALE PER SO<sub>2</sub> - SO<sub>3</sub> - AISI 316 + GRAFITE 98% PER TEMPERATURA < 700°C  
SPIRAL WOUND GASKET FOR SO<sub>2</sub> - SO<sub>3</sub> - AISI 316 + GRAPHITE 98% FOR TEMPERATURE < 700°C



**M** GUARNIZIONE A SPIRALE PER FLUIDI TOSSICI ED ESPLOSIVI - AISI 316 + INSERTO IN TEFLON PER TEMPERATURA < 250°C  
SPIRAL WOUND GASKET FOR TOXIC AND EXPLOSIVE FLUIDS - AISI 316 + TEFILON FILLED FOR TEMPERATURE < 250°C

24	REVISED TYPE "A"- "B"- "I"	Bruno	Brum	Matte	7-01-97
23	REVISED WHERE INDICATED	Gerelli	Bruni	Ing. Molteni	29-04-96
22	MATERIALS TYPE "M" ADDED AND TYPE "I" REVISED	J.	Bruni	Ing. Molteni	19-06-95
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE



BALLESTRA S.p.A.

MILANO ITALIA

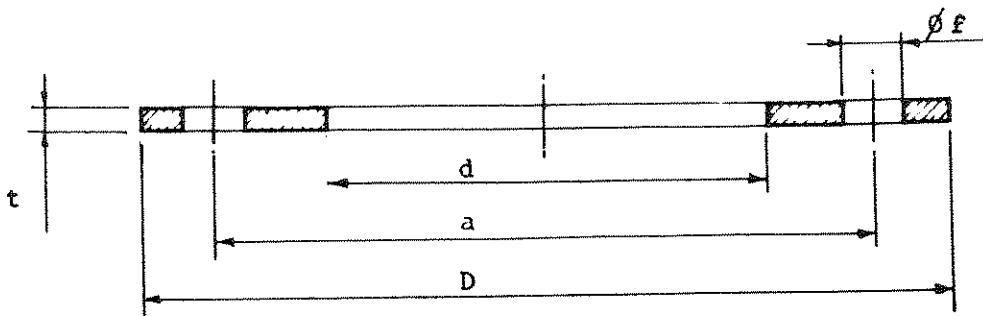
GUARNIZIONI PER TUBAZIONI ESECUZIONE

ESECUZIONE TIPO "A"

PIPING GASKETS EXECUTION TYPE "A"

TA50.5

Foglio 2 di

DIMENSIONE TIPO : →  
DIMENSION TYPE

DN	d	t
40	49	
50	61	
65	77	
80	89	
100	115	
125	140	
150	169	
175	193	
200	220	
225	245	
250	273	
275	299	
300	324	
350	368	
400	419	
450	458	
500	508	
600	610	
700	712	
800	813	
900	915	
1000	1016	
1100	1125	
1200	1225	
1300	1325	
1400	1425	
1500	1525	
1600	1625	
1800	1825	
2000	2025	

9	a	D	f	n° fori holes
84	110	9,5	4	
96	129	9,5	4	
112	138	9,5	4	
125	151	9,5	4	
150	176	9,5	4	
175	195	9,5	4	
208	240	11,5	8	
234	266	11,5	8	
259	291	11,5	8	
284	316	11,5	8	
313	345	11,5	8	
338	370	11,5	8	
376	406	11,5	8	
402	438	11,5	8	
453	489	11,5	12	
503	539	11,5	12	
554	590	11,5	12	
668	712	14	16	
769	813	14	16	
871	915	14	24	
973	1017	14	24	
1074	1118	14	24	
1188	1242	18	32	
1288	1342	18	32	
1388	1442	18	32	
1488	1542	18	32	
1588	1642	18	40	
1688	1742	18	40	
1888	1942	18	40	
2088	2142	18	40	

REV.

5

DATE

01.1.85

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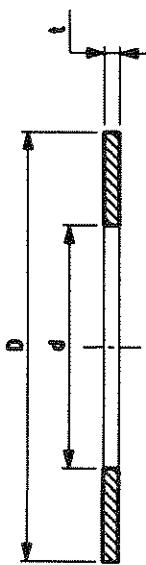
BALLESTRA s.p.a.  
MILANO (ITALIA)

GUARNIZIONI PER TUBAZIONI  
ESECUZIONE TIPO "B"- "E"  
PIPING GASKETS  
EXECUTION TYPE "B"- "E"

TA 50.5

FOGLIO Sheet 3 Of 6  
CODICE COMPUTER Computer code TA505\_3

VEDI NOTA "1" FG. 4  
SEE NOTE "1" SH. 4



TITOLO (VEDI FOGLIO 1 - SEE SHEET 1)

DN NOMINALE NOMINAL SIZE	d mm	TIPO TYPE (VEDI FOGLIO 1 - SEE SHEET 1)												B 1+7 10-12 15-18	E 8-11	
		1+7-10 12-15-18	1	2	3	4	5	6	7	8	10	12	15	16	18	20
3/8	10	18	46	39	-	-	-	-	46	-	-	-	-	24	34	-
1/2	15	22	51	44	-	34	47.5	54	51	54	-	-	-	28	39	25
3/4	20	27	61	54	-	42	57	66.5	61	66.5	-	-	-	36	50	33
1	25	33	71	64	-	50	66.5	73	71	73	-	-	-	43	57	37.5
1 1/4	32	42	82	76	-	63	76	82.5	82	82.5	-	-	-	51	65	47
1 1/2	40	49	92	86	-	73	85.5	95	92	95	-	-	-	61	75	53.5
2	50	60	107	96	-	92	104.5	111	107	111	-	-	-	98	73	87
2 1/2	65	73	127	116	-	104	124	130	127	130	-	-	-	118	95	109
3	80	89	142	132	-	127	136.5	149	142	149	-	-	-	138	106	120
4	100	115	168	152	-	157	174.5	181	162	193.5	-	-	-	158	129	149
5	125	141	195	182	-	185	197	216	192	241	-	-	-	188	155	175
6	150	168	225	207	-	215	222	251	218	266.5	222	225	211	183	203	190
8	200	219	-	262	-	-	279.5	308	273	320.5	279	282	266	239	259	237.5
10	250	273	-	317	328	-	339.5	382	330	400	340	346	321	292	312	285.5
12	300	324	-	373	378	-	409.5	422	385	457	409	415	381	343	363	342.5
14	350	356	-	423	438	-	451	485.5	445	492	451	457	431	395	421	374
16	400	407	-	473	490	-	514.5	539.5	495	565	514	520	481	447	473	425
18	450	457	-	528	540	-	549.5	597	555	612.5	549	538	536	497	523	488.5
20	500	508	-	578	595	-	606.5	654	617	682.5	606	615	586	549	575	533
22	550	559	-	-	-	-	-	-	-	-	660	673	-	-	-	-
24	600	610	-	680	695	-	717.5	774.5	734	790.5	717	730	691	649	675	641
26	650	660	-	-	-	-	-	-	-	-	774	787	-	-	-	-
28	700	712	-	-	-	-	-	-	-	-	832	844	796	-	-	-
30	750	762	-	-	-	-	-	-	-	-	882	892	-	-	-	-
32	800	813	-	-	-	-	-	-	-	-	940	955	904	-	-	-

11 REDRAW (GENERAL REVISION)

Bianco *[Signature]* 07-01-97

10 REVISED WHERE INDICATED

Bruni *[Signature]* 16-02-94

9 REVISED WHERE INDICATED

Bruni *[Signature]* 02-06-93

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONTR.  
CONTRO.D

APPR.  
APPR.D

DATA  
DATE

Riserviamo la proprietà a termini di legge di questo disegno con diritto di riprodurlo anche in parte o di renderlo visibili senza nostra autorizzazione scritta.

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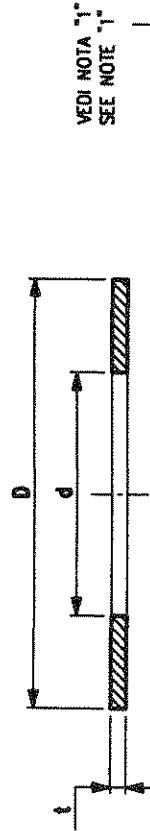


BALLESTRA S.p.A.  
MILANO (ITALIA)

GUARNIZIONI PER TUBAZIONI  
ESECUZIONE TIPO "B"  
PIPING GASKETS  
EXECUTION TYPE "B"

TA 50.5

FOGLIO Sheet 4 DI 6  
CODICE COMPUTER Computer code TA505\_4



DN NOMINALE NOMINAL SIZE	TIPO TYPE (VEDI FOGLIO 1 - SEE SHEET 1)						12-15-18
	12	15	16	18	20	22	
INCH	d	d	d	d	d	d	d
34 850	864	990	864	1006	-	-	2
36 900	915	1048	915	1063	915	1004	2
38 950	965	1111	965	1127	-	-	2
40 1000	1016	1162	1016	1177	1016	1104	2
42 1050	1067	1219	1067	1231	-	-	2
44 1100	1118	1276	1118	1289	-	-	2
46 1150	1168	1327	1168	1339	-	-	2
48 1200	1219	1384	1219	1397	-	-	2
50 1250	1270	1435	1270	1450	-	-	2
52 1300	1321	1492	1321	1508	-	-	2
54 1350	1372	1549	1372	1562	-	-	2
60 1500	1422	1714	1422	1727	-	-	2
66 1650	1676	1885	1676	1898	-	-	2
72 1800	1829	2051	1829	2063	-	-	2
84 2100	2134	2374	2134	2387	-	-	2
96 2400	2438	2698	2438	2710	-	-	2

NOTE

- 1) SPESORI INDICATI IN TABELLA SONO VALIDI  
ESCEPTO SOLICITUDENCIAS ESPECIALES MENCIONADAS EN EL  
PROYECTO DE PIPING.

NOTES

3	REDRAW	Barro	Brum	Malte	07-01-97
2	REVISED WHERE INDICATED	(initials)	Brum	Ing. Molteni	16-02-94
1	REVISED WHERE INDICATED	(initials)	Brum	Ing. Molteni	09-12-91

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONTR.  
CONTR.D

APPR.  
APPR.D

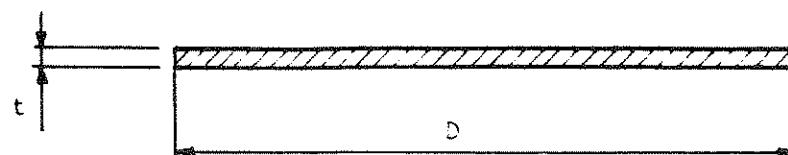
DATA  
DATE



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

GUARNIZIONI PER TUBAZIONI  
ESECUZIONE TIPO "C"  
PIPING GASKETS EXECUTION TYPE "C"

TASK 5  
Pagine 5 di



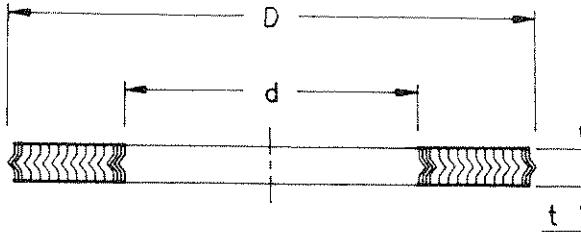
DIMENSIONE TIPO DIMENSION TYPE		1	2	3	4	5	6	7	
DN	t	D							
3/8" 10	2	46	34					46	
1/2" 15	"	51	44		34		50	51	
3/4" 20	"	61	54		42		63	61	
1" 25	"	71	64		50		69	71	
1/4" 32	"	82	76		63		79	82	
1/2" 40	"	92	86		73			92	
2" 50	"	107	96		92		107	107	
2 1/2" 65	"	127	116		104		127		
3" 80	"	142	132		127		142		
4" 100	"	168	152		157		177	162	
5" 125	"	195	182		185		212	192	
6" 150	"	225	207		215		247	218	
7" 175	"		237					248	
8" 200	"		262					273	
10" 250	"		317	328				330	
12" 300	"		373	378				385	
14" 350	"		423	438				445	
16" 400	"		473	490				495	
18" 450	"		528	540				555	
20" 500	"		578	595				617	
24" 600	"		680	695				734	



GUARNIZIONI PER TUBAZIONI-ESECUZIONE TIPO "F"  
PIPING GASKETS-EXECUTION TYPE "F"

DIS.  
Dwg. TA 50.5

FOGLIO 6 DI 6  
CODICE COMPUTER TA505\_6  
Computer code



DN-NOMINALI NOMINAL SIZE	TIPO-TYPE									
	8			16			17			
Inch	mm.	d	D	t	d	D	t	d	D	t
1/2"	15	29	39	3,5	25	35	4,0	29	39	3
3/4"	20	36	50	3,5	33	43	4,0	36	50	3
1"	25	43	57	3,5	38	48	4,0	43	57	3
1 1/4"	32	51	65	3,5	48	57	4,0	51	65	3
1 1/2"	40	61	75	3,5	53,5	63,5	4,0	61	75	3
2"	50	73	87	3,5	73	82,5	4,0	73	87	3
2 1/2"	65	95	109	3,5	85,5	95	4,0	95	109	3
3"	80	106	120	3,5	107,5	117	4,0	106	120	3
4"	100	129	149	4	131,5	144	4,0	129	149	3
5"	125	155	175	4	160	173	4,0	155	175	3
6"	150	183	203	4	190	203	4,0	183	203	3
8"	200	239	259	4	238	254	4,0	239	259	3
10"	250	292	312	4	285,5	304,5	4,0	292	312	3
12"	300	343	363	4	342,5	361,5	4,0	343	363	3
14"	350	395	421	4,5	374,5	393,5	4,0	395	421	3,5
16"	400	447	473	4,5	425	447,5	4,0	447	473	3,5
18"	450	497	523	4,5	488,5	511	4,0	497	523	3,5
20"	500	549	575	4,5	533	558,5	4,0	549	575	3,5
24"	600	649	675	4,5	641	666,5	4,0	649	675	3,5

We reserve the ownership under the law of this drawing with prohibition of even partial reproduction and to make it known to third persons without our written authorization.

Riserviamo la proprietà, a termini di legge, di questo disegno con divieto di riprodurlo anche in parte o di renderlo terzi senza nostra autorizzazione scritta.

3	DIMENSIONS FOR TYPE "8" AND TYPE "17" ADDED	JAN	MAR	AC	08-06-95
2	DIMENSION "t" REVISED AND NOTES DELETED	JAN			10-02-94
1	DIMENSION "t" REVISED FROM DN 16" TO DN 24"	JAN			14-10-92
0	ISSUED	JAN			06-08-92

riserviamo la proprietà e termini di legge di questo disegno con diritto di riproduzione o di ristampa anche in parte o di renderlo  
inutilizzabile senza nostra autorizzazione scritta.

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known to third persons without our written authorization.

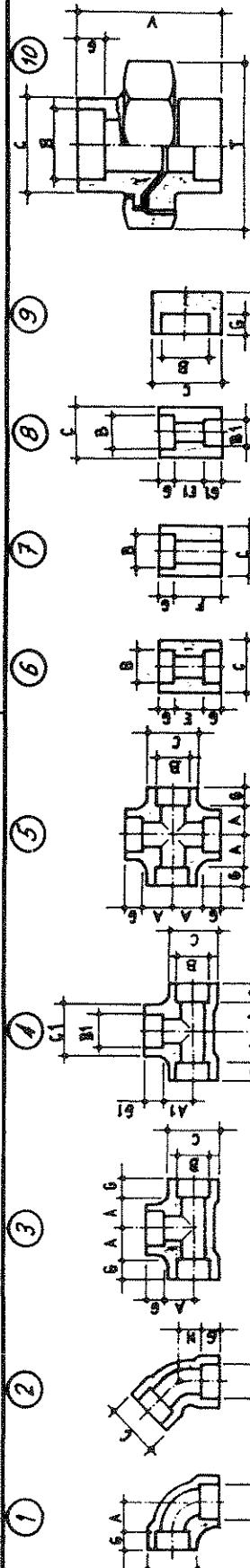
8.7.77 11.3.96



**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**RACCORDERIA A TASCA DA SALDARE**  
**ANSI B16.11 - 3000 lb.**  
**SOCKET-WELD FITTINGS**  
**ANSI B16.11 - 3000 lb**

**TA 50.6**  
**POGLIO 1 di 1**  
**Rev. 1**  
**Date 8.7.77**



INSETTI DI RIVOLZIONE - REFLCTION INSERTS

1 Bidone

11 Inserto

12 Inserto

13 Inserto

14 Inserto

15 Inserto

16 Inserto

17 Inserto

18 Inserto

19 Inserto

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21 Inserto

22 Inserto

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272 Inserto

273 Inserto

274 Inserto

DISegNATO DA: G. SARTORI - PROGETTO DA: G. SARTORI - VERIFICATO DA: G. SARTORI - DATA: 10-11-88

RESERVA D'ACQUA IN METRI CUBI  
RESERVA D'ACQUA IN METRI CUBI  
RESERVA D'ACQUA IN METRI CUBI

BALLESTRA s.p.a.		RACCONDERIA A TASCA FILETTATA ANSI B16.11-ANSI B2.1 - 3000 lb. SOCKET SCREWED FITTING - ANSI B16.11-ANSI B2.1 - 3000 lb.										TA 50.7 Foglio 1 di 2 Rev. 2 Data 11.7.1977							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
10-11-88	11-3-96	2 Bronzo																	
<b>FONDO A 90° FONDO A 90°</b>		<b>REDUZIONE TEE</b>		<b>REDUZIONE TEE</b>		<b>PEZZO A CRUCE</b>		<b>MANICOTTO CONGLOMERATO</b>		<b>MANICOTTO CONGLOMERATO</b>		<b>MANICOTTO CONGLOMERATO</b>		<b>MANICOTTO CONGLOMERATO</b>		<b>TAPPO</b>		<b>TAPPO</b>	
						<img alt="Drawing of a													



BALLESTRA S.p.A.

MELANOMA

RACCORDERIA A TASCA FILETTATA  
ANSI B16.11-ANSI B2.1 - 3000 /lb.  
SOCKET SCREWED FITTING -  
ANSI B16.11-ANSI B2.1 - 3000 /lb.

TA 50,7  
Poglio f di ?  
Rev. 1  
Data 11.7.1977

As stated in writing under the seal of the State of Michigan, I have examined the evidence adduced in this cause and am satisfied that the same is sufficient to sustain the charge of perjury.

0	Bianchi	1	Bianco
28-2-03		11-3-96	

WY	A	B	C	D	E	F	G	P	Q	CHAYE	TYPICAL PREV/STO FORECASTED TYPE	
											YEAR E	TA 50.7
3	95.3	128.7	49.5	108.0	100.0	64.0	65.1	20.6	41.3	3 1/2"	1-2-3-5-6-7-9-11	
4	114.3	152.4	79.4	139.7	120.7	64.8	60.9	31.6	44.5	4 5/8"	1-2-3-5-6-7-9-11	

**INSERITO SUL C. MASCHIO/FEMM.**

**DIMENSIONI:** - ANSI B16.11 - ANSI B2.1  
**UNIONE:** - ANSI B16.11 - ANSI B2.1  
**PIASTRE:** - Come previsto da classe 1000 [cm]

**TOLLESHAW:** -ANSI B16.11      **-AFI B2.1**      **COSTRUZIONE:** -FORGIATA  
**TULLIVAN:** -ANSI B16.11      **-AFI B2.1**      **CONSTRUCTION:** -FORGED  
**MATERIALI:** -As forniti da piping constructive



SPECIFICA DIMENSIONALE PER  
BULLONI E TIRANTI  
DIMENSIONAL SPECIFICATION FOR  
BOLTS AND STUD BOLTS

DIS. TA 50.48  
Dwg. Sheet 1 DI 28  
CODICE COMPUTER Computer code TA5048\_1

## BULLONI E TIRANTI PER ACCOPPIAMENTI FLANGIATI

TIPO UNI - ANSI - DIN

BOLTS AND STUD BOLTS FOR FLANGED COUPLINGS

TYPE UNI - ANSI - DIN

REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE
20	REVISED SHEETS 13, 14, 26 AND 27	Galli	Bruni	Molteni	16-12-96
19	ADDED SHEETS 28	Gerelli	Bruni	Molteni	28-06-96
18	ADDED SHEETS 26-27	Gerelli	Bruni	Molteni	17-04-96
17	REVISED SHEETS 1÷22 AND ADDED SHEETS 23-24-25	J.			29-03-95
16	REVISED SHEETS 1÷13, 15÷19 AND ADDED SH. 20÷22	J.			06-09-94
15	REVISED Sh. 1 AND 2	DI WESTI			19-03-93
14	REVISED Sh. 1 AND 13				15-02-93
REV.					



BALLESTRA S.p.A.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS. TA 50.48

Dwg. 2 DI  
FOGLIO Sheet 2 OF  
CODICE COMPUTER Computer code TA5048\_2

### NOTE

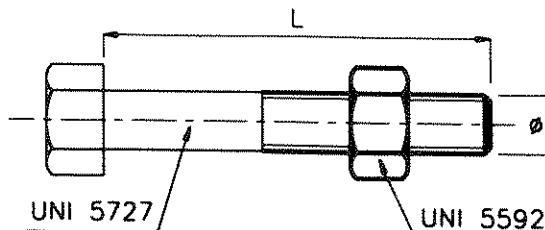
IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

MATERIALE - MATERIAL:

VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH



DN ACCOPPIAMENTO COUPLING	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: UNI 2247/2229 FOR FLANGES TYPE: UNI 2278/2229							
			ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
10	3/8"	4	12	40	0,07					
15	1/2"	4	12	40	0,07			90	0,11	
20	3/4"	4	12	45	0,07	60	0,08	100	0,12	
25	1"	4	12	45	0,07	60	0,08	100	0,12	
32	1 1/4"	4	16	50	0,15	70	0,16	110	0,23	
40	1 1/2"	4	16	50	0,15	70	0,16	110	0,23	
50	2"	4	16	55	0,15	70	0,17	120	0,25	70
65	2 1/2"	4	16	55	0,15	70	0,17	120	0,25	70
80	3"	8	16	60	0,16	80	0,17	120	0,25	70
100	4"	8	16	65	0,17	80	0,18	120	0,25	80
125	5"	8	16	70	0,17	90	0,20	140	0,28	80
150	6"	8	20	70	0,31	100	0,36	150	0,48	90
175	7"	8	20	75	0,31	100	0,36	150	0,48	90
200	8"	12	20	75	0,31	100	0,36	150	0,48	90
250	10"	12	22	90	0,44	120	0,50	170	0,64	110
300	12"	12	22	90	0,44	120	0,50	170	0,64	110
350	14"	16	22	100	0,44	130	0,53	180	0,67	110
400	16"	16	27	100	0,80	140	0,92	190	1,15	120
450	18"									
500	20"									
600	24"									
700	28"									
800	32"									
900	36"									
1000	40"									
1100	44"									
1200	48"									

8	GENERAL REVISION									29-03-95
7	GENERAL REVISION									06-09-94
6	REVISED WHERE INDICATED									19-03-93
REV.	DESCRIZIONE - DESCRIPTION									
		COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE					



# BULLONI - TIPO "A"

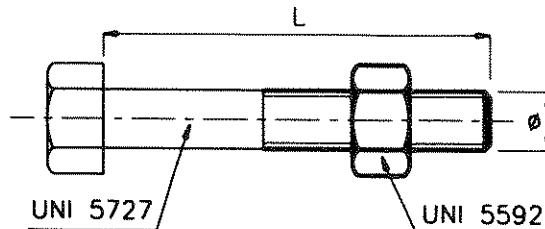
## BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48

FOGLIO  
Sheet 3 DI  
COIDCE COMPUTER  
Computer code TA5048\_3

### NOTE

IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT



### MATERIALE-MATERIAL:

VITE-SCREW 4.6 UNI 3740  
DADO-NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPIAMENTO	QUANT.	BULLONI	Ø	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2246/2229							
				ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
10	3/8"	4	10	40	0,05						
15	1/2"	4	10	40	0,05			90	0,08		
20	3/4"	4	10	45	0,05	50	0,05	90	0,08		
25	1"	4	10	45	0,05	50	0,05	90	0,08		
32	1 1/4"	4	12	50	0,07	60	0,08	100	0,12		
40	1 1/2"	4	12	50	0,07	60	0,08	100	0,12		
50	2"	4	12	50	0,07	60	0,08	100	0,12		
65	2 1/2"	4	12	50	0,07	60	0,08	100	0,12		
80	3"	4	16	55	0,15	70	0,16	110	0,23		
100	4"	8	16	55	0,15	70	0,17	110	0,23		
125	5"	8	16	60	0,15	70	0,17	110	0,23		
150	6"	8	16	60	0,16	80	0,18	110	0,23		
175	7"										
200	8"										
250	10"										
300	12"										
350	14"										
400	16"										
450	18"										
500	20"										
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

6	GENERAL REVISION										29-03-95
5	GENERAL REVISION										06-09-94
4	GENERAL REVISION										30-07-92
REV.	DESCRIZIONE - DESCRIPTION										DATA DATE
	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D								



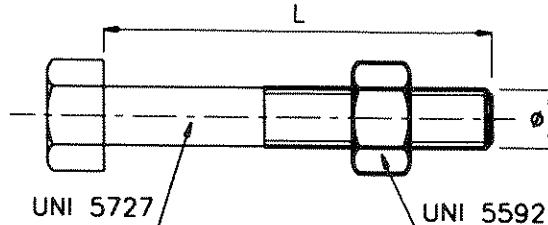
BALLESTRA S.p.A.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS. TA 50.48  
Dwg.

FOGLIO Sheet 4 DI 1  
CODICE COMPUTER Computer code TA5048\_4



### NOTE

IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO

THE MACHINE BOLT HAS TO BE COMPLETED WITH 1 NUT

MATERIALE-MATERIAL:

VITE-SCREW 4.6 UNI 3740

DADO-NUT 4A UNI 3740

FILETTATURA METRICA

"ISO" PASSO GROSSO

METRICAL THREADING

"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: TA 50.20 - TA 50.22 (CLASSI 124-128)							
			ACC. NORMAL. NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
40	1 1/2"	4	8	30	0,02	40	0,02			
50	2"	4	8	30	0,02	40	0,02			
65	2 1/2"	4	8	30	0,02	40	0,02			
80	3"	4	8	30	0,02	40	0,02			
100	4"	4	8	30	0,02	40	0,02			
125	5"	4	8	30	0,02	40	0,02			
150	6"	8	10	30	0,04	40	0,05			
175	7"	8	10	30	0,04	40	0,05			
200	8"	8	10	30	0,04	40	0,05			
225	9"	8	10	30	0,04	40	0,05			
250	10"	8	10	30	0,04	40	0,05			
275	11"	8	10	30	0,04	40	0,05			
300	12"	8	10	30	0,05	50	0,05			
350	14"	8	10	30	0,05	50	0,05			
400	16"	12	10	30	0,05	50	0,05			
450	18"	12	10	30	0,05	50	0,05			
500	20"	12	10	30	0,05	50	0,05			
600	24"	16	12	30	0,07	50	0,07			
700	28"	16	12	30	0,07	50	0,07			
800	32"	24	12	30	0,07	50	0,07			
900	36"	24	12	30	0,07	50	0,07			
1000	40"	24	12	30	0,07	50	0,07			
1100	44"	32	16	40	0,14	60	0,15			
1200	48"	32	16	40	0,14	60	0,15			
1300	52"	32	16	40	0,14	60	0,15			
1400	56"	32	16	40	0,14	60	0,15			
1500	60"	40	16	40	0,14	60	0,15			
1600	64"	40	16	40	0,14	60	0,15			
1800	72"	40	16	40	0,14	60	0,15			
2000	80"	40	16	40	0,14	60	0,15			

7 GENERAL REVISION

*[Signature]*

29-03-95

6 GENERAL REVISION

*[Signature]*

06-09-94

5 GENERAL REVISION

*[Signature]*

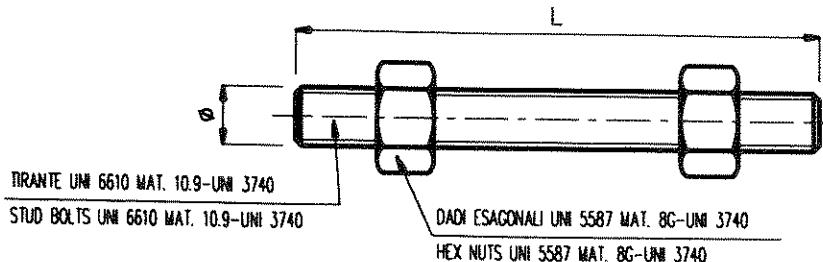
30-07-92



BALLESTRA S.p.A.  
MILANO (ITALIA)

TIRANTI - TIPO "B"  
STUD BOLTS - TYPE "B"

DIS.  
Dwg. TA 50.48  
FOGLIO Sheet 5 DI 5  
CODICE COMPUTER Computer code TA5048\_5



NOTE

- IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI.
- THE STUD BOLT HAS TO BE SUPPLIED COMPLETE WITH 2 NUTS.
- FILETTATURA METRICA "ISO" A PASSO GROSSO
- METRICAL THREADING "ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2278/2226								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BUND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO Drip-Ring	PESO CAD. WEIGHT
10	3/8"	4	12	60							
15	1/2"	4	12	60							
20	3/4"	4	12	65							
25	1"	4	12	65							
32	1 1/4"	4	16	75							
40	1 1/2"	4	16	75	0,18						
50	2"	4	16	80	0,19						
65	2 1/2"	4	16	80	0,19						
80	3"	8	16	85	0,20						
100	4"	8	16	90	0,20						
125	5"	8	16	90	0,21						
150	6"	8	20	100	0,39						
175	7"	8	20	105	0,39						
200	8"	12	20	105	0,39						
250	10"	12	22	120	0,52						
300	12"	12	22	120	0,52						
350	14"	16	22	130	0,55						
400	16"	16	27	140	0,97						
450	18"										
500	20"										
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

9	GENERAL REVISION	<i>[Signature]</i>		29-03-95
8	GENERAL REVISION	<i>[Signature]</i>		06-09-94
7	GENERAL REVISION	<i>[Signature]</i>		30-07-92
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTRL. CONT.R.D	APPR. APPR.D
				DATA DATE



# BULLONI - TIPO "A"

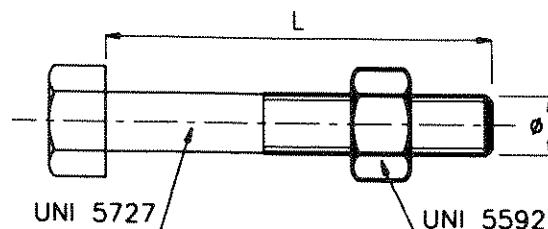
## BOLTS - TYPE "A"

DIN. TA 50.48  
Dwg.

FOGLIO Sheet 6 DI

CODICE COMPUTER Computer code TA5048\_6

### NOTE



IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE COMPLETED WITH 1 NUT

### MATERIALE - MATERIAL:

VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

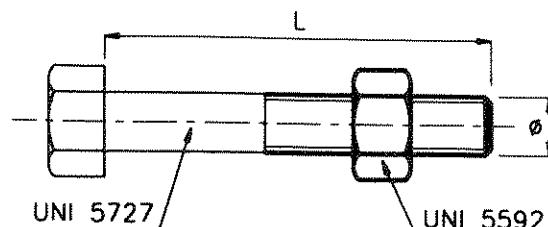
FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI	PER FLANGE TIPO: DIN 2642 FINO A DN 20 / UNI 6090 CON CARTELLA FOR FLANGES TYPE: DIN 2642 UP TO DN 20 / UNI 6090 WITH STUB END								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	12	50	0,07						
15	1/2"	4	12	50	0,07				100	0,12	
20	3/4"	4	12	50	0,08	60	0,08	100	0,12		
25	1"	4	12	55	0,08	60	0,08	100	0,12		
32	1 1/4"	4	16	55	0,15	70	0,16	110	0,23		
40	1 1/2"	4	16	55	0,15	70	0,16	110	0,23		
50	2"	4	16	55	0,15	70	0,17	110	0,23	70	0,16
65	2 1/2"	4	16	55	0,15	70	0,17	110	0,23	70	0,16
80	3"	8	16	60	0,16	80	0,18	110	0,23	70	0,17
100	4"	8	16	60	0,16	80	0,18	110	0,23	70	0,17
125	5"	8	16	60	0,16	80	0,18	110	0,23	70	0,17
150	6"	8	20	65	0,29	90	0,34	120	0,41	80	0,30
175	7"	8	20	65	0,30	90	0,34	120	0,41	80	0,31
200	8"	12	20	65	0,30	90	0,34	120	0,41	80	0,31
250	10"	12	22	75	0,40	110	0,47	140	0,56	100	0,44
300	12"	12	22	80	0,44	120	0,50	150	0,59	110	0,47
350	14"	16	22	90	0,44	120	0,50	150	0,59	110	0,47
400	16"	16	27	100	0,80	130	0,88	160	1,01	120	0,84
450	18"	20	27	110	0,84	140	0,92	170	1,06	130	0,88
500	20"	20	30	120	1,09	150	1,25	170	1,36	130	1,14
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

7	GENERAL REVISION										29-03-95
6	GENERAL REVISION										06-09-94
5	GENERAL REVISION										30-07-92
REV.	DESCRIZIONE - DESCRIPTION										
	COMP. PREP.D										
	CONTR. CONTR.D										
	APPR. APPR.D										
	DATA DATE										

NOTE



IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

MATERIALE - MATERIAL:  
VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO  
METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI		BULLONI	PER FLANGE TIPO: DIN 2641 FINO A DN 20 / UNI 6088 PER DN >25 FOR FLANGES TYPE: DIN 2641 UP TO DN 20 / UNI 6088 FOR DN >25					
				ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	10	40	0,05	50	0,05		
15	1/2"	4	10	40	0,05	50	0,05		
20	3/4"	4	10	40	0,05	50	0,05		
25	1"	4	10	45	0,05	60	0,05		
32	1 1/4"	4	12	50	0,07	60	0,08		
40	1 1/2"	4	12	50	0,07	60	0,08		
50	2"	4	12	50	0,07	60	0,08		
65	2 1/2"	4	12	50	0,07	60	0,08		
80	3"	4	16	55	0,15	70	0,17		
100	4"	8	16	55	0,15	70	0,17		
125	5"	8	16	55	0,15	70	0,17		
150	6"	8	16	55	0,15	70	0,17		
175	7"	8	16	60	0,15	70	0,17		
200	8"	8	16	65	0,16	80	0,18		
250	10"	12	20	70	0,29	90	0,34		
300	12"	12	20	80	0,31	100	0,36		
350	14"	12	20	90	0,34	110	0,39		
400	16"	16	20	90	0,34	110	0,39		
450	18"	16	20	100	0,36	120	0,41		
500	20"	20	20	100	0,36	120	0,41		
600	24"	20	22	110	0,47	130	0,53		
700	28"								
800	32"								
900	36"								
1000	40"								
1100	44"								
1200	48"								

6	GENERAL REVISION				29-03-95
5	GENERAL REVISION				06-09-94
4	GENERAL REVISION				30-07-92
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE



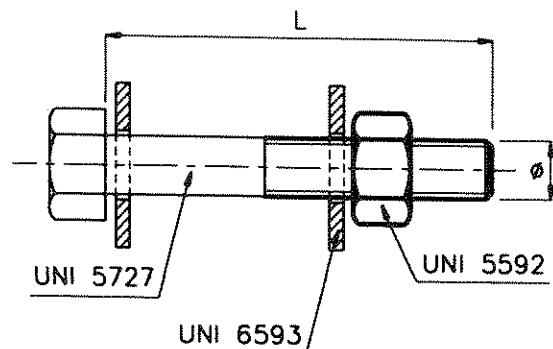
BALLESTRA s.p.a.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48

FOGLIO Sheet 8 DI 8  
CODICE COMPUTER Computer code TA5048\_8



### NOTE

IL BULLONE DEVE ESSERE FORNITO COMPLETO DI  
1 DADO + 2 RONDELLE  
THE BOLT HAS TO BE SUPPLIED COMPLETE WITH  
1 NUT + 2 WASHERS

### MATERIALE-MATERIAL:

VITE-SCREW 4.6 UNI 3740

DADO-NUT 4A UNI 3740

RONDELLE-WASHERS CARBON STEEL

FILETTATURA METRICA  
"ISO" PASSO CROS

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: ST. 46066								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	12	55	0,07						
15	1/2"	4	12	55	0,07						
20	3/4"	4	12	55	0,07	60	0,08				
25	1"	4	12	55	0,07	60	0,08				
32	1 1/4"	4	16	65	0,15	70	0,17				
40	1 1/2"	4	16	65	0,15	70	0,17				
50	2"	4	16	65	0,15	70	0,17				
65	2 1/2"	4	16	70	0,16	80	0,18				
80	3"	4	16	70	0,17	80	0,18				
100	4"	8	16	70	0,17	80	0,18				
125	5"	8	16	80	0,18	100	0,22				
150	6"	8	20	90	0,31	100	0,36				
175	7"	8	20	90	0,31	100	0,36				
200	8"	8	20	90	0,34	110	0,39				
250	10"	12	20	90	0,34	110	0,39				
300	12"	12	20	90	0,34	110	0,39				
350	14"	16	20	90	0,34	110	0,39				
400	16"	16	22	90	0,40	110	0,47				
450	18"	20	22	100	0,40	110	0,47				
500	20"	20	22	100		130					
600	24"	20	27	110		140					
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

8	GENERAL REVISION
7	GENERAL REVISION
6	GENERAL REVISION

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONTR.  
CONTR.D

APPR.  
APPRO.

DATA  
DATE



BALLESTRA S.p.A.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48

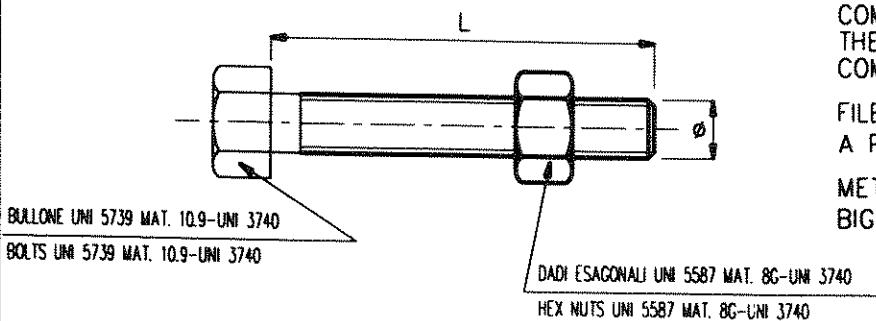
FOGLIO  
Sheet 9 DI  
CODICE COMPUTER  
Computer code TA5048\_9

### NOTE

IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

FILETTATURA METRICA "ISO"  
A PASSO GROSSO

METRICAL THREADING "ISO"  
BIG PITCH



DN ACCOPPIAMENTO	QUANT. BULLONI	Ø BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2276/2229 (CLASSI 109-146)							
			ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENACCIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
10	3/8"	4	10	40						
15	1/2"	4	10	40						
20	3/4"	4	10	40						
25	1"	4	10	40						
32	1 1/4"	4	12	45						
40	1 1/2"	4	12	45	0,09					
50	2"	4	12	45	0,09					
65	2 1/2"	4	12	45	0,09					
80	3"	4	16	55	0,19					
100	4"	4	16	55	0,19					
125	5"	8	16	60	0,19					
150	6"	8	16	65	0,20					
175	7"	8	16	70	0,21					
200	8"	8	16	70	0,21					
250	10"	12	16	70	0,21					
300	12"	12	20	75	0,38					
350	14"	12	20	80	0,39					
400	16"	16	20	85	0,40					
450	18"	16	20	85	0,40					
500	20"	20	20	90	0,40					
600	24"	20	22	90	0,52					
700	28"	24	22	95	0,52					
800	32"	24	27	100	0,97					
900	36"	24	27	105	0,97					
1000	40"	28	27	105	0,97					
1100	44"									
1200	48"									

7	GENERAL REVISION	<i>[Signature]</i>			29-03-95
6	GENERAL REVISION	<i>[Signature]</i>			06-09-94
5	GENERAL REVISION	<i>[Signature]</i>			30-07-92

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONTR.  
CONTR.D

APPR.  
APPR.D

DATA  
DATE

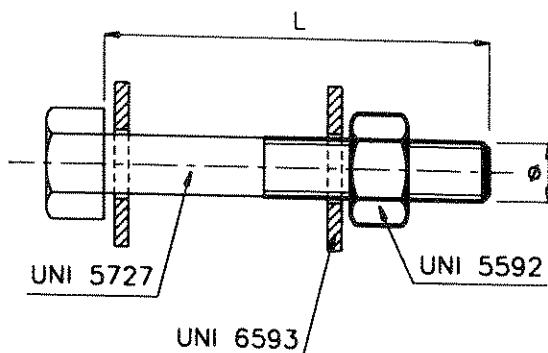


# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS. TA 50.48  
Dwg.

FOGLIO Sheet 10 DI 10  
CODICE COMPUTER Computer code TA504810



### NOTE

IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO + 2 RONDELLE

THE BOLT HAS TO BE SUPPLIED COMPLETE WITH 1 NUT + 2 WASHERS

### MATERIALE-MATERIAL:

VITE-SCREW 4.6 UNI 3740

DADO-NUT 4A UNI 3740

RONDELLE-WASHERS CARBON STEEL

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO COUPLING	QUANT. BULLONI	Ø BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: ST. 46177						
			ACC. NORMAL. NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER
10	3/8"	4	12	45	0,09				
15	1 1/2"	4	12	50	0,09				
20	3/4"	4	12	50	0,09				
25	1"	4	12	55	0,10				
32	1 1/4"	4	16	65	0,20				
40	1 1/2"	4	16	70	0,20				
50	2"	4	16	70	0,22				
65	2 1/2"	4	16	75	0,22				
80	3"	4	16	80	0,23				
100	4"	8	16	80	0,23				
125	5"								
150	6"								
175	7"								
200	8"								
250	10"								
300	12"								
350	14"								
400	16"								
450	18"								
500	20"								
600	24"								
700	28"								
800	32"								
900	36"								
1000	40"								
1100	44"								
1200	48"								

7	GENERAL REVISION								29-03-95
6	GENERAL REVISION								06-09-94
5	GENERAL REVISION								30-07-92
REV.	DESCRIZIONE - DESCRIPTION								DATA DATE
		COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D					

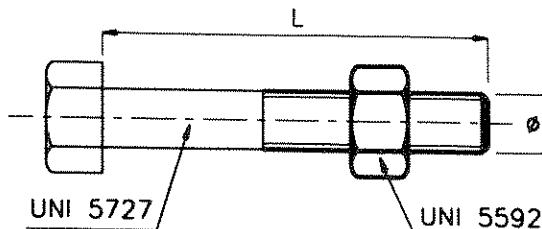


# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48  
FOGLIO Sheet 11 OF 1  
CODICE COMPUTER Computer code TA504811

### NOTE



IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

MATERIALE-MATERIAL:  
VITE-SCREW 4.6 UNI 3740  
DADO-NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 6083/2229 6084/2229								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL. NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BUND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	12	45	0,07						
15	1/2"	4	12	45	0,07						
20	3/4"	4	12	50	0,08						
25	1"	4	12	50	0,08						
32	1 1/4"	4	16	55	0,16						
40	1 1/2"	4	16	55	0,16						
50	2"	4	16	60	0,16						
65	2 1/2"	8	16	70	0,17						
80	3"	8	16	70	0,18						
100	4"	8	20	75	0,31						
125	5"	8	22	80	0,40						
150	6"	8	22	80	0,40						
175	7"	12	22	90							
200	8"	12	22	90							
250	10"	12	27	100							
300	12"	16	27	110							
350	14"	16	30	120							
400	16"	16	33	130							
450	18"										
500	20"										
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

5	GENERAL REVISION										29-03-95
4	GENERAL REVISION										06-09-94
3	GENERAL REVISION										30-07-92
REV.	DESCRIZIONE - DESCRIPTION										DATA DATE

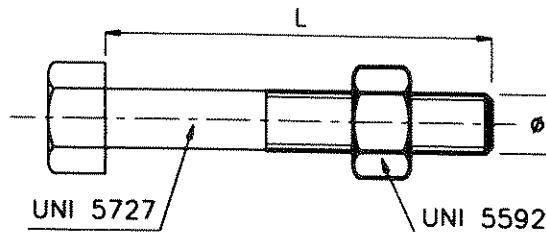


# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48  
FOGLIO  
Sheet 12 DI  
CODICE COMPUTER  
Computer code TA504812

### NOTE



IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

MATERIALE - MATERIAL:  
VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: DIN 2642-UNI 6090 CON ANELLO D'APPOGGIO FOR FLANGES TYPE: DIN 2642-UNI 6090 WITH SLIP-ON WELDING COLLAR			
			CON 2 ANELLI D'APPOGGIO WITH 2 SLIP-ON WELDING COLLARS	PESO CAD. WEIGHT	CON 1 ANELLO D'APPOGGIO WITH 1 SLIP-ON WELDING COLLAR	PESO CAD. WEIGHT
10	3/8"	4	12	65	55	
15	1/2"	4	12	70	55	0,08
20	3/4"	4	12	70	55	0,08
25	1"	4	12	75	60	0,09
32	1 1/4"	4	16	75	65	0,17
40	1 1/2"	4	16	75	65	0,17
50	2"	4	16	80	65	0,18
65	2 1/2"	4	16	80	65	0,18
80	3"	8	16	90	70	0,19
100	4"	8	16	90	70	0,19
125	5"	8	16	90	75	0,19
150	6"	8	20	90	75	0,34
175	7"					
200	8"					
250	10"					
300	12"					
350	14"					
400	16"					
450	18"					
500	20"					
600	24"					
700	28"					
800	32"					
900	36"					
1000	40"					
1100	44"					
1200	48"					

4	GENERAL REVISION				29-03-95
3	GENERAL REVISION				06-09-94
2	GENERAL REVISION				30-07-92
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTRO.D	APPR. APPRO.D	DATA DATE

**NOTE:** 1) IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI  
**REMARKS:** THE STUD BOLT HAS TO BE COMPLETED WITH 2 NUTS  
 2) PER FLANGE NON METALLICHE PREVEDERE RONDELLE PIANE ANSI B27.2  
 3) PER FLANGE LAP-JOINT (CON STUB-ENDS) LA LUNGHEZZA DEI TIRANTI  
 DOVRA' ESSERE AUMENTATA DI 10 mm.  
 FOR LAP-JOINT FLANGES (WITH STUB-ENDS) THE GIVEN BOLT LENGTH  
 MUST BE INCREASED 10 mm.

DIA. NOMINALE NOMINAL SIZE		PER FLANGE TIPO: FOR FLANGES TYPE:		150° RF		300° RF		600° RF		150°		300° ROUND GROOVE		600° ROUND GROOVE		TIRANTE GROOVE		ST. 46608 ST. 150°		ST. 46387 ST. 150°	
mm	Inch	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID	N° - Ø - L RESID N° - Ø - L RESID			
15	1/2"	4-1/2"-60	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65	4-1/2"-65		
20	3/4"	4-1/2"-65	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75	4-5/8"-75		
25	1"	4-1/2"-65	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80	4-5/8"-80		
32	1 1/4"	4-1/2"-70	4-5/8"-80	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85	4-5/8"-85		
40	1 1/2"	4-1/2"-70	4-3/4"-90	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95	4-3/4"-95		
50	2"	4-5/8"-80	8-5/8"-90	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95	8-5/8"-95		
65	2 1/2"	4-5/8"-90	8-3/4"-100	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110		
80	3"	4-5/8"-90	8-3/4"-110	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115	8-3/4"-115		
100	4"	8-5/8"-90	8-3/4"-115	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130	8-7/8"-130		
125	5"	8-3/4"-100	8-3/4"-120	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150	8-1"-150		
150	6"	8-3/4"-100	12-3/4"-125	12-1"-160	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105	8-3/4"-105		
200	8"	8-3/4"-105	12-7/8"-140	12-1 1/8"-180	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110	8-3/4"-110		
250	10"	12-7/8"-115	16-1"-160	16-1 1/4"-200	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20		
300	12"	12-7/8"-120	16-1 1/8"-170	20-1 1/4"-210	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20	12-7/8"-20		
350	14"	12-1"-130	20-1 1/8"-180	20-1 3/8"-220	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135	12-1"-135		
400	16"	16-1"-135	20-1 1/4"-190	20-1 1/2"-240	16-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140	20-1"-140		
450	18"	16-1 1/8"-150	24-1 1/4"-200	20-1 5/8"-260	16-1 1/8"-150	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200	24-1 1/4"-200		
500	20"	20-1 1/8"-160	24-1 1/4"-230	24-1 7/8"-310	20-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170		
550	22"																				
600	24"	20-1 1/4"-170	24-1 1/2"-230	24-1 7/8"-310	20-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170	24-1 1/4"-170		
650	26"																				
700	28"																				
750	30"																				
800	32"																				

REV.

REVISED WHERE INDICATED

GENERAL REVISION

GENERAL REVISION

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

CONTR.  
CONTR.D

APPR.  
APPR.D

DATA  
DATE

15-12-96

29-03-95

06-09-94

TA 50.48

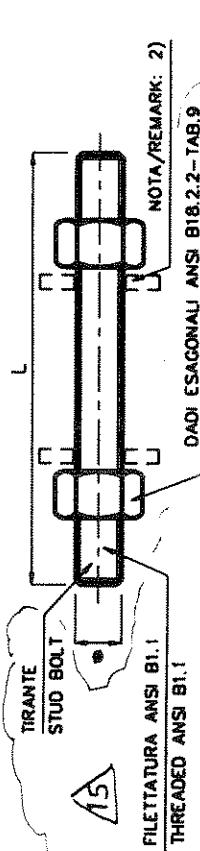
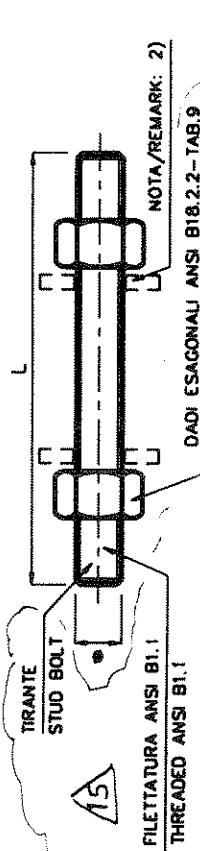
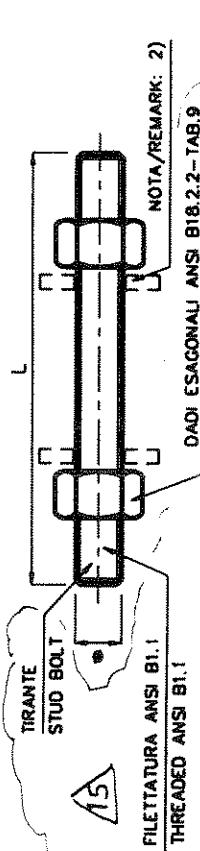
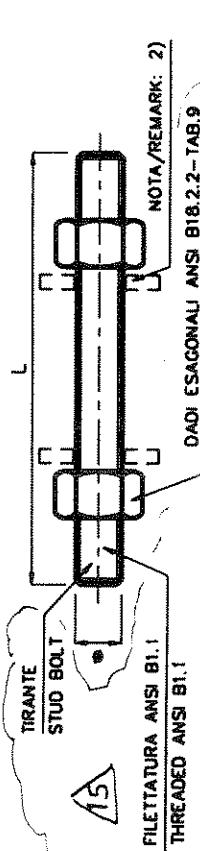
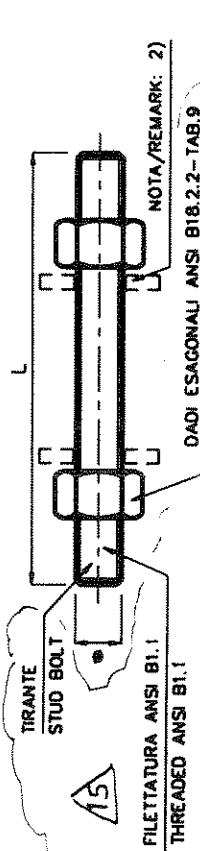
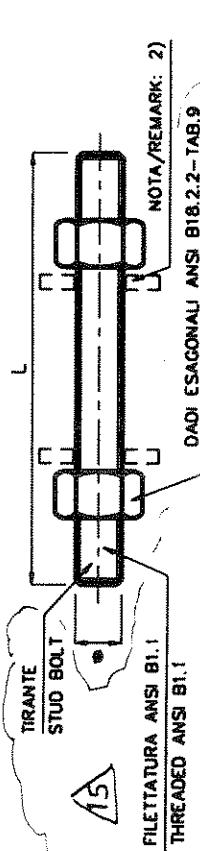
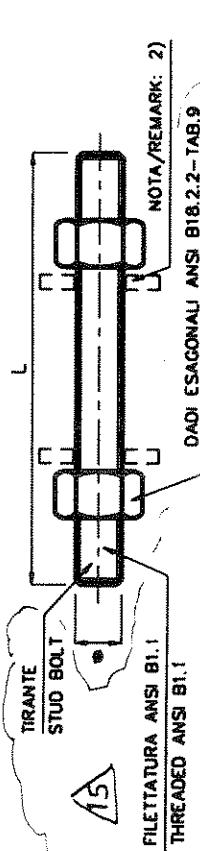
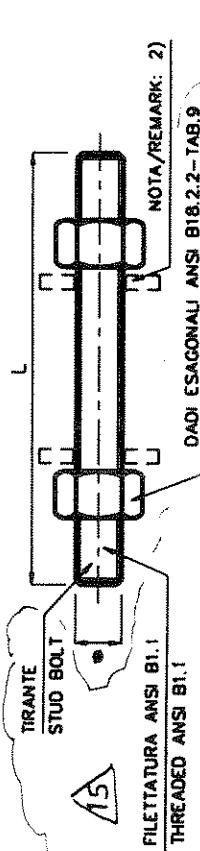
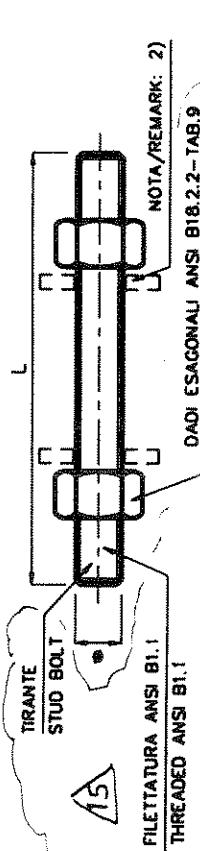
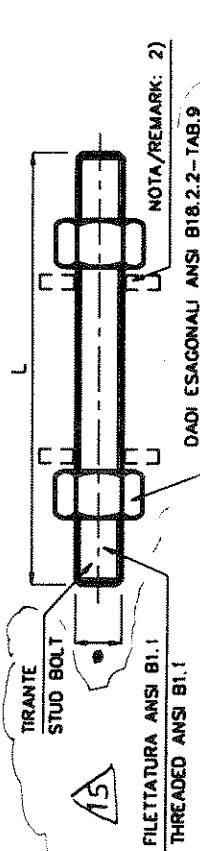
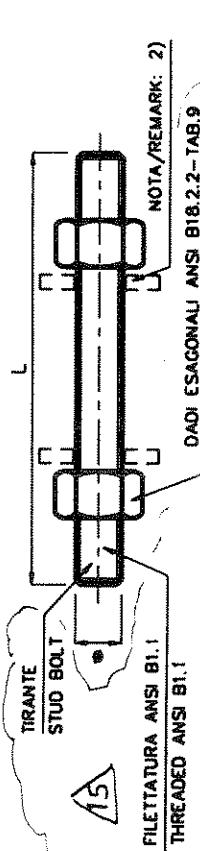
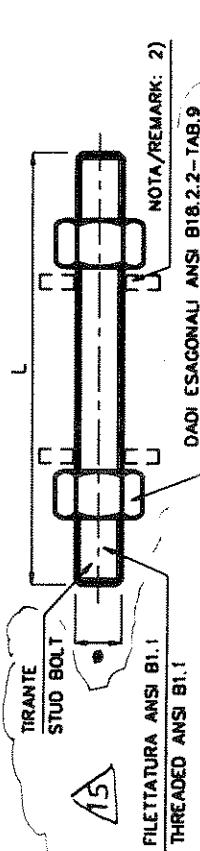
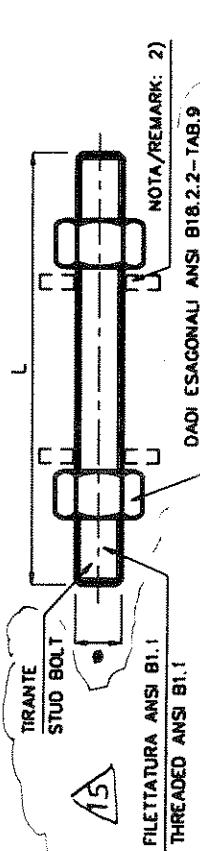
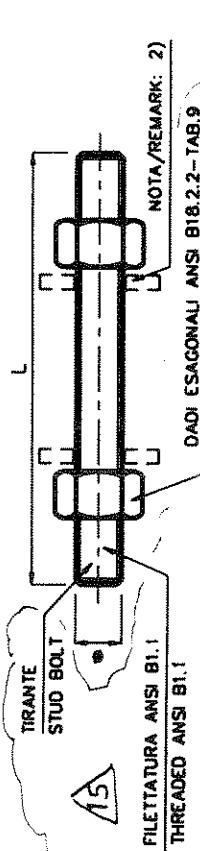
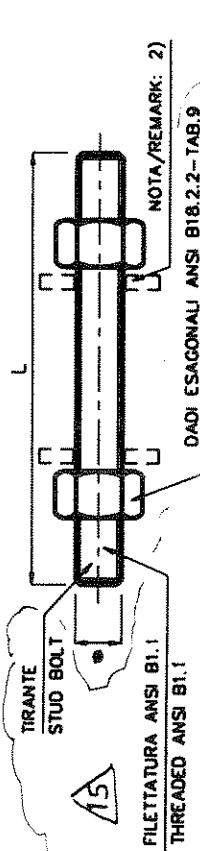
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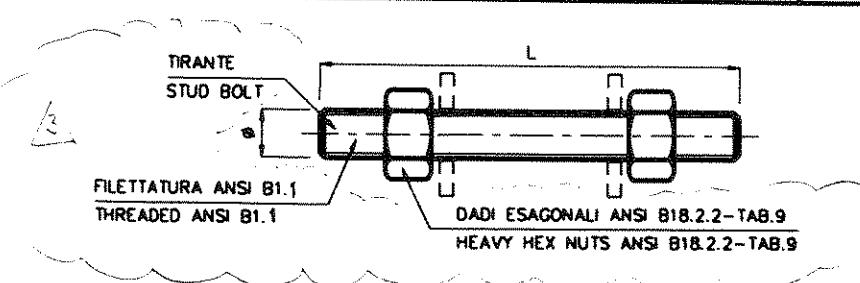
Sheet 13 of

NOTA/REMARK: 2)

DADI ESAGONALI ANSI B18.2.2-TAB.9

HEAVY HEX NUTS ANSI B18.2.2-TAB.9



 <b>BALLESTRA s.p.a.</b> MILANO (ITALIA)		<b>TIRANTI TIPO "B" PER FLANGE</b> <b>STUD BOLTS TYPE "B" FOR FLANGES</b> <b>AWWA</b>		<b>TA 50.48</b> <small>COMPUTER CODE: TA504814</small> <small>Sheet 14 of</small>					
									
<b>PER FLANGE TIPO: FOR FLANGES TYPE:</b> <b>AWWA</b>									
DIA. NOMINALE NOMINAL SIZE		AWWA CLASS D	AWWA CLASS B	AWWA CLASS E					
mm.	inch.	N°-Ø-L	N°-Ø-L	N°-Ø-L	N°-Ø-L				
150	6"	8-3/4"-85	8-5/8"-80	8-3/4"-105					
200	8"	8-3/4"-85	8-5/8"-80	8-3/4"-115					
250	10"	12-7/8"-90	12-5/8"-80	12-7/8"-125					
300	12"	12-7/8"-100	12-5/8"-80	12-7/8"-125					
350	14"	12-1"-110	12-3/4"-85	12-1"-140					
400	16"	16-1"-110	16-3/4"-85	16-1"-145					
450	18"	16-1 1/8"-120	16-3/4"-85	16-1 1/8"-155					
500	20"	20-1 1/8"-125	20-3/4"-85	20-1 1/8"-165					
550	22"	20-1 1/4"-135	20-3/4"-90	-					
600	24"	20-1 1/4"-140	20-3/4"-90	20-1 1/4"-180					
650	26"	24-1 1/4"-140	24-3/4"-90	24-1 1/4"-190					
700	28"	28-1 1/4"-140	28-3/4"-95	28-1 1/4"-190					
750	30"	28-1 1/4"-150	28-7/8"-100	28-1 1/4"-190					
800	32"	28-1 1/2"-160	28-7/8"-105	28-1 1/2"-210					
850	34"	32-1 1/2"-160	32-7/8"-105	32-1 1/2"-220					
900	36"	32-1 1/2"-170	32-7/8"-110	32-1 1/2"-220					
950	38"	32-1 1/2"-170	32-7/8"-110	32-1 1/2"-220					
1000	40"	36-1 1/2"-170	36-7/8"-110	36-1 1/2"-230					
1050	42"	36-1 1/2"-180	36-1"-120	36-1 1/2"-230					
1100	44"	40-1 1/2"-180	40-1"-120	40-1 1/2"-230					
1150	46"	40-1 1/2"-180	40-1"-120	40-1 1/2"-240					
1200	48"	44-1 1/2"-180	44-1"-125	44-1 1/2"-240					
1250	50"	44-1 3/4"-200	44-1 1/8"-130	44-1 3/4"-260					
1300	52"	44-1 3/4"-200	44-1 1/8"-130	44-1 3/4"-260					
1350	54"	44-1 3/4"-210	44-1 1/4"-150	44-1 3/4"-270					
1500	60"	52-1 3/4"-220	52-1 1/4"-150	52-1 3/4"-280					
1650	66"	52-1 3/4"-230	52-1 1/4"-160	52-1 3/4"-290					
1800	72"	60-1 3/4"-230	60-1 1/4"-160	60-1 3/4"-290					
2100	84"	64-2"-250	64-1 1/2"-190	64-2"-330					
2400	96"	68-2 1/4"-280	68-1 3/4"-220	68-2 1/4"-360					
<b>NOTE : 1) IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI</b> <b>REMARKS : THE STUD BOLT HAS TO BE COMPLETED WITH 2 NUTS</b>									
3	REVISED WHERE INDICATED				16-12-96				
2	GENERAL REVISION				29-03-95				
1	GENERAL REVISION				30-07-92				
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE				

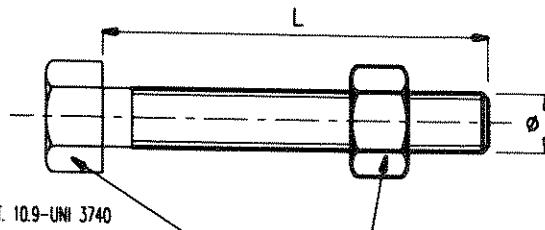


BALLESTRA spa  
MILANO (ITALIA)

BULLONI - TIPO "A"  
BOLTS - TYPE "A"

DIS.  
Dwg. TA 50.48  
FOGLIO 15 DI 1  
CODICE COMPUTER Computer code TA504815

NOTE



BULLONE UNI 5739 MAT. 10.9-UNI 3740  
BOLTS UNI 5739 MAT. 10.9-UNI 3740

DADI ESAGONALI UNI 5587 MAT. BG-UNI 3740

HEX NUTS UNI 5587 MAT. BG-UNI 3740

IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT  
FILETTATURA METRICA "ISO"  
A PASSO GROSSO  
METRICAL THREADING "ISO"  
BIG PITCH

DN ACCOPPIAMENTO COUPLING	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: TA 50.20 - TA 50.22							
			ACC. NORMAL NORM. COUPL	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMP. FILTER	PESO CAD. WEIGHT
40	1 1/2"	4	8	30						
50	2"	4	8	30						
65	2 1/2"	4	8	30						
80	3"	4	8	30						
100	4"	4	8	30						
125	5"	4	8	30						
150	6"	8	10	35						
175	7"	8	10	35						
200	8"	8	10	35						
250	10"	8	10	35						
300	12"	8	10	35						
350	14"	8	10	35						
400	16"	12	10	35						
450	18"	12	10	35						
500	20"	12	10	35						
600	24"	16	12	35						
700	28"	16	12	35						
800	32"	24	12	35						
900	36"	24	12	35						
1000	40"	24	12	35						
1100	44"	32	16	45						
1200	48"	32	16	45						
1300	52"	32	16	45						
1400	56"	32	16	45						
1500	60"	40	16	45						
1600	64"	40	16	45						
1800	72"	40	16	45						
2000	80"	40	16	45						

4	GENERAL REVISION	<i>[Signature]</i>		29-03-95
3	GENERAL REVISION	<i>[Signature]</i>		06-09-94
2	GENERAL REVISION	<i>[Signature]</i>		30-07-92
REV.	DESCRIZIONE - DESCRIPTION	COMP. PRES. O	CONTR. CONT. O	APPR. ACCP. O



BALLESTRA S.p.A.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

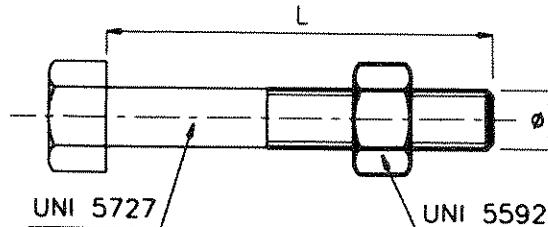
DIS.  
Dwg. TA 50.48

FOGLIO Sheet 16 Of

CODICE COMPUTER Computer code TA504816

### NOTE

IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT



MATERIALE - MATERIAL:  
VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2277/2229								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLUND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"										
15	1/2"										
20	3/4"										
25	1"										
32	1 1/4"										
40	1 1/2"	4	16	50	0,19	70	0,20	100	0,25		
50	2"	4	16	55	0,19	70	0,20	100	0,25		
65	2 1/2"	4	16	55	0,19	70	0,20	100	0,25		
80	3"	4	16	60	0,20	80	0,22	110	0,26		
100	4"	8	16	65	0,20	80	0,22	110	0,26		
125	5"	8	16	70	0,22	90	0,23	120	0,28		
150	6"	8	20	70	0,38	90	0,40	120	0,47		
175	7"										
200	8"	8	20	75	0,38	90	0,40	120	0,47		
250	10"	12	20	80	0,40	100	0,43				
300	12"	12	20	80	0,40	100	0,43				
350	14"	16	20	80	0,40	100	0,43				
400	16"	16	22	90	0,52	110	0,55				
450	18"	20	22	90	0,52	110	0,55				
500	20"	20	22	90	0,52	110	0,55				
600	24"	20	27	100	0,92	120	1,00				
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										

4	GENERAL REVISION	<i>[Signature]</i>			29-03-95
3	GENERAL REVISION	<i>[Signature]</i>			06-09-94
2	GENERAL REVISION	<i>[Signature]</i>			30-07-92

REV.

DESCRIZIONE - DESCRIPTION

COMP.  
PREP.D

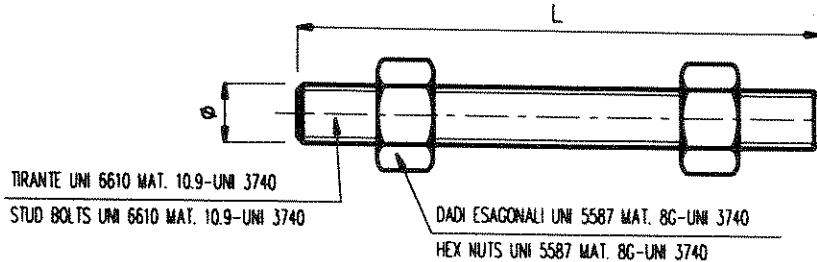
CONTR.  
CONTR.D

APPR.  
APPR.D

DATA  
DATE

 BALLESTRA S.p.A. MILANO (ITALIA)	TIRANTI - TIPO "B" STUD BOLTS - TYPE "B"	DIS. Dwg. TA 50.48 FOGLIO Sheet 17 DI OF CODICE COMPUTER Computer code TA504817
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### NOTE



- IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI.
- THE STUD BOLT HAS TO BE SUPPLIED COMPLETE WITH 2 NUTS.
- FILETTATURA METRICA "ISO" A PASSO GROSSO
- METRICAL THREADING "ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BOLTONI DN COUPLING	BOLTS QUANT.	BOLTS Ø	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2277/2226						
					ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER
40	1 1/2"	4	16	75	0,17						
50	2"	4	16	80	0,17						
65	2 1/2"	4	16	80	0,17						
80	3"	4	16	85	0,19						
100	4"	8	16	90	0,19						
125	5"	8	16	90	0,19						
150	6"	8	20	100	0,33						
175	7"	8	20	105							
200	8"	8	20	105	0,35						
250	10"	12	20	110	0,35						
300	12"	12	20	110	0,35						
350	14"	16	20	110	0,35						
400	16"	16	22	120	0,46						
450	18"	20	22	120	0,46						
500	20"	20	22	125	0,49						
600	24"	20	27	140	0,86						
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										
1300	52"										
1400	56"										
1500	60"										
1600	64"										
1800	72"										
2000	80"										

4	GENERAL REVISION			29-03-95	
3	GENERAL REVISION			06-09-94	
2	GENERAL REVISION			30-07-92	
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE

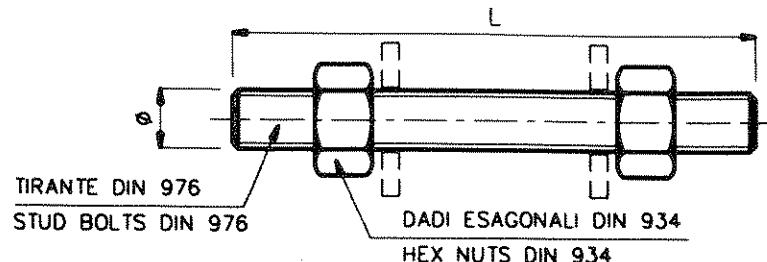


TIRANTI TIPO "B" PER FLANGE  
STUD BOLTS TYPE "B" FOR FLANGES  
CLASS DIN

TA 50.48

COMPUTER CODE: TA504818

Sheet 18 of



DIA. NOMINALE NOMINAL SIZE	PER FLANGE TIPO: FOR FLANGES TYPE: PN6 - PN10 - PN16								TA 50.22
	DIN 2573-B PN6	DIN 2568 DIN 2576-B PN10	DIN 88030 PN16	DIN 2635 PN40	DIN 2642 PN10	ST.46527 PN16	ST.46066 PN10		
mm.	inch.	N°-Ø-L	N°-Ø-L	N°-Ø-L	N°-Ø-L	N°-Ø-L	N°-Ø-L	N°-Ø-L	
8	1/4"			4-M10-50					
10	3/8"	4-M10-50	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60		
15	1/2"	4-M10-50	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	
20	3/4"	4-M10-50	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	
25	1"	4-M10-50	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	4-M12-60	
32	1 1/4"	4-M12-60	4-M16-70	4-M16-70	4-M16-75	4-M16-75	4-M16-75	4-M16-80	
40	1 1/2"	4-M12-60	4-M16-70	4-M16-70	4-M16-75	4-M16-75	4-M16-75	4-M16-80	4-M8-40
50	2"	4-M12-60	4-M16-75	4-M16-75	4-M16-80	4-M16-75	4-M16-80	4-M16-80	4-M8-40
65	2 1/2"	4-M12-60	4-M16-75	4-M16-75	8-M16-80	4-M16-75	4-M16-80	4-M16-80	4-M8-40
80	3"	4-M16-75	4-M16-80	8-M16-80	8-M16-80	4-M16-80	8-M16-80	4-M16-80	4-M8-40
100	4"	4-M16-75	8-M16-80	8-M16-80	8-M20-90	8-M16-80	8-M16-80	8-M16-80	4-M8-40
125	5"	8-M16-80	8-M16-80	8-M16-80		8-M16-80	8-M16-80	8-M16-100	4-M8-40
150	6"	8-M16-80	8-M20-90	8-M20-90		8-M20-90	8-M20-90	8-M20-100	8-M10-45
200	8"	8-M16-80	8-M20-90	12-M20-90		8-M20-90	12-M20-100	8-M20-110	8-M10-45
250	10"	12-M16-80	12-M20-100	12-M24-100		12-M20-90	12-M24-110	12-M20-110	8-M10-45
300	12"	12-M20-90	12-M20-100	12-M24-110		12-M20-100	12-M24-110	12-M20-110	8-M10-45
350	14"	12-M20-100	16-M20-100	16-M24-110		16-M20-100	16-M24-120	16-M20-110	8-M10-45
400	16"	16-M20-100	16-M24-110	16-M27-120		16-M24-120	16-M27-130	16-M22-120	12-M10-45
450	18"							20-M22-120	
500	20"	20-M20-100	20-M24-120	20-M30-130		20-M24-130	20-M30-140		12-M10-45
600	24"								16-M12-50
700	28"								16-M12-50
800	32"								24-M12-50
900	36"								24-M12-50
1000	40"								24-M12-50
1100	44"								32-M16-60
1200	48"								32-M16-60
1300	52"								32-M16-60
1400	56"								32-M16-60
1500	60"								40-M16-60
1600	64"								40-M16-60
1800	72"								40-M16-60
2000	80"								40-M16-60

**NOTE :** 1) IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI  
**REMARKS :** THE STUD BOLT HAS TO BE COMPLETED WITH 2 NUTS

2) PER FLANGE NON METALLICHE PREVEDERE RONDELLE PIANE DIN 1440-MAT. 5-2 DIN 267  
FOR NON METALLIC FLANGES TO PROVIDE PLAIN WASHERS DIN 1440-MAT. 5-2 DIN 267

3) MAT. SECONDO CLASSI DI LINEA  
MAT. AS PIPING PROJECT LIST

3	GENERAL REVISION				29-03-95
2	GENERAL REVISION				06-09-94
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE

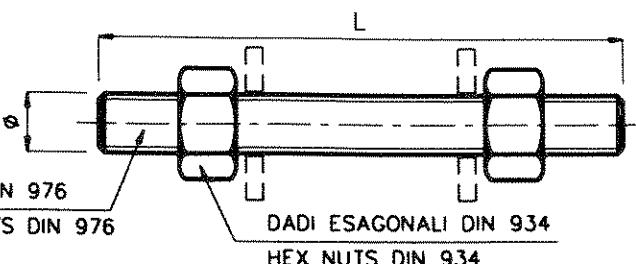


TIRANTI TIPO "B" PER FLANGE  
STUD BOLTS TYPE "B" FOR FLANGES  
CLASS DIN

TA 50.48

COMPUTER CODE: TA504819

Sheet 19 of



DIA. NOMINALE NOMINAL SIZE		PER FLANGE TIPO: FOR FLANGES TYPE: PN10 - PN100									
mm.	inch.	ST.46177 PN10	DIN 2837 PN100								
10	3/8"	4-M12-60	4-M12-70								
15	1/2"	4-M12-60	4-M12-70								
20	3/4"	4-M12-60	-								
25	1"	4-M12-70	4-M16-85								
32	1 1/4"	4-M16-80	4-M20-90								
40	1 1/2"	4-M16-85	4-M20-95								
50	2"	4-M16-90	4-M24-110								
65	2 1/2"	4-M16-90	8-M24-110								
80	3"	4-M16-95	8-M24-110								
100	4"	8-M16-100	8-M27-130								
125	5"		8-M30-140								
150	6"		12-M30-150								
200	8"										
250	10"										
300	12"										
350	14"										
400	16"										
450	18"										
500	20"										
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										
1300	52"										
1400	56"										
1500	60"										
1600	64"										
1800	72"										
2000	80"										

NOTE : 1) IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI  
REMARKS : THE STUD BOLT HAS TO BE COMPLETED WITH 2 NUTS

3) MAT. SECONDO CLASSI DI LINEA  
MAT. AS PIPING PROJECT LIST

2) PER FLANGE NON METALLICHE PREVEDERE RONDELLE PIANE DIN 1440-MAT. S-2 DIN 267  
FOR NON METALLIC FLANGES TO PROVIDE PLAIN WASHERS DIN 1440-MAT. S-2 DIN 267

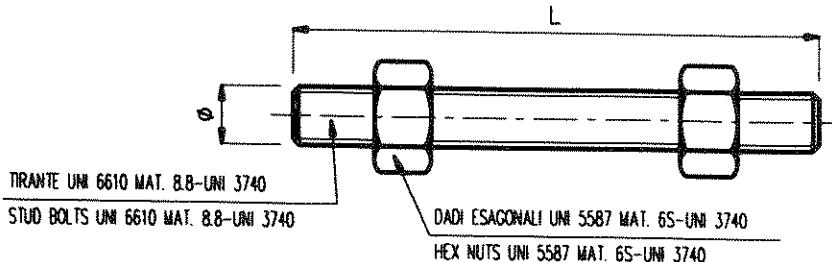
2	GENERAL REVISION	<i>[Signature]</i>			29-03-95
1	GENERAL REVISION	<i>[Signature]</i>			06-09-94
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONT.R.D	APPR. APPR.D	DATA DATE



# TIRANTI - TIPO "B"

## STUD BOLTS - TYPE "B"

D.S.  
Dwg. TA 50.48  
FOGLIO Sheet 20 DI 07  
CODICE COMPUTER Computer code TA504820



### NOTE

- IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI.
- THE STUD BOLT HAS TO BE SUPPLIED COMPLETE WITH 2 NUTS.
- FILETTATURA METRICA "ISO" A PASSO GROSSO
- METRICAL THREADING "ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2283/2229								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENACCIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	12	70	0,098						
15	1/2"	4	12	70	0,098						
20	3/4"	4	12	70	0,102						
25	1"	4	12	70	0,102						
32	1 1/4"	4	16	80	0,2						
40	1 1/2"	4	16	80	0,2						
50	2"	4	16	85	0,21						
65	2 1/2"	8	16	90	0,213						
80	3"	8	16	90	0,22						
100	4"	8	20	100	0,384						
125	5"	8	22	110	0,494						
150	6"	8	22	110	0,507						
175	7"	12	22	110	0,507						
200	8"	12	22	115	0,52						
250	10"	12	27	130	0,94						
300	12"	16	27	135	0,975						
350	14"	16	30	150	1,32						
400	16"	16	33	160	1,702						
450	18"	20	33	160	1,702						
500	20"	20	33	170	1,761						
600	24"	20	36	180	2,31						
700	28"	24	39	180	2,84						
800	32"	24	45	200	4,351						
900	36"	28	45	210	4,465						
1000	40"	28	52	230	6,611						
1100	44"										
1200	48"										

1	GENERAL REVISION	<i>[Signature]</i>	29-03-95
0	ISSUED	<i>[Signature]</i>	06-09-94
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D
		APPR. APPR.D	DATA DATE

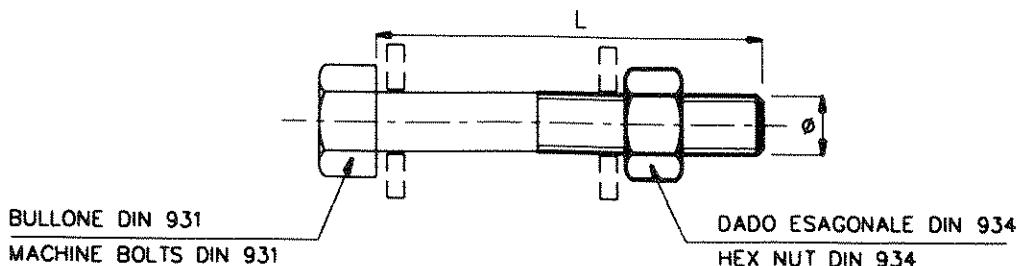


**BULLONI TIPO "A" PER FLANGE  
MACHINE BOLTS TYPE "A" FOR FLANGES  
CLASS DIN**

**TA 50.48**

COMPUTER CODE: TA504822

Sheet 22 of



DIA. NOMINALE NOMINAL SIZE	PER FLANGE TIPO: FOR FLANGES TYPE:										
	PN6										
		DIN 2573-B PN6									
mm.	inch.	N°-Ø-L	inch	N°-Ø-L	inch	N°-Ø-L	inch	N°-Ø-L	inch	N°-Ø-L	inch
8	1/4"	4-M10-40	0,05								
10	3/8"	4-M10-40	0,05								
15	1/2"	4-M10-40	0,05								
20	3/4"	4-M10-45	0,05								
25	1"	4-M10-45	0,05								
32	1 1/4"	4-M12-50	0,08								
40	1 1/2"	4-M12-50	0,08								
50	2"	4-M12-50	0,08								
65	2 1/2"	4-M12-50	0,08								
80	3"	4-M16-55	0,16								
100	4"	4-M16-55	0,16								
125	5"	8-M16-60	0,17								
150	6"	8-M16-60	0,17								
200	8"	8-M16-65	0,17								
250	10"	12-M16-70	0,19								
300	12"	12-M20-70	0,32								
350	14"	12-M20-75	0,32								
400	16"	16-M20-80	0,34								
450	18"										
500	20"	20-M20-80	0,34								
600	24"										
700	28"										
800	32"										
900	36"										
1000	40"										
1100	44"										
1200	48"										
1300	52"										
1400	56"										
1500	60"										
1600	64"										
1800	72"										
2000	80"										

**NOTE :** 1) IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO

**REMARKS :** THE MACHINE BOLT HAS TO BE COMPLETED WITH 1 NUT

2) PER FLANGE NON METALLICHE PREVEDERE RONDELLE PIANE DIN 1440-MAT. 5-2 DIN 267  
FOR NON METALLIC FLANGES TO PROVIDE PLAIN WASHERS DIN 1440-MAT. 5-2 DIN 267

3) MAT. SECONDO CLASSI DI LINEA  
MAT. AS PIPING PROJECT LIST

1	GENERAL REVISION	<i>[Signature]</i>			29-03-95
0	ISSUED		Gerelli		06-09-94
REV.	DESCRIZIONE - DESCRIPTION		CIMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D

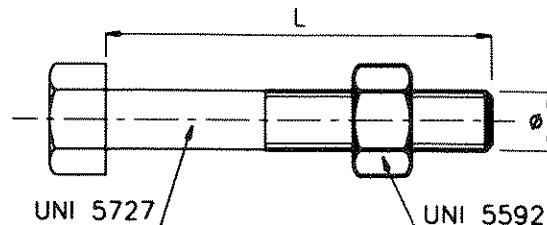


# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS.  
Draw. TA 50.48  
FOGLIO Sheet 23 DI  
CODICE COMPUTER Computer code TA504823

### NOTE



IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE COMPLETED WITH 1 NUT

MATERIALE - MATERIAL:

VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	Ø BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2276/2229 (CLASSI 106-124-129-130)							
			ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
10	3/8"	4	10	35	0,05					
15	1/2"	4	10	35	0,05			90	0,08	
20	3/4"	4	10	40	0,05	50	0,05	90	0,08	
25	1"	4	10	40	0,05	50	0,05	90	0,08	
32	1 1/4"	4	12	45	0,07	60	0,08	100	0,12	
40	1 1/2"	4	12	45	0,07	60	0,08	100	0,12	
50	2"	4	12	45	0,07	60	0,08	100	0,12	
65	2 1/2"	4	12	45	0,07	60	0,08	100	0,12	
80	3"	4	16	50	0,15	70	0,16	110	0,23	
100	4"	8	16	50	0,15	70	0,17	110	0,23	
125	5"	8	16	55	0,15	70	0,17	110	0,23	
150	6"	8	16	60	0,16	80	0,18	110	0,23	
175	7"	8	16	65	0,17	80	0,18	120	0,25	
200	8"	8	16	65	0,17	80	0,18	120	0,25	
250	10"	12	16	70	0,18	90	0,20	120	0,25	
300	12"	12	20	70	0,31	100	0,36	130	0,43	
350	14"	12	20	75	0,31	100	0,36	130	0,43	
400	16"	16	20	80	0,34	110	0,39	140	0,46	
450	18"	16	20	80	0,34	110	0,39	140	0,46	
500	20"	20	20	80	0,34	110	0,39	140	0,46	
600	24"	20	22	80	0,40	120	0,50	140	0,56	
700	28"									
800	32"									
900	36"									
1000	40"									
1100	44"									
1200	48"									

0	ISSUED									29-03-95
REV.		DESCRIZIONE - DESCRIPTION		COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D				DATA DATE



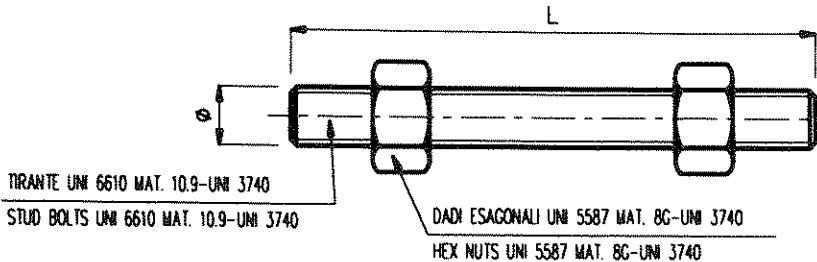
BALLESTRA S.p.A.  
MILANO (ITALIA)

TIRANTI - TIPO "B"  
STUD BOLTS - TYPE "B"

DIS. TA 50.48  
Dwg.

FOGLIO Sheet 24 DI Of  
CODICE COMPUTER Computer code TA504824

NOTE



- IL TIRANTE DEVE ESSERE FORNITO COMPLETO DI 2 DADI.
- THE STUD BOLT HAS TO BE SUPPLIED COMPLETE WITH 2 NUTS.
- FILETTATURA METRICA "ISO" A PASSO GROSSO
- METRICAL THREADING "ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 2282/2229						
			ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER
10	3/8"	4	12	65					
15	1/2"	4	12	65					
20	3/4"	4	12	70					
25	1"	4	12	70					
32	1 1/4"	4	16	75					
40	1 1/2"	4	16	75	0,18				
50	2"	4	16	80	0,19				
65	2 1/2"	4	16	80	0,19				
80	3"	4	16	85	0,20				
100	4"	8	16	85	0,20				
125	5"	8	16	90	0,21				
150	6"	8	20	95	0,39				
175	7"	8	20	100	0,39				
200	8"	12	20	100	0,39				
250	10"	12	22	110	0,52				
300	12"	12	22	110	0,52				
350	14"	16	22	115	0,55				
400	16"	16	27	130	0,97				
450	18"	20	27	130					
500	20"	20	30	140					
600	24"	20	33	150					
700	28"								
800	32"								
900	36"								
1000	40"								
1100	44"								
1200	48"								

0	ISSUED	<i>[Signature]</i>	29-03-95
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D



BALLESTRA s.p.a.  
MILANO (ITALIA)

# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

D.S.  
Dwg.

**TA 50.48**

FOGLIO  
Sheet 25 DI  
CODICE COMPUTER  
Computer code

TA504825

### NOTE

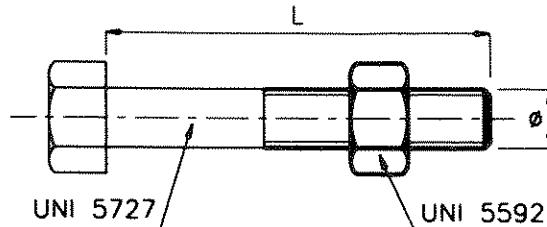
IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT

### MATERIALE - MATERIAL:

VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH



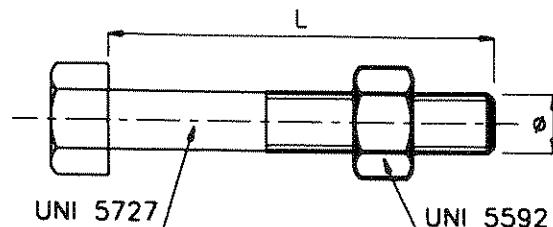
DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI	PER FLANGE TIPO: FOR FLANGES TYPE: UNI 6082/2229								
			DN COUPLING	BOLTS QUANT.	BOLTS Ø	ACC. NORMAL NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT
10	3/8"	4	10	35							
15	1/2"	4	10	35							
20	3/4"	4	10	40							
25	1"	4	10	40							
32	1 1/4"	4	12	45							
40	1 1/2"	4	12	45							
50	2"	4	12	45							
65	2 1/2"	4	12	45							
80	3"	4	16	50							
100	4"	4	16	50							
125	5"	8	16	55							
150	6"	8	16	60							
175	7"	8	16	65							
200	8"	8	16	50							
250	10"	12	16	60							
300	12"	12	20	65							
350	14"	12	20	65							
400	16"	16	20	65							
450	18"	16	20	65							
500	20"	20	20	65							
600	24"	20	22	75							
700	28"	24	22	75							
800	32"	24	27	90							
900	36"	24	27	95							
1000	40"	28	27	95							
1100	44"										
1200	48"										

0	ISSUED										29-03-95
REV.		DESCRIZIONE - DESCRIPTION			COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE			



**BALLESTRA s.p.a.**  
MILANO (ITALIA)

DIS.  
Dwg. TA 50.48





**BALLESTRA s.p.a.**  
MILANO (ITALIA)

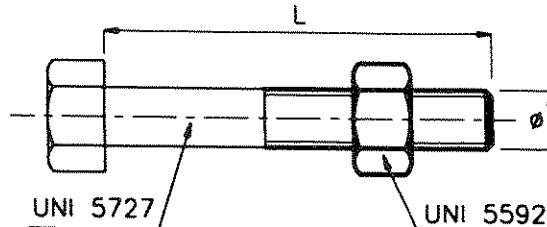
**BULLONI - TIPO "A"**

DS. TA 50.48

FOGLIO 27 DI  
Sheet 01  
CODE COMPUTER TA504827  
Computer code

#### **NOTE**

IL BULLONE DEVE ESSERE FORNITO  
COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE  
COMPLETED WITH 1 NUT



MATERIALE - MATERIAL:  
VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

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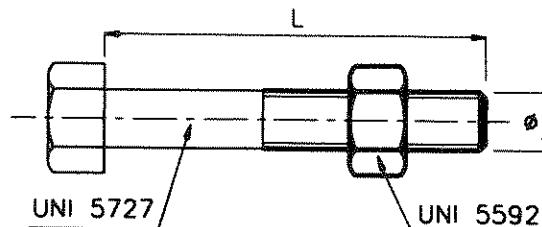


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# BULLONI - TIPO "A"

## BOLTS - TYPE "A"

DIS. TA 50.48  
Dwg. Sheet 28 Di  
CODICE COMPUTER TA504828  
Computer code



### NOTE

IL BULLONE DEVE ESSERE FORNITO COMPLETO DI 1 DADO  
THE MACHINE BOLT HAS TO BE COMPLETED WITH 1 NUT

MATERIALE - MATERIAL:

VITE - SCREW 4.6 UNI 3740  
DADO - NUT 4A UNI 3740

FILETTATURA METRICA  
"ISO" PASSO GROSSO

METRICAL THREADING  
"ISO" BIG PITCH

DN ACCOPPIAMENTO	QUANT. BULLONI	BULLONI Ø	PER FLANGE TIPO: UNI 2282/2229 FOR FLANGES TYPE: L							
			ACC. NORMAL. NORM. COUPL.	PESO CAD. WEIGHT	CON DISCO A OTTO SPECT. BLIND	PESO CAD. WEIGHT	CON ANELLO DI DRENAGGIO DRIP-RING	PESO CAD. WEIGHT	CON FILTRO TEMPORANEO TEMP. FILTER	PESO CAD. WEIGHT
10	3/8"	4	12	45						
15	1/2"	4	12	45						
20	3/4"	4	12	50						
25	1"	4	12	50						
32	1 1/4"	4	16	50						
40	1 1/2"	4	16	50						
50	2"	4	16	55						
65	2 1/2"	4	16	55						
80	3"	8	16	60						
100	4"	8	16	60						
125	5"	8	16	65						
150	6"	8	20	70						
175	7"	8	20	70						
200	8"	12	20	70						
250	10"	12	22	80						
300	12"	12	22	80						
350	14"	16	22	90						
400	16"	16	27	90						
450	18"	20	27	90						
500	20"	20	30	100						
600	24"	20	33	100						
700	28"									
800	32"									
900	36"									
1000	40"									
1100	44"									
1200	48"									

O	ISSUED				
REV.		DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D



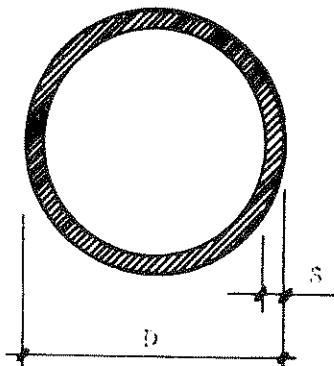
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

TUBI IN POLIPROPILENE SERIE  
FILETTABILE GAS  
POLYPROPYLENE PIPES -SERIES THAT  
CAN BE GAS THREADED

TA 50.49 .  
Poglio 1 di 1  
Rev. 0  
Data 20 Sette.78

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DN = Diametro nominale  
Nominal diameter  
D = Diametro esterno ( mm )  
Outside diameter  
S = Spessore ( mm )  
Thickness  
P = Peso per metro lineare ( kg )  
Weight per meter

INCHES	DN mm	D	S	P
1/2"	15	27,25	3,0	0,180
.3/4"	20	32,75	3,8	0,280
1"	25	33,5	4,8	0,430
1 1/4"	32	42,25	6,1	0,700
1 1/2"	40	48,25	6,9	0,900
2"	50	60,0	8,6	1,400





BALLISTRÀ S.p.A.  
MILANO (ITALIA)

DISCO IN AISI PER FLANGE CIECHE  
S.S. Disk Plate for blind flanges

TA 50.63

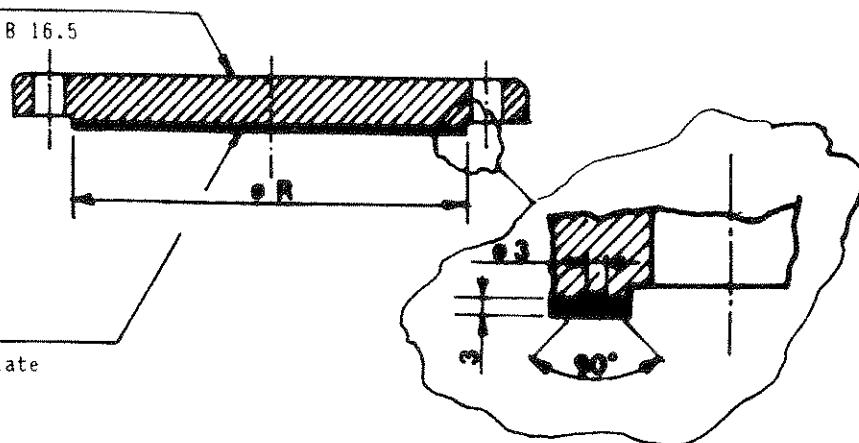
SH. 1 of 1

FLANGIA CIECA - ANSI B16.5

Blind flanges - ANSI B 16.5

DISCO IN AISI

Stainless Steel Disk Plate



DN NOMINALI Nominal Size	R	150	300	600
mm	Inch.			
15	1/2		35	
20	3/4		43	
25	1		51	
40	1 1/2		73	
50	2		92	
80	3		127	
100	4		157	
150	6		216	
200	8		270	
250	10		324	
300	12		381	
350	14		413	
400	16		470	
450	18		533	
500	20		584	
600	24		692	

NOTE: IL DISCO E' FISSATO ALLA FLANGIA CON CHIODI DI SALDATURA

The disk is fixed to the flange with welding bolts

MATERIALE: COME PREVISTO DALLA CLASSE TUBAZIONE

Material : As foreseen by the Piping Class

REV.:	0					
DATA:	21/1/86					

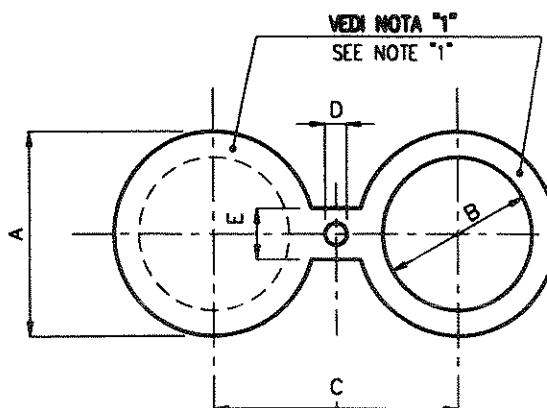
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DISCHI A OTTO-ANELLO DISTANZIATORE E DISCO CIECO PER FLANGE:**  
ANSI stds  
**SPECTACLE BLINDS-RING SPACER & BLIND DISC FOR FLANGES: ANSI stds**  
**RATING 150-300 lb - FACING FF & RF**

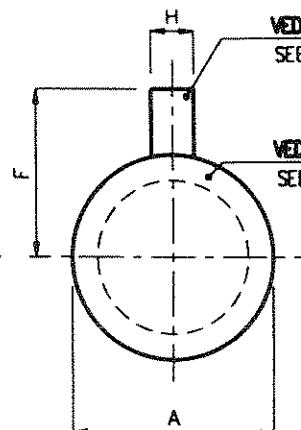
**TA 50.64**

FOGLIO Sheet 1 di 2  
CODICE COMPUTER Computer code TA5064\_1

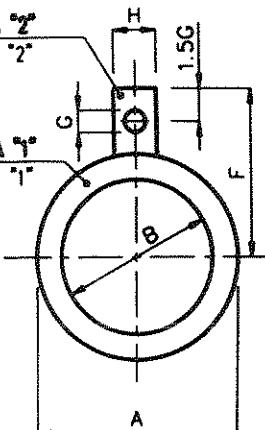
**DISCHI A OTTO**  
**SPECTACLE BLINDS**



**DISCO CIECO**  
**BLIND DISC**



**ANELLO DISTANZIATORE**  
**SPACER RING**



DN NOMINALE NOMINAL SIZE	A	B	C	D	E	F	G	H	T			
mm    inch	150	300	150	300	150	300	150	300	150	300	150	300
15 $\frac{1}{2}$ "	44	51	18	60	67	-	-	25	25	105	108	12
20 $\frac{3}{4}$ "	54	63	23	70	83	-	-	25	25	110	121	12
25 1"	63	70	29	79	89	14	18	38	38	120	124	12
40 $1\frac{1}{2}$ "	82	92	41	98	114	14	22	38	50	128	141	12
50 2"	101	108	54	121	127	17	18	50	50	140	146	12
80 3"	133	146	81	152	168	17	22	64	64	160	168	12
100 4"	171	178	108	191	200	17	22	64	64	180	190	12
150 6"	219	247	161	241	270	22	22	76	76	205	222	12
200 8"	274	305	212	298	330	22	26	76	89	235	254	20
250 10"	336	359	266	362	387	25	28	102	102	270	288	20
300 12"	406	419	314	432	451	25	32	102	102	305	324	20
350 14"	447	482	346	476	514	32	32	108	120	330	355	20
400 16"	511	536	395	540	572	32	38	108	124	362	387	20
450 18"	546	594	445	578	629	35	38	114	115	382	418	20
500 20"	603	651	496	635	686	35	38	120	120	414	453	20
600 24"	714	771	598	749	813	38	44	140	140	470	522	20

**NOTE**  
**NOTES**

- 1- LA FINITURA DOVRA' ESSERE IN ACCORDO CON LA NORMA MSS-SP6.  
FACING SHALL BE IN ACCORDANCE WITH MSS-SP6.
- 2- IL SEGNALATORE INDICA DISCO O ANELLO - TELLTALE INDICATES WHETHER A BLIND OR RING
- 3- MATERIALE COME PREVISTO DALLA CLASSE TUBAZIONE - MATERIALS AS PER PIPING CLASS

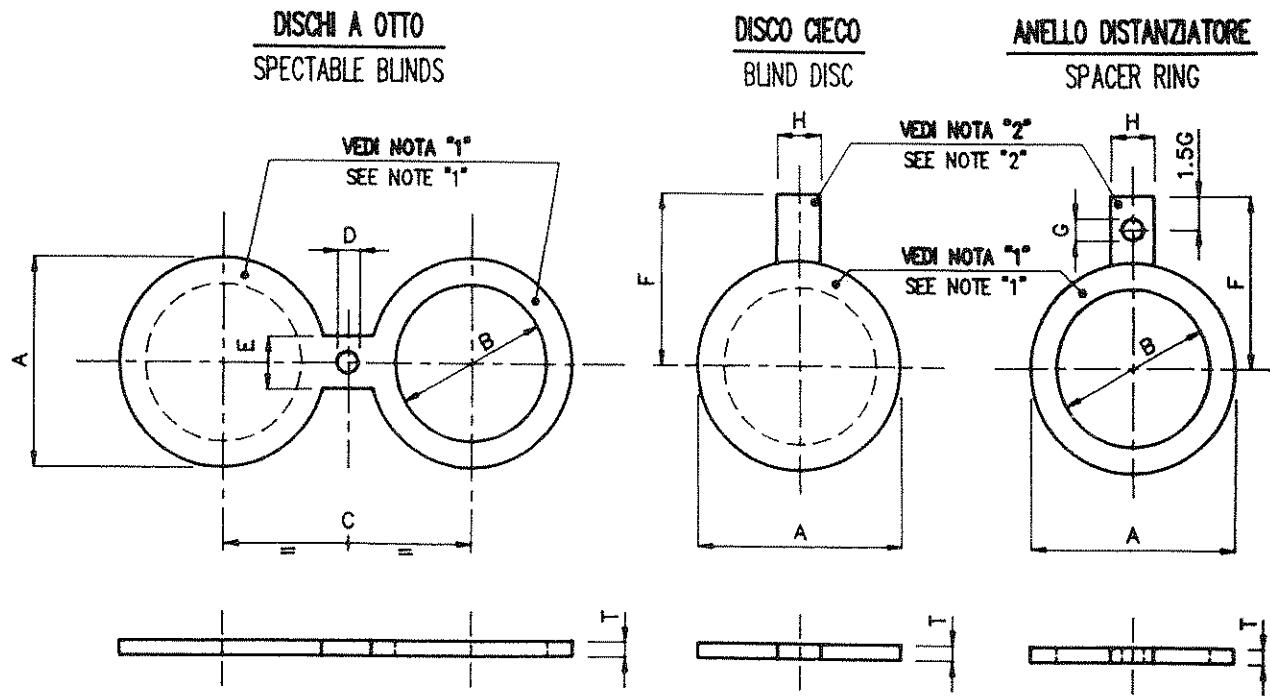
2	REVISED WHERE INDICATED	2	10-06-96
1	NOTES REVISED	1	Molteni 06-10-94
0	ISSUED	0	24-01-95
REV.	DESCRIZIONE - DESCRIPTION		
	COMP. PREP.D CONTR. CONTR.D APPR. APPR.D DATA DATE		

**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**DISCHI A OTTO-ANELLO DISTANZIATORE E DISCO CIECO PER FLANGE:  
AWWA C207 - TAB.1 CLASSE "B"- "D"-TAB.3 CLASSE "E"**  
**SPECTABLE BLINDS-RING SPACER & BLIND DISC FOR FLANGES:  
AWWA C207 - TAB.1 CLASS "B"- "D"-TAB.3 CLASS "E"**

**TA 50.64**

FOGLIO Sheet 2 DI OF 2  
CODICE COMPUTER Computer code TA5064\_2



DN NOMINALI NOMINAL SIZE	A	B	C	D	E	F	G	H	T
mm inch	CL B CLD-E	CL B-D-E	CL B-D CLE	CL B CLD-E	CL B CLD-E	CL B-D-E	CL B CLD-E	CL B-D-E	CL B-D-E
150 6	222 219	161	229 241	19 22	76	76	205	12	32 5
200 8	279 276	212	298	19 22	76	76	235	20	38 5
250 10	343 337	266	362	19 25	102	102	270	20	38 5
300 12	413 407	314	432	19 25	102	102	305	20	38 5
350 14	454 447	346	476	22 29	102	108	330	20	38 5
400 16	518 511	395	540	22 29	102	108	362	20	38 5
450 18	556 546	445	578	22 32	102	114	382	20	38 6
500 20	613 603	496	635	22 32	110	120	414	20	38 6
600 24	727 714	600	749	22 35	127	140	470	20	38 6
650 26	784 771	650	806	22 35	127	140	503	22	40 8
700 28	841 828	701	863	22 35	127	140	527	22	40 8
750 30	888 879	752	914	26 35	131	140	557	22	40 8
800 32	952 936	803	978	26 42	144	160	594	22	40 8
850 34	1003 987	854	1029	26 42	144	160	620	22	40 10
900 36	1060 1044	904	1086	26 42	144	160	648	22	40 10
950 38	1123 1107	955	1149	26 42	144	160	684	22	40 10
1000 40	1174 1158	1006	1200	26 42	144	160	708	22	40 10

**NOTE : 1- LA FINITURA DOVRA' ESSERE IN ACCORDO CON LA NORMA MSS-SP6  
NOTES : 1- FACING SHALL BE IN ACCORDANCE WITH MSS-SP6**

**2- IL SEGNALATORE INDICA DISCO O ANELLO - TELLTALE INDICATES WHETHER A BLIND OR RING**

**3- MATERIALE COME PREVISTO DALLA CLASSE TUBAZIONE - MATERIALS AS PER PIPING CLASS**

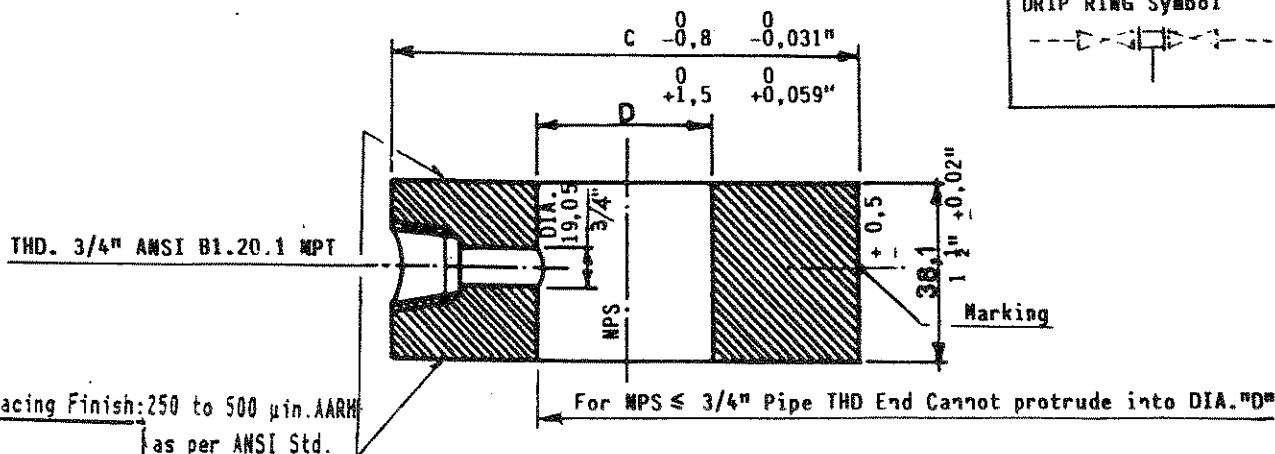
3	NOTES REVISED	<i>[Signature]</i>	<i>[Signature]</i>	06-10-94
2	ADDED SPECTABLE BLINDS FOR CLASS "E"	<i>[Signature]</i>	<i>[Signature]</i>	24-03-94
1	GENERAL REVISION	<i>[Signature]</i>	<i>[Signature]</i>	02-12-91
0	ISSUED			24-01-85
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONT.R.D	APPR. APPROD.
				DATA DATE



BALLESTRA S.p.A.  
MILANO (ITALIA)

ANELLO DI DRENAGGIO  
DRIP RING FOR FLANGES ANSI B16.5  
Classes 150-300-600 RF

TA 50.65



NPS	ANSI CLASS 150					ANSI CLASS 300					ANSI CLASS 600					
	D inches	C mm	inches	mm	pounds	kg	D inches	C mm	inches	mm	pounds	kg	C inches	mm	pounds	(*) kg
1/2"	0,83	21	1,77	45	0,93	0,42	-	-	-	-	-	-	2,01	51	1,30	0,59
3/4"	1,06	27	2,13	54	1,30	0,59	-	-	-	-	-	-	2,48	63	1,87	0,85
1"	1,34	34	2,52	64	1,67	0,76	-	-	-	-	-	-	2,76	70	2,05	0,93
1 1/4"	1,85	42	2,87	73	1,87	0,85	-	-	-	-	-	-	3,11	79	2,42	1,10
1 1/2"	1,89	48	3,27	83	2,62	1,19	-	-	-	-	-	-	3,62	92	3,35	1,52
2"	2,38	60	4,02	102	3,72	1,69	-	-	-	-	-	-	4,25	108	4,47	2,03
2 1/2"	2,99	78	4,76	121	4,85	2,20	-	-	-	-	-	-	5,00	127	5,58	2,54
3"	3,50	89	5,24	133	5,42	2,46	-	-	-	-	-	-	5,75	146	7,27	3,30
4"	4,49	114	6,73	171	8,77	3,98	7,01	178	10,07	4,57	-	-	-	-	-	
5"	5,51	140	7,84	194	9,52	4,32	8,39	213	13,81	6,27	-	-	-	-	-	
6"	6,61	168	8,82	219	10,64	4,83	9,76	248	17,53	7,96	-	-	-	-	-	
8"	8,62	219	10,87	276	15,11	6,86	12,01	305	24,23	11,0	-	-	-	-	-	
10"	10,75	273	13,27	337	20,51	9,31	14,13	359	27,97	12,7	-	-	-	-	-	
12"	12,78	324	15,98	406	31,72	14,4	16,50	419	35,02	15,9	-	-	-	-	-	
14"	14,02	358	17,84	448	39,21	17,8	19,02	483	55,95	25,4	-	-	-	-	-	
16"	15,98	406	20,12	511	50,44	22,9	21,14	537	65,20	29,6	-	-	-	-	-	
18"	18,0	457	21,50	546	52,20	23,7	23,39	594	78,43	34,7	-	-	-	-	-	
20"	20,0	508	23,74	603	55,95	25,4	25,63	651	87,67	39,8	-	-	-	-	-	
24"	24,0	610	28,11	714	72,69	33,0	30,39	772	119,38	54,2	-	-	-	-	-	

(\*) MASSES = kg. or pounds. Approximate MASSES have been indicated design purpose.

NOTES:-Materials as per piping Class.

- Material Certification: Required as per Relevant ASTM.
- For tolerances see DWG.
- Testing: Dimensional and Visual inspection.
- Marking: NPSx3/4"-Class-Material plus Type TA 50.65.
- Shipment: as per API Std.590.

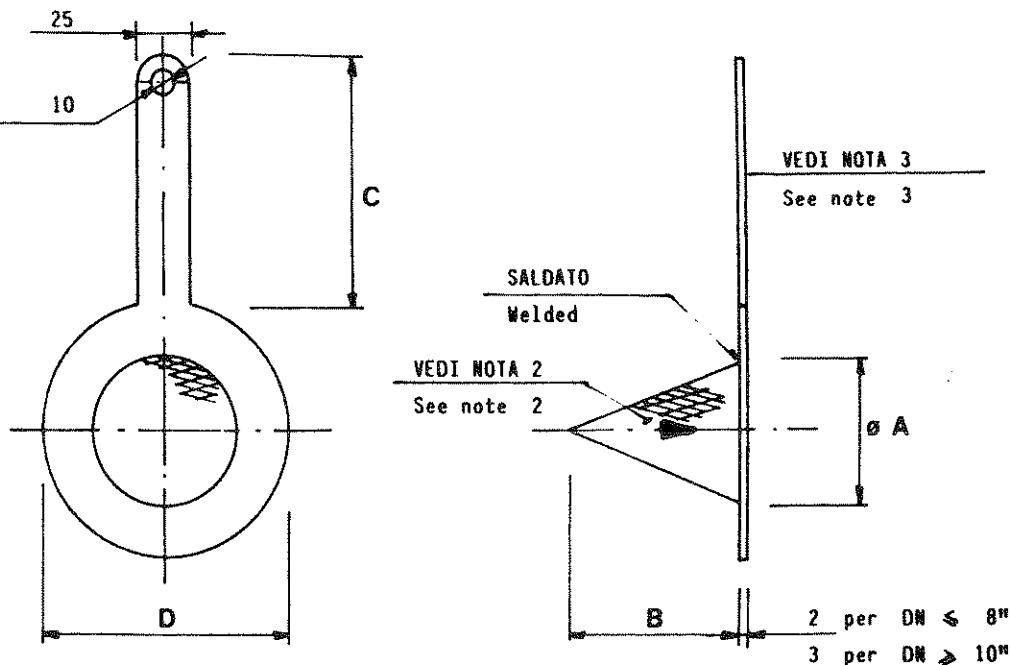
2	GENERAL REVISION	50E0	AM	10/09/93
1	ISSUED	D.A.	D.A.	1993
REV	DESCRIPTION - DESCRIZIONE	COMP.	CONTRL	APPR.

BALLESTRA S.p.A.  
MILANO (ITALIA)

FILTRO TEMPORANEO CORTO  
Short temporary strainer

TA 50.67

FT 15



# NOMIN. Nom. size	mm. inch.	A	B	C	D			
					UNI PN 6	UNI PN 16	ANSI 150#	ANSI 300#
25	1"	20	40	120	64	71	64	70
32	1 1/4"	25	60	120	76	82	73	79
40	1 1/2"	30	60	120	86	92	82	92
50	2"	40	65	120	96	107	100	110
65	2 1/2"	50	75	120	116	127	120	125
80	3"	70	90	120	132	142	135	145
100	4"	90	120	120	152	162	170	180
125	5"	115	140	130	182	192	193	213
150	6"	140	160	130	207	218	220	250
200	8"	180	220	130	262	273	275	305
250	10"	235	270	140	317	330	340	360
300	12"	280	320	140	373	385	410	420
350	14"	310	355	150	423	445	445	480
400	16"	355	400	150	473	495	510	535

NOTE GENERALI - General notes:

- 1) MATERIALI - Materials: lamiera in acc. carbonio e rete in inox 18/8, salvo se specificato diversamente nell'ordine.  
Carb. steel plate, wire inox 18/8, unless otherwise indicated on requisition.
- 2) RETE IN FILO N°16 BWG (# 1,65) IN 5 MAGLIE PER POLLICE.  
Net wire 16 BWG, 5 MESH.
- 3) MARCARE CON DIAMETRO, SERIE E TIPO DEL FILTRO.  
Mark-up with diameter, series and type of strainer
- 4) TUTTE LE DIMENSIONI SONO IN MM. -All dimensions are in mm.

2	RESTORED DIMENSIONS FOR ANSI 150# AND 300#	DR	BRUNI	16.4.93
1	DELETED DIMENSIONS FOR ANSI 150# AND 300#			15.4.93
0	ISSUED	DA/BK		18.3.85
REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D.	CONTR. CONTR.D.	APPR. APPR.D.

*Caccia  
origine*



BALLESTRA S.p.A.  
MILANO (ITALIA)

TA 50.68

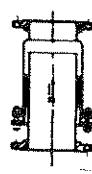
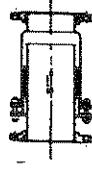
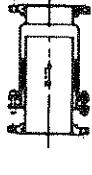
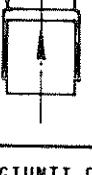
REV. 7 8 9  
Sheet 1 of 6

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# GIUNTI DI DILATAZIONE EXPANSION JOINTS

9	REVISED GC16 - GC35- ADDED SH. 6	<i>Lanni</i>	<i>All due</i>	14-2-91
8	REVISED SHEETS 1-2-3-4-5			20-12-90
7	REVISED SHEETS 2 AND 5			04-10-90

		<b>BALLESTRA S.p.A. MILANO (ITALIA)</b>	GIUNTI DI DILATAZIONE TELESCOPICI Telescopic expansion joints	TA. 50.68 Sh 2
TIPO Type	DATI TECNICI Technical data	IMPIEGO NORMALE Use		
GC 10.	 <p>REF. DWG. = ST. 46382        MAT. = CARB. STEEL        FLG. = ANSI 150# RF/AWWA        NOM. DIAM. = 3" ÷ 40"</p>	HOT AIR FOR SULPHUREX PLANTS  MAX TEMP.: 450°C		
GC 11.	 <p>REF. DWG. = ST. 46397        MAT. = AISI 304        FLG. = ANSI 150# RF        NOM. DIAM. = 3" ÷ 24"</p>	PREHEATING AIR FOR SULPHUREX PLANTS  MAX TEMP.: 700°C		
GC 12.	 <p>REF. DWG. = ST. 46070        MAT. = CARB. STEEL        FLG. = UNI PN 2.5        NOM. DIAM. = 65 ÷ 800 mm</p>	SEE GC - 10		
GC 13.	 <p>REF. DWG. = ST. 46106        MAT. = AISI 310        FLG. = UNI PN 2.5        NOM. DIAM. = 65 ÷ 600 mm</p>	SEE GC - 11		
GC 14.	 <p>REF. DWG. = ST. 46252        MAT. = CARB. STEEL        FLG. = TA. 50.22        NOM. DIAM. = 65 ÷ 1800 mm</p>	HOT AIR FOR SABIZ PLANTS  MAX TEMP.: 450°C		
GC 15	 <p>REF. DWG. = ST. 46465        MAT. = CARBON STEEL        FLG. = -----        NOM. DIAM. = 65 to 2000</p>	HOT AIR FOR SABIZ AND SULPHUREX PLANTS  MAX. TEMP. 480°C CLASS. ANSI		
GC 16	 <p>REF. DWG. = ST. 46466        MAT. = AISI 304        FLG. = -----        NOM. DIAM. = 65 TO 2000</p>	HOT AIR FOR SULPHUREX PLANTS  MAX. TEMP. 700°C CLASS. UNI		

NOTA: I GIUNTI DA GC10 A GC14 DEVONO ESSERE IMPIEGATI SOLO IN CASI PARTICOLARI  
JOINTS GC10 to GC14 HAVE TO BE EMPLOYED ONLY IN PARTICULAR CASES

ESEMPIO DI DESIGNAZIONE 100-GC 15

TF/gk	CzG/gk	TF/11	3	1.8.89	4	16/4/90	5	20.12.90	6	14-2-91	
26/8/85	14/10/86	11.11.87		A.D.		S		H		S	



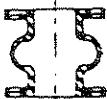
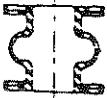
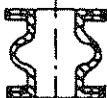
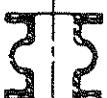
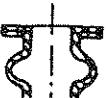
**BALLESTRA** S.p.A.  
MILANO ITALIA

GIUNTI DI DILATAZIONE IN GOMMA

Rubber expansion joints

TA. 50.68

SH 3

TIPO Type	DATI TECNICI Technical data	IMPIEGO NORMALE Use
GC 20	 <p>REF. DWG. = TA 50.82  MFR = KLEBER  TYPE = DILATOFLUX NT.1/GZ  FLG. = ANSI 150<sup>+</sup> RF  NOM. DIAM. = 1½" + 18"</p>	COOLING AIR FOR SULPHUREX PLANTS MAX TEMP.: 90°C
GC 21	 <p>REF. DWG. = TA 50.82  MFR = KLEBER  TYPE = DILATOFLUX NT.1/GZ  FLG. = UNI PN 6  NOM. DIAM. = 40 + 450 mm</p>	SEE GC - 20
GC 22	 <p>REF. DWG. = TA 50.82  MFR = KLEBER  TYPE = DILATOFLUX NT.1/GZ  FLG. = UNI PN 10  NOM. DIAM. = 40 + 450 mm</p>	SEE GC - 20
GC 23	 <p>REF. DWG. = TA 50.82  MFR = KLEBER  TYPE = DILATOFLUX NT.1/GZ  FLG. = DIN PN 6  NOM. DIAM. = 40 + 450 mm</p>	SEE GC - 20
GC 24	 <p>REF. DWG. = TA 50.82  MFR = KLEBER  TYPE = DILATOFLUX NT.1/GZ  FLG. = DIN PN 10  NOM. DIAM. = 40 + 450 mm</p>	SEE GC - 20

- ESEMPIO DI DESIGNAZIONE: 50 - GC 21

TF/gk	CW/11	<i>LH</i>	4	<i>L</i>	5	20.12.90		
26/8/85	22.8.86	4-2-88	4-10-90	<i>LH</i>				



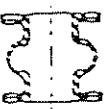
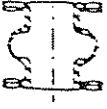
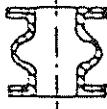
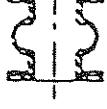
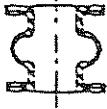
**BALLESTRA** LEADER IN RUBBER EXPANSION JOINTS  
MONDO ITALIANO

**GIUNTI DI DILATAZIONE IN GOMMA**

Rubber expansion joints

TA. 50.82

Sn 4

TIPO Type	DATI TECNICI Technical data	IMPIEGO NORCALE Use
GC 25	REF. DWG. = TA 50.82 KFR = KLEBER TYPE = DILATOFLEX KT.1/ES FLG. = UNI PN 6 NOM. DIAM. = 1 $\frac{1}{2}$ " + 18" 	PROCESS AIR FOR SULPHURIC PLANTS MAX TEMP.: 120°C
GC 26	REF. DWG. = TA 50.82 KFR = KLEBER TYPE = DILATOFLEX KT.1/ES FLG. = UNI PN 6 NOM. DIAM. = 40 + 450 mm 	SEE GC - 25
GC 27	REF. DWG. = TA 50.82 KFR = KLEBER TYPE = DILATOFLEX KT.1/ES FLG. = UNI PN 10 NOM. DIAM. = 40 + 450 mm 	SEE GC - 25
GC 28	REF. DWG. = TA 50.82 KFR = KLEBER TYPE = DILATOFLEX KT.1/ES FLG. = DIN PN 6 NOM. DIAM. = 40 + 450 mm 	SEE GC - 25
GC 29	REF. DWG. = TA 50.82 KFR = KLEBER TYPE = DILATOFLEX KT.1/ES FLG. = DIN PN 10 NOM. DIAM. = 40 + 450 mm 	SEE GC - 25

- ESEMPIO DI DESIGNAZIONE: 50 - GC 25

0		1		2	20.12.90	3						
4-10-90	16/11/90			dP	14-2-91							

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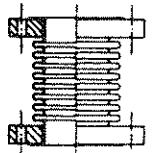
**BALLISTRÀ S.p.A.**  
MILANO (ITALIA)

GIUNTI DI DILATAZIONE A SOFFIETTO

Belows expansion joints

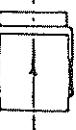
TA. 50.68

Sh 5

TIPO Type	DATI TECNICI Technical data	IMPIEGO NORMALE Use
GC 30/1	 <p>REF. DWG. = ST. 40970 MAT. = AISI 304 NOM. DIAM. = 4" + 20" (100+500)</p>	SULPHUREX PLANTS ON SO <sub>2</sub> /SO <sub>3</sub> GAS LINE WHERE THE PIPING
GC 30/2		
GC 30/3		
GC 31	<p>REF. DWG. = ST. 40971 MAT. = AISI 321 NOM. DIAM. = 4" + 20" (100+500)</p>	AS ABOVE WHERE THE PIPING
GC 32	<p>REF. DWG. = ST. 40972 MAT. = INCONEL 625 NOM. DIAM. = 4" + 20" (100+500)</p>	AS ABOVE WHERE THE PIPING
GC 33	 <p>REF. DWG. = ST. 46497 MAT. = AISI 321 NOM. DIA. = 1½" to 12" (40 to 300)</p>	FOR PROCESS PIPING CONNECTED WITH EQUIPMENT ON LOAD CELLS ASSEMBLY IN VERTICAL POSITION ONLY

- ESEMPIO DI DESIGNAZIONE: 6" - GC 31/2

TF/gk	AD/11	H					
26/8/85	16/6/88	20.12.90					

 <b>BALLESTRA S.p.A.</b> MILANO (ITALIA)		<b>GIUNTI DI DILATAZIONE TELESCOPICI</b> <i>Telescopic expansion joints</i>	TA. 50.68 Sh 6
TIPO Type		DATI TECNICI Technical data	IMPIEGO NORMALE Use
GC 34		REF. DWG. = ST. 46537 MAT. = CARBON STEEL FLG. = ----- NOM. DIAM. = 65 to 2000	HOT AIR FOR SABIZ AND SULPHUREX PLANTS  MAX. TEMP. 480°C CLASS. DIN
GC 35		REF. DWG. = ST. 46535 MAT. = 1.4301/DIN 17440 FLG. = ----- NOM. DIAM. = 65 TO 500	HOT AIR FOR SULPHUREX PLANTS  MAX. TEMP. 700°C CLASS. DIN
GC 36		REF. DWG. = ST. 46547 MAT. = A 512-TP304 FLG. = ----- NOM. DIAM. = 65 to 600	HOT AIR FOR SULPHUREX PLANTS  MAX. TEMP. 700°C CLASS. ANSI
GC 37		REF. DWG. = ST. 46548 MAT. = CARBON STEEL FLG. = ----- NOM. DIAM. = 65 TO 2000	HOT AIR FOR SABIZ AND SULPHUREX PLANTS  MAX. TEMP. 480°C CLASS. UNI

NOTA: ESEMPIO DI DESIGNAZIONE 100-GC 35

0 

14-7-91



TA 50.78

COMPUTER CODE: TA5078\_1

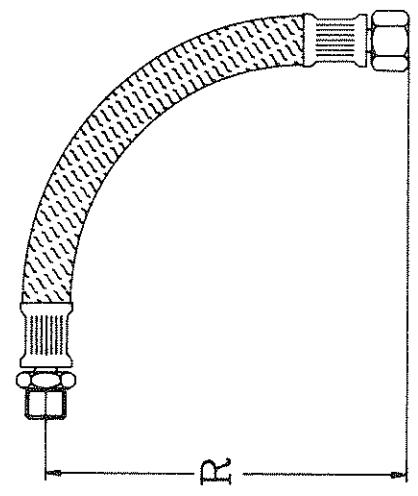
Sheet 1 of 6

# FLEXIBLE HOSES

REV.	DESCRIPTION - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE
8	REVISED SHEETS 1-6	Branco	Mumm	UO	24-02-97
7	ADDED "FH00" ON SHEET 3	Jam	B.M.	Molteni	27-10-93
6	REVISED FH16 ON SHEET 3	SP	B.M.	M.G.	15-02-93
5	REVISED FH16 MAX. OPERAT. CONDITIONS ON SHEET 3	SP	B.M.	M.G.	15-07-92
4	REVISED SHEETS 1-5-6	SP	B.M.	M.G.	29-05-92
3	REVISED MAX. OPERAT. CONDITIONS ON SHEET 2	Lanni	B.M.	M.G.	19-06-91
2	REVISED MATERIALS SHEET 2	Lanni	B.M.	M.G.	05-12-90
1	REVISED SHEETS 1-2-5 AND ADDED SHEET 6	Lanni	B.M.	M.G.	31-10-90
0	ISSUE	CE.	B.M.	M.G.	01-03-89

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0	01.03.89	1	31.10.90	2	05.12.90	3	19.06.91	4
GE.		Lanni		Lanni		Lanni		

#### LEGEND

DN = INTERNAL DIAMETER  
R = MINIMUM RADIUS  
L = MIN. LENGTH FOR STRAIGHT ASSEMBLY

#### NOTE

\* = NOMINAL DIAMETER OF  
END CONNECTIONS.  
• = EXTERNAL PIPE  
NOMINAL DIAMETER.

BALLESTRA S.p.A.  
MILANO (ITALIA)

#### FLEXIBLE HOSES

#### FLEXIBLE PIPE DESIGNATION

#### CONSTRUCTION DATA

TYPE	FLEXIBLE HOSES DESIGNATION	°C	BARS	* DN	mm INCH	8 1/4	10 1/2	15 3/4	20 1	25 1 1/4	32 1 1/2	40 2	50 2 1/2	65 3	80 4	100 5	125 6	150 8	200 10	250 12	300 14	
FH10	Corrugated AISI 316 flexible pipe without external reinforcement.	60	0.2	L	200	250	280	290	340	370	400	450	490	530	590	730	770					
					R	150	200	240	250	290	310	350	390	450	510	730	1470	1570				
FH11	Corrugated AISI 316 flexible pipe reinforced with external inox braid normal type.	60	7	L	230	250	260	290	340	370	400	450	490	530	590	730	770					
					R	150	200	240	250	290	310	350	390	450	510	730	1470	1570				
FH12	AS FH11	60	14	L	200	250	280	290	340	370	400	450	490	530	590	730	770	850				
		200	11		R	150	200	240	250	290	310	350	390	450	510	730	1470	1570	1740			
FH13	Corrugated AISI 316 flexible pipe extra heavy type, reinforced with external inox braid heavy type.	60	27	L	200	250	280	290	340	370	400	460	500	550	620	730	770					
					R	150	200	260	280	310	350	400	450	600	1180	2410	2620					

TA 50.78  
SH 2 of 6  
REV. 0

1  
2  
3  
4  
5  
6

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**BALLESTRA** s.p.a.  
MILANO (ITALIA)

#### **FLEXIBLE HOSES**

## **FLEXIBLE PIPE DESIGNATION**

TA 50.78

3 of 8

## CONSTRUCTION DATA

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BALLESTRA s.p.a.  
MILANO (ITALIA)

FLEXIBLE HOSES

ENDS DESIGNATION

TA 50.78

Sh. 4 of 6

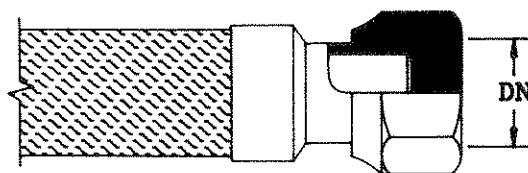
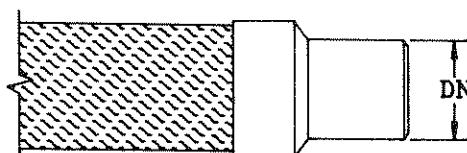
REV. 0 .. .

TYPE 1

BUTTWELDING PIPE

TYPE 4

THREADED FEMALE SWIVEL  
(FLAT SURFACE)

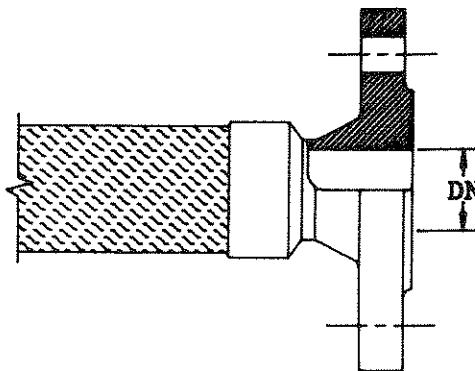
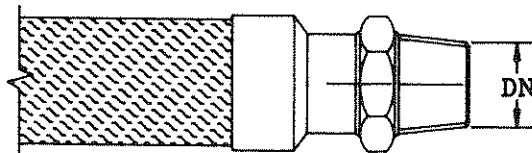


TYPE 2

THREADED MALE NIPPLE

TYPE 5

FIXED FLANGE

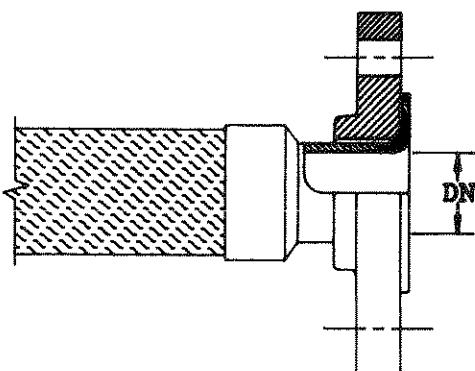
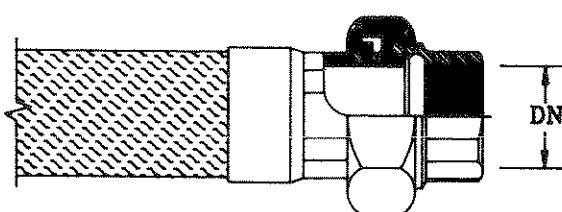


TYPE 3

FEMALE 3 PIECES JOINT

TYPE 6

LAPPED FLANGE



0	01.03.89	1		2		3		4		5		6		7
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ENDS DESIGNATION

REV. 0 1 2 3

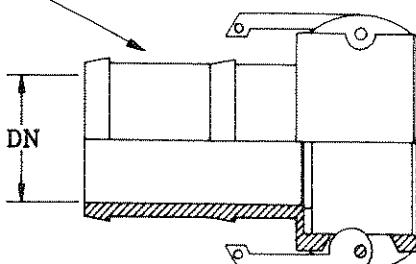
TYPE 7

CAM QUICK HOSE  
SHANK COUPLER  
FROM DN 15 TO DN 200

TYPE 10

LAPPED FLANGE FOR DOUBLE  
FLEXIBLE HOSE (FH14)

END TO BE CONNECTED TO FLEXIBLE PIPE



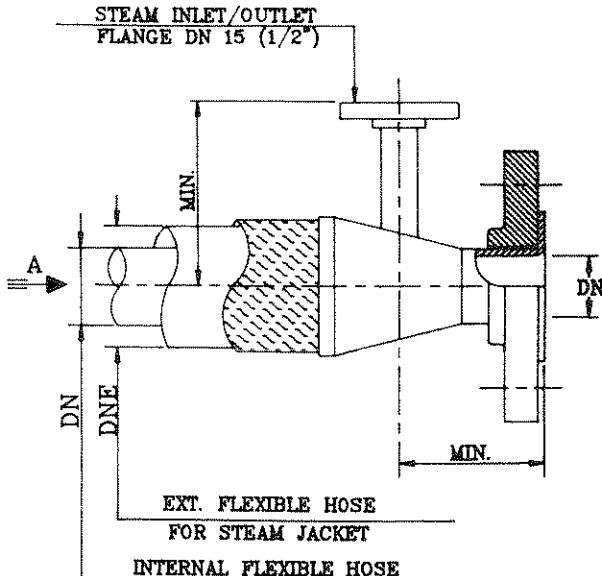
MAX OPERATING CONDITION:

Temp. 200°C - Press. 14 Kg/cm<sup>2</sup>

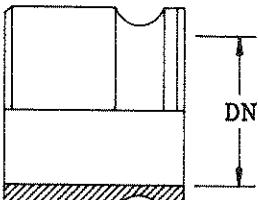
TYPE 8

QUICK WELD ADAPTOR  
FROM DN 15 TO DN 200

STEAM INLET/OUTLET  
FLANGE DN 15 (1/2")

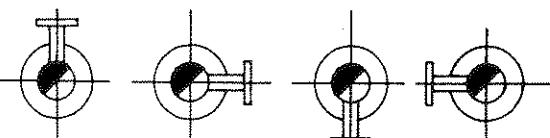


END TO BE CONNECTED TO PIPE



NOZZLE ORIENTATION

ORIENT. 1    ORIENT. 2    ORIENT. 3    ORIENT. 4



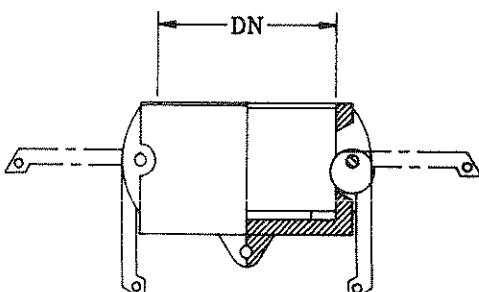
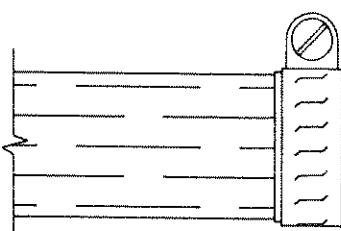
VIEW FROM "A"

TYPE 9

FREE AND WITH GALVANIZED  
HOSE CLAMP

TYPE 11

CAM QUICK CAP  
FROM DN 15 TO DN 200



MAX OPERATING CONDITION:

Temp. 200°C - Press. 14 Kg/cm<sup>2</sup>

0	01.03.89	1	14.11.89	2	31.10.90	3	29.05.92	4		5		6		7
---	----------	---	----------	---	----------	---	----------	---	--	---	--	---	--	---

GE.

BM

Lanni

J



BALLESTRA S.p.A.  
MILANO (ITALIA)

# FLEXIBLE HOSES

## ENDS DESIGNATION

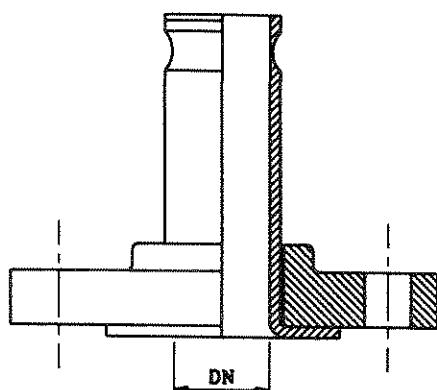
**TA 50.78**

Sh. 6 of 6

COMPUTER CODE: TAS078.35

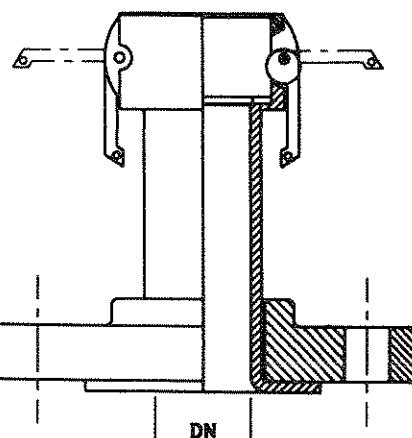
**TYPE 12**

QUICK ADAPTOR  
LAPPED FLANGE  
FROM DN 15 TO DN 200



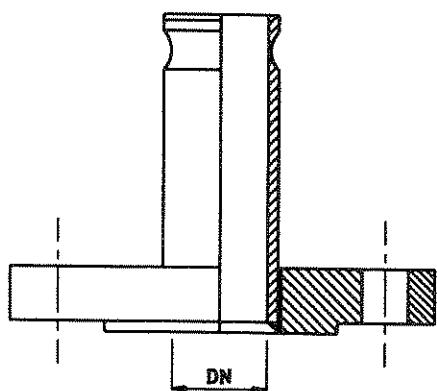
**TYPE 13**

CAM QUICK COUPLER  
LAPPED FLANGE  
FROM DN 15 TO DN 200



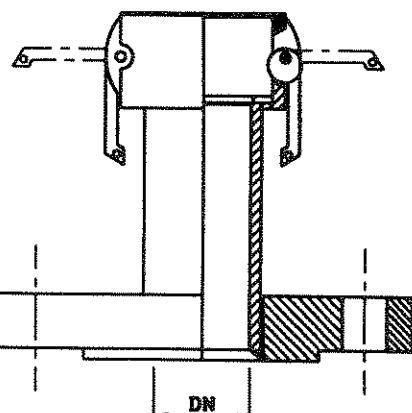
**TYPE 14**

QUICK ADAPTOR  
FIXED FLANGE  
FROM DN 15 TO DN 200



**TYPE 15**

CAM QUICK COUPLER  
FIXED FLANGE  
FROM DN 15 TO DN 200

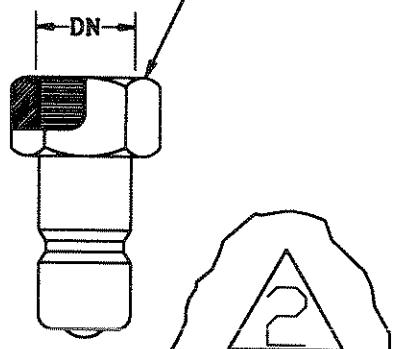


**TYPE 16**

QUICK ADAPTOR WITH VALVE  
FROM DN 1/4" TO 1"

END TO BE CONNECTED TO PIPE

MALE

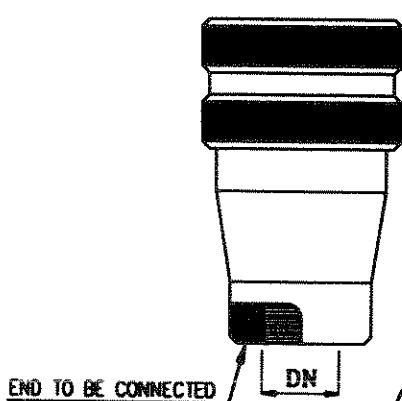


TO BE USED ONLY FOR UTILITIES (WATER AND AIR) HOSE CONNECTIONS . MAXIMUM TEMPERATURE 120°C .

**TYPE 17**

QUICK ADAPTOR WITH VALVE  
FROM DN 1/4" TO 1"

FEMALE



TO BE USED ONLY FOR UTILITIES (WATER AND AIR) HOSE CONNECTIONS . MAXIMUM TEMPERATURE 120°C .

REV.	DESCRIZIONE - DESCRIPTION	COMP. PREP.D	CONTR. CONTR.D	APPR. APPR.D	DATA DATE
2	REVISED WHERE INDICATED	Branco	Nanni	Holt	24-02-97
1	REVISED WHERE INDICATED	Lanni	B.M.	M.G.	29-05-92
0	ISSUE	Lanni	B.M.	M.G.	31-10-90

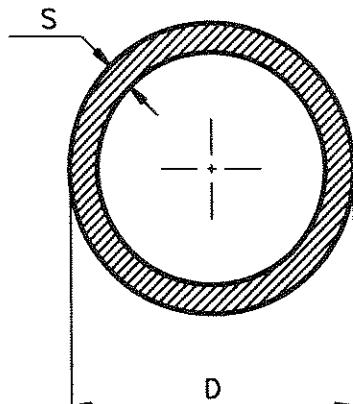
**BALLESTRA S.p.A.**  
MILANO (ITALIA)

**TUBI ACC. CARB. DA LAMIERA  
- SERIE LEGGERA -  
CARB. STEEL PIPES FROM PLATE  
- LIGHT SERIES -**

**TA 50.83**

COMPUTER CODE: TA5083

Sheet 1 of 1



**LEGENDA:**  
Legend

DN - NOMINAL DIAMETER

D - OUTSIDE DIAMETER (mm)

S - THICKNESS (mm)

P - WEIGHT (Kg/m<sup>3</sup>)

**TOLERANCES:** see SP-1419

DN	mm	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1300
	inch.	26"	28"	30"	32"	34"	36"	38"	40"	42"	44"	46"	48"	52"
D		660.4	711.2	762.0	812.8	863.6	914.4	965.2	1016.0	1066.8	1118.0	1168.0	1219.0	1321.0
S		6	6	6	6	6	6	6	6	6	6	6	6	6
P		97.6	104.8	111.9	119.7	126.9	134.7	141.6	149.7	156.6	165	171.9	180	194.5

DN	mm	1400	1500	1600	1800	1900	2000							
	inch.	56"	60"	64"	72"	76"	80"							
D		1422.0	1524.0	1626.0	1829.0	1930.0	2032.0							
S		6	6	6	6	6	6							
P		209.4	224.6	239.7	269.8	284.7	299.8							

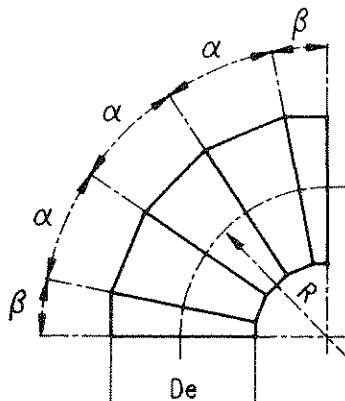
### NOTE GENERALI

3

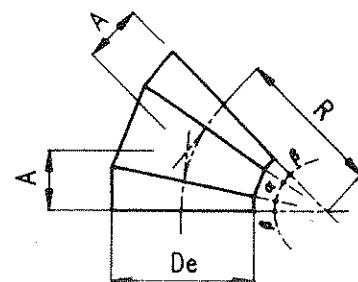
#### GENERAL NOTES

- 1) TUTTE LE DIMENSIONI SONO IN mm.  
ALL DIMENSIONS ARE IN mm.
- 2) ESEMPIO DI DESIGNAZIONE: TUBO DN 26" TA 50.83  
EXAMPLE OF DESIGNATION: PIPE DN 26" TA 50.83
- 3) MATERIALI COME DA SPECIFICHE DI PROGETTO  
MATERIALS AS FOR PIPING PROJECT SPECIFICATION
- 4) IL MATERIALE DI APPORTO DELLE SALDATURE DEVE AVERE LE STESSSE CARATTERISTICHE DEL MATERIALE DEL TUBO.  
WELD MATERIAL WILL HAVE THE SAME CHARACTERISTICS OF PIPE MATERIAL.
- 5) SPECIFICHE DI SALDATURA: SP.1406 - SP.1407.  
PIPING WELDING SPECIFICATION: SP.1406 - SP.1407.

3	REVISED WHERE INDICATED	<i>Yallu</i>	<i>Bianco</i>	<i>Bruni</i>	<i>Bruni</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>	<i>Brani</i>
2	ADDED NOTE "5"													
1	ADDED NOTE "4"													
0	ISSUED													
REV.	DESCRIZIONE - DESCRIPTION													
		COMP. PREP.D		CONTR. CONTR.D		APPR. APPR.D		DATA DATE						



90°



45°

DN nominali Nominal size		De	R	A	α	β	
mm	inch.						
650	26"	660.4	991	410	22°30'	11°15'	
700	28"	711.2	1067	442	22°30'	11°15'	
750	30"	762.0	1143	473	22°30'	11°15'	
800	32"	812.8	1219	505	22°30'	11°15'	
850	34"	863.6	1295	536	22°30'	11°15'	
900	36"	914.4	1372	568	22°30'	11°15'	
950	38"	965.2	1448	600	22°30'	11°15'	
1000	40"	1016.0	1524	631	22°30'	11°15'	
1050	42"	1066.8	1600	663	22°30'	11°15'	
1100	44"	1118.0	1676	694	22°30'	11°15'	
1150	46"	1168.0	1752	726	22°30'	11°15'	
1200	48"	1219.0	1829	758	22°30'	11°15'	
1250	50"	1270.0	1905	789	22°30'	11°15'	
1300	52"	1321.0	1981	821	22°30'	11°15'	
1350	54"	1372.0	2058	852	22°30'	11°15'	
1400	56"	1422.0	2134	884	22°30'	11°15'	
1500	60"	1524.0	2286	947	22°30'	11°15'	
1600	64"	1626.0	2438	1010	22°30'	11°15'	
1650	66"	1676.0	2514	1041	22°30'	11°15'	
1800	72"	1829.0	2743	1136	22°30'	11°15'	
2000	80"	2032.0	3048	1263	22°30'	11°15'	
2100	84"	2134.0	3201	1326	22°30'	11°15'	

- Remarks:**
- 1) Materials and thickness in accordance with piping class.
  - 2) Tolerances: see SP. 1419
  - 3) Weld material will have the same characteristics of miters material
  - 4) Piping welding specifications: SP.1406-1407-1408

2 ADDED REMARK "A"

1 ADDED REMARK "3"

0 ISSUED

REV. 13 2 20/9/93  
DESCRIZIONE - DESCRIPTION COMP. APPR. DATA  
PREP.D CONTR.D DATE  
CONTR.D APPR.D  
ISSUED 27-02-91

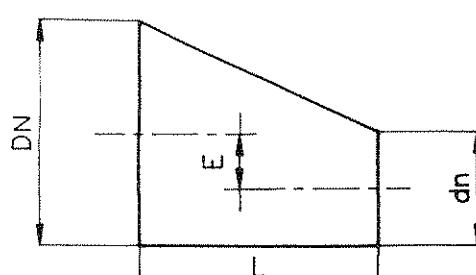
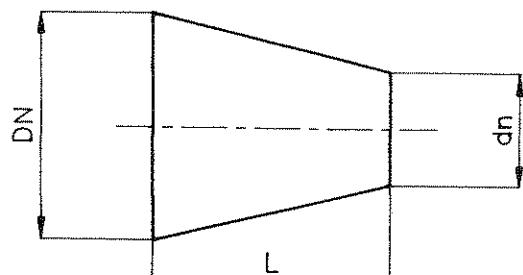


# RIDUZIONI CONCENTRICHE ED ECCENTRICHE RICAVATE DA LAMIERA ECCENTRIC & CONCENTRIC REDUCTION OBTAINED FROM STEEL SHEET

**TA 50.85**

COMPUTER CODE: TAS085

Sheet 1 of 1



DN x dn	Øe x Øe	L	E	DN x dn	Øe x Øe	L	E
650x600	660.4x609.6	610	25	1200x1100	1219x1118	50	
650x500	660.4x508		76	1200x1050	1219x1066.8	610	77
700x650	711.2x660.4		25	1200x1000	1219x1016		102
700x600	711.2x609.6	610	51	1250x1200	1270x1219		25
700x500	711.2x508		102	1250x1150	1270x1168	610	51
750x700	762x711.2		25	1250x1100	1270x1118		76
750x650	762x660.4	610	51	1300x1250	1321x1270		25
750x600	762x609.6		76	1300x1200	1321x1219	610	50
800x750	812.8x762		25	1300x1100	1321x1118		100
800x700	812.8x711.2	610	51	1350x1300	1372x1321		25
800x650	812.8x660.4		76	1350x1250	1372x1270	610	51
800x600	812.8x609.6		102	1350x1200	1372x1219		76
850x800	863.6x812.8		25	1400x1350	1422x1372		25
850x750	863.6x762	610	51	1400x1300	1422x1321	610	50
850x700	863.6x711.2		76	1400x1250	1422x1270		76
900x850	914.4x863.6		25	1400x1200	1422x1219		100
900x800	914.4x812.8		51	1500x1400	1524x1422		50
900x750	914.4x762		76	1500x1350	1524x1372	610	100
900x700	914.4x711.2	610	102	1500x1300	1524x1321		100
950x900	965.2x914.4		25	1600x1500	1626x1524	610	50
950x850	965.2x863.6	610	51	1600x1400	1626x1422		100
950x800	965.2x812.8		76	1650x1600	1676x1626	610	50
1000x900	1016x914.4	610	51	1650x1500	1676x1524		100
1000x800	1016x812.8		102	1800x1650	1829x1676		76
1050x1000	1066.8x1016		25	1800x1600	1829x1626	610	100
1050x950	1066.8x965.2	610	51	1800x1500	1829x1524		150
1050x900	1066.8x914.4		76	2000x1800	2032x1829		100
1100x1050	1118x1066.8		27	2000x1650	2032x1676	610	178
1100x1000	1118x1016	610	52	2000x1600	2032x1626		200
1100x950	1118x965.2		77	2100x2000	2134x2032	610	51
1100x900	1118x914.4		103	2100x1800	2134x1829		152
1150x1100	1168x1118		25				
1150x1050	1168x1066.8	610	51				
1150x1000	1168x1016		76				

**NOTE GENERALI**  
**GENERAL NOTES**

- 1) MATERIALE E SPESORE COME PREVISTO DALLA CLASSE TUBAZIONE.  
MATERIAL & THICKNESS AS FOR PIPING CLASS.
- 2) LE ESTREMITÀ DOVRANNO ESSERE FINITE MEDIANTE MOLATURA O TORNITURA.  
THE ENDS SHOULD BE FINISHED BY GRINDING AND TURNING

3) TUTTE LE DIMENSIONI SONO IN mm.  
ALL DIMENSIONS ARE IN mm.

4) ESEMPIO DI DESIGNAZIONE: RIDUZIONE CONCENTRICA DN 500x400  
EXAMPLE OF DESIGNATION: CONCENTRIC REDUCTION DN 500x400

5) TOLERANCES: see SP. 1419

6) IL MATERIALE DI APPORTO DELLE SALDATURE DEVE AVERE LE  
STESSE CARATTERISTICHE DEL MATERIALE DELLE RIDUZIONI.  
WELD MATERIAL WILL HAVE THE SAME CHARACTERISTICS OF  
REDUCTION MATERIAL.

7) SPECIFICHE DI SALDATURA: SP. 1406-1407-1408  
PIPE WELDING SPECIFICATIONS: SP. 1406-1407-1408



1 ADDED NOTE "6"

2 ADDED NOTE "7"

SP 28-11-91

SP 20/9/93