

ADDRESS Via Arno, 3
20029 **TURBIGO (MI)** ITALIA
PHONE 0331 871111 (3 linee r.a.)
FAX 0331 871468
WEB SITE www.turozzi.it
E-MAIL turozzi@turozzi.it

AZIENDA CON
SISTEMA QUALITA'
CERTIFICATO



COMPANY WITH
QUALITY SYSTEM
CERTIFIED

turozzi
s.r.l. **fratelli**

Raccordi in acciaio per impianti ad alta pressione
Steel fitting for high pressure plants

CLIENTE / Purchaser SAMIC S.p.A.	CERTIFICATO DI COLLAUDO Works certificate EN 10204 3.1	FOGLIO Sheet 1/5
ORDINE / Order v. descrizione	ns.DdT 1402	N. 50208 DEL / Of 10/10/2012

ITEM Item	QUANTITA' Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill. Certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
1	3	VS.ORD. 12089ORD114RO DEL 19/09/2012	6651	A105	15467/3460	RIVA
2	6	LATROLET 36-1.1/4x3/4 3000 NPT A105	KGA	A182 F11	15618.9Co	A.B.S.
3	9	LATROLET 6x1/2 3000 SW F11	KGA	A182 F11	15618.9Co	A.B.S.
4	3	LATROLET 6x1 3000 SW F11	KGA	A182 F11	15618.9Co	A.B.S.
5	3	LATROLET 6x1 6000 SW F11	92295	A105	136271/3791	ACC.VENETE
5	3	THREDOLET 12-6x3/4 3000 NPT A105	80366	A105	123162/3555	ACC.VENETE
6	3	SOCKOLET 3x2 3000 SW A105	75386	A105	25500/3471	RIVA
7	6	SOCKOLET 10x2.1/2 3000 SW A105	53804	A105	2508/2494	SIDER SCAL
8	3	SOCKOLET 2.1/2x1.1/2 3000 SW F11	47564	A182 F11	2617/2510	SIDER SCAL

ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
6651	0,190	0,870	0,210	0,015	0,009	0,050	0,100	0,010	0,015	0,015	0,180	0,021	0,001				0,375
KGA	0,114	0,470	0,530	0,011	0,004	1,100	0,110	0,490									
KGA	0,114	0,470	0,530	0,011	0,004	1,100	0,110	0,490									
KGA	0,114	0,470	0,530	0,011	0,004	1,100	0,110	0,490									
92295	0,172	1,018	0,206	0,010	0,003	0,072	0,091	0,010	0,004	0,115	0,013	0,002					0,375
80366	0,162	1,060	0,210	0,009	0,001	0,180	0,090	0,049	0,004	0,217	0,037	0,004					0,393
75386	0,185	0,910	0,180	0,010	0,007	0,060	0,090	0,010	0,018	0,210	0,021	0,001					0,378
53804	0,189	0,890	0,250	0,016	0,008	0,090	0,120	0,017	0,005	0,264	0,022	0,001					0,389
47564	0,120	0,490	0,580	0,011	0,002		0,190	0,500									

CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tens.Str. N/mm ²	S Yield Point N/mm ²	A : 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	Hydraulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
6651	504	313	33,0	58,0				161 161					
KGA	539	281	26,4	52,0				165 165			NORM. + TEMPERED	730	
KGA	539	281	26,4	52,0				165 165			NORM. + TEMPERED	730	
KGA	539	281	26,4	52,0				165 165			NORM. + TEMPERED	730	
92295	511	365	29,5	67,4				158 158					
80366	536	385	27,0	68,0				160 160					
75386	507	345	32,9	57,6				160 160					
53804	525	350	27,0	63,0				151 156					
47564	523	357	31,0	60,0				160 164			NORM. + TEMPERED	740	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Reference standard ASTM ultima edizione ASTM latest edition	NOTE / Remarks F44: W and PRE see column 15 and 16. Ord. 11090ORD142R0: Material acc. to ASME II, part A, ed. 2010, add. 2011.
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COLLAUDI INTERNI / Works Inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI / Supplementary tests Ord. 11090ORD142R0: Carried out Hardness Tests. Results have been lower than 22HRC (316L and carbon steel) and 35HRC (F44). Material do comply with NACE MR0175 / ISO 15156.	RISULT. Result. Ok
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RESPONSABILE QUALITA' / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi
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ORDINE / Order v. descrizione	ns.DdT 1402	N. 50208	DEL / Of 10/10/2012
			2/5

ITEM Item	QUANTITA' Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill. Certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
9	3	SOCKOLET 6x1.1/2 3000 SW F11	29431	A182 F11	30222/3514	A.B.S.
33	3	TEE 1.1/4 FORGING A105	72552	A105	24712/3961	RIVA
34	3	TEE 1.1/4 FORGING F11	10094	A182 F11	30640/2957	A.B.S.
35	3	TEE 3/4 3000 SW F11	16380	A182 F11	16344/3127	A.B.S.
		VS.ORD. 11090ORD142RO DEL 19/09/2012				
1	3	ELBOW 45° 1.1/2 6000 SW SA105	1T24393	A105	4672/3368	LEALI
2	12	ELBOW 90° 1 3000 NPT SA105HDG	79534	A105	19951/3764	RIVA
3	21	ELBOW 90° 3/4 6000 SW SA105	79115	A105	16326/3740	RIVA
4	21	ELBOW 90° 1 6000 SW SA105	39405	A105	1762/3981	RIVA
5	1	ELBOW 90° 1 9000 SW SA105	74839	A105	2668/3910	RIVA

ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
29431	0,121	0,450	0,540	0,011	0,001	0,150	1,170	0,490									
72552	0,180	0,910	0,220	0,014	0,010	0,040	0,070	0,010		0,019	0,180	0,026	0,001				0,366
10094	0,117	0,400	0,530	0,009	0,004	0,120	1,090	0,470									
16380	0,114	0,470	0,530	0,011	0,004	0,110	1,100	0,490									
1T24393	0,200	0,890	0,230	0,009	0,008	0,120	0,070	0,020		0,004	0,230	0,021	0,002				0,390
79534	0,200	0,880	0,250	0,013	0,010	0,060	0,110	0,010		0,017	0,180	0,031	0,002				0,390
79115	0,195	0,900	0,190	0,006	0,010	0,050	0,090	0,010		0,005	0,140	0,027	0,001				0,379
39405	0,200	0,980	0,250	0,011	0,010	0,050	0,090	0,010	0,016	0,015	0,110	0,023	0,001				0,397
74839	0,200	0,920	0,200	0,014	0,010	0,070	0,150	0,020		0,004	0,019	0,027	0,002				0,394

CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tens.Str. N/mm ²	S Yield Point N/mm ²	A : 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	Hydraulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
29431	506	391	31,0	73,0				155 155			NORM. + TEMPERED	730	
72552	506	310	33,9	57,4				159 159					
10094	487	365	35,0	75,0				166 166			NORM. + TEMPERED	730	
16380	541	283	25,4	53,0				169 173			NORM. + TEMPERED	740	
1T24393	518	338	30,0	55,0				160 160			NORMALIZED	920	
79534	512	319	31,9	55,3				154 154			NORMALIZED	920	
79115	513	318	32,6	56,8				156 156			NORMALIZED	910	
39405	507	347	31,2	59,0				160 160			NORMALIZED	920	
74839	515	327	36,4	64,0				155 155			NORMALIZED	910	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Reference standard ASTM ultima edizione ASTM latest edition	NOTE / Remarks F44: W and PRE see column 15 and 16. Ord. 11090ORD142R0: Material acc. to ASME II, part A, ed. 2010, add. 2011.
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COLLAUDI INTERNI / Works Inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI / Supplementary tests Ord. 11090ORD142R0: Carried out Hardness Tests. Results have been lower than 22HRC (316L and carbon steel) and 35HRC (F44). Material do comply with NACE MR0175 / ISO 15156.	RISULT. Result. Ok
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RESPONSABILE QUALITA' / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi fratelli
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ORDINE / Order v. descrizione	ns.DdT 1402	N. 50208	DEL / Of 10/10/2012
			3/5

ITEM Item	QUANTITA' Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mater. Certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
5	5	ELBOW 90° 1 9000 SW SA105	39405	A105	1762/3981	RIVA
6	27	ELBOW 90° 1.1/2 6000 SW SA105	78824	A105	37662/3525	RIVA
7	9	ELBOW 90° 1/2 3000 SW SA182 F44	21990	F44 UNS S31254	76775/310.7	ACC.VALBRUNA
8	9	ELBOW 90° 3/4 3000 SW SA182 F44	A27647	F44 UNS S31254	3619/98	ACC.VALBRUNA
9	2	ELBOW 90° 1 3000 SW SA182 F44	414268	F44 UNS S31254	188667/3248	ACC.VALBRUNA
9	4	ELBOW 90° 1 3000 SW SA182 F44	421193	F44 UNS S31254	6698/3566	ACC.VALBRUNA
10	1	ELBOW 90° 1.1/2 3000 SW SA182 F44	55354	F44 UNS S31254	86407/444.7	ACC.VALBRUNA
10	1	ELBOW 90° 1.1/2 3000 SW SA182 F44	72484	F44 UNS S31254	5526/297.7	BOEHLER EDEL
11	3	ELBOLET 36-1.1/4x1/2 3000 SW SA182 F316L	773458	A182 F316L/316	16742/3593	COGNE
12	3	RED. COUPLING 1x1/2 6000 SW SA105	30523	A105	23865/915.1	RIVA

ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
39405	0,200	0,980	0,250	0,011	0,010	0,050	0,090	0,010	0,016	0,015	0,110	0,023	0,001				0,397
78824	0,200	0,920	0,210	0,014	0,005	0,050	0,090	0,010		0,004	0,150	0,022	0,001				0,387
21990	0,018	0,940	0,570	0,024	0,001	18,210	20,060	6,120			0,620			0,210	0,081	43,750	
A27647	0,018	0,430	0,560	0,022	0,001	17,600	19,950	6,290			0,820			0,200	0,081	44,040	
414268	0,015	0,870	0,690	0,025	0,001	18,170	19,650	6,000			0,670			0,210	0,052	42,910	
421193	0,016	0,900	0,610	0,028	0,001	18,270	19,500	6,250			0,780			0,210	0,050	43,570	
55354	0,018	0,790	0,400	0,026	0,001	18,380	19,680	6,100			0,650			0,200	0,046	43,090	
72484	0,010	0,550	0,210	0,024	0,001	17,810	20,130	6,050			0,640			0,189	0,040	43,120	
773458	0,023	1,800	0,400	0,032	0,025	10,030	18,570	2,020						0,070			
30523	0,185	0,950	0,250	0,011	0,009	0,070	0,130	0,020		0,013	0,170	0,025	0,001				0,392

CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tens.Str. N/mm ²	S Yield Point N/mm ²	A : 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	Hydraulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
39405	507	347	31,2	59,0				160 160			NORMALIZED	920	
78824	519	322	32,0	56,0				158 160			NORMALIZED	910	
21990	689	342	59,0	74,0							SOLUT.TREATED	1140	
A27647	722	358	51,0	62,0							SOLUT.TREATED	1160	
414268	700	345	59,0	76,0							SOLUT.TREATED	1160	
421193	696	331	62,0	74,0							SOLUT.TREATED	1180	
55354	685	332	58,0	74,0							SOLUT.TREATED	1150	
72484	677	313	60,0	86,0							SOLUT.ANNEALED	1150	
773458	640	355	46,8	74,0							SOLUT.TREATED	1050	
30523	498	340	30,2	57,7				149 153			NORMALIZED	920	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Reference standard ASTM ultima edizione ASTM latest edition	NOTE / Remarks F44: W and PRE see column 15 and 16. Ord. 11090ORD142R0: Material acc. to ASME II, part A, ed. 2010, add. 2011.
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COLLAUDI INTERNI / Works Inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI / Supplementary tests Ord. 11090ORD142R0: Carried out Hardness Tests. Results have been lower than 22HRC (316L and carbon steel) and 35HRC (F44). Material do comply with NACE MR0175 / ISO 15156.	RISULT. Result. Ok
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RESPONSABILE QUALITA' / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi
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ORDINE / Order v. descrizione	ns.DdT 1402	N. 50208	DEL / Of 10/10/2012
			4/5

ITEM Item	QUANTITA' Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill. Certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
13	3	RED. COUPLING 1x3/4 6000 SW SA105	30523	A105	23865/315.1	RIVA
14	3	RED. COUPLING 1.1/2x1 6000 SW SA105	72634	A105	12856/077.1	RIVA
15	24	SWAGE 3/4x1/2 3.00 BE/TE SA234 WP316L	9416	A102 F316L21G	8674/2403.3	ACC. VALBRUNA
16	15	RED. TEE 1x3/4 6000 SW SA105	30521	A105	21225/0520	RIVA
17	3	RED. TEE 1.1/2x3/4 6000 SW SA105	75036	A105	29462/3508	RIVA
18	3	SOCKOLET 2.1/2-2x1 6000 SW SA105	71820	A105	21437/2424	A.F. TANARO
19	2	SOCKOLET 3.1/2-3x1.1/2 6000 SW SA105	70987	A105	24047/3800	RIVA
19	1	SOCKOLET 3.1/2-3x1.1/2 6000 SW SA105	73276	A105	18236/3601	RIVA
20	3	SOCKOLET 8-6x1.1/2 6000 SW SA105	73276	A105	18236/3601	RIVA
21	3	TEE 3/4 6000 SW SA105	70788	A105	12091/3811	RIVA

ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
30523	0,185	0,950	0,250	0,011	0,009	0,070	0,130	0,020		0,013	0,170	0,025	0,001				0,392
72634	0,190	0,880	0,220	0,015	0,008	0,050	0,120	0,010		0,020	0,180	0,025	0,001				0,382
9416	0,014	1,490	0,620	0,028	0,030	10,210	16,800	2,000						0,062			
30521	0,195	0,960	0,240	0,011	0,009	0,070	0,130	0,020		0,002	0,170	0,030	0,001				0,401
75036	0,185	0,900	0,230	0,011	0,006	0,050	0,080	0,010		0,015	0,200	0,023	0,001				0,373
71820	0,185	0,850	0,260	0,013	0,013	0,050	0,090	0,010		0,002	0,140	0,005	0,001				0,300
70987	0,180	0,890	0,220	0,012	0,008	0,060	0,140	0,020	0,019	0,019	0,170	0,027	0,003				0,379
73276	0,190	0,900	0,210	0,009	0,010	0,040	0,080	0,010		0,013	0,180	0,023	0,001				0,376
73276	0,190	0,900	0,210	0,009	0,010	0,040	0,080	0,010		0,013	0,180	0,023	0,001				0,376
70788	0,180	0,870	0,250	0,009	0,010	0,050	0,090	0,010		0,017	0,180	0,026	0,002				0,364

CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tens. Str. N/mm ²	S Yield Point N/mm ²	A : 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	H _{yd} raulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
30523	498	340	30,2	57,7				149 153			NORMALIZED	920	
72634	506	314	33,0	57,7				154 154			NORMALIZED	920	
9416	674	469	48,0	68,0							SOLUT. TREATED	1050	
30521	510	346	28,0	56,0				160 160			NORMALIZED	910	
75036	506	314	33,0	57,7				160 160			NORMALIZED	920	
71820	500	311	34,0	60,0				147 149			NORMALIZED	910	
70987	408	310	33,5	57,0				150 150			NORMALIZED	920	
73276	509	316	32,8	57,3				160 160			NORMALIZED	920	
73276	509	316	32,8	57,3				160 160			NORMALIZED	920	
70788	495	305	33,9	59,2				157 157			NORMALIZED	920	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Reference standard ASTM ultima edizione ASTM latest edition	NOTE / Remarks F44: W and PRE see column 15 and 16. Ord. 11090ORD142R0: Material acc. to ASME II, part A, ed. 2010, add. 2011.
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COLLAUDI INTERNI / Works Inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI / Supplementary tests Ord. 11090ORD142R0: Carried out Hardness Tests. Results have been lower than 22HRC (316L and carbon steel) and 35HRC (F44). Material do comply with NACE MR0175 / ISO 15156.	RISULT. Result. Ok
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Steel fitting for high pressure plants

CLIENTE / Purchaser SAMIC S.p.A.	CERTIFICATO DI COLLAUDO Works certificate	EN 10204 3.1	FOGLIO Sheet
ORDINE / Order v. descrizione	ns.DdT 1402	N. 50208 DEL / Of 10/10/2012	5/5

ITEM Item	QUANTITA' Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill. Certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
22	3	TEE 1 3000 NPT A105HDG VS.ORD. 12079ORD111RO DEL 24/09/2021	30521	A105	21225/3528	RIVA
1	4	PIPE/NIP. 3/8x100 S.80 P x ISO7 R WPB	8962	A106/B	3430/887.4	TUBOS REUNIDOS
2	1	PIPE/NIP. 1/2x100 S.80 PE/TE WPB	20980	A106/B	12650/942.4	Z.PODBREZOVA
3	1	PIPE/NIP. 1/2x150 S.80 PE/TE WP11	3286	A335 P11	84086/910.5	PIETRA
3	1	PIPE/NIP. 1/2x150 S.80 PE/TE WP11	906834	A335 P11	5063/790.5	DALMINE

ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
30521	0,195	0,960	0,240	0,011	0,009	0,070	0,130	0,020		0,002	0,170	0,030	0,001				0,401
8962	0,150	0,650	0,240	0,012	0,001	0,100	0,150	0,040		0,001	0,250						0,320
20980	0,140	0,670	0,200	0,012	0,010	0,090	0,050	0,020	0,001	0,005	0,180		0,001				0,285
3286	0,100	0,340	0,570	0,007	0,004	0,130	1,110	0,500									
906834	0,140	0,480	0,580	0,010	0,002	0,120	1,180	0,490									

CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tens.Str. N/mm ²	S Yield Point N/mm ²	A : 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	Hydraulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
30521	510	346	28,0	56,0				160 160			NORMALIZED	910	
8962	480	320	41,0		OK		OK	145 147					
20980	502	395	41,2		OK		207MPa	149					
3286	510	380	38,0			OK	2500PSI				NORM. & TEMPERED	720	
906834	659	357	33,2			OK	2500PSI				NORM. & TEMPERED	750	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Reference standard ASTM ultima edizione ASTM latest edition	NOTE / Remarks F44: W and PRE see column 15 and 16. Ord. 11090ORD142R0: Material acc. to ASME II, part A, ed. 2010, add. 2011.
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COLLAUDI INTERNI / Works Inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI / Supplementary tests Ord. 11090ORD142R0: Carried out Hardness Tests. Results have been lower than 22HRC (316L and carbon steel) and 35HRC (F44). Material do comply with NACE MR0175 / ISO 15156.	RISULT. Result. Ok
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RESPONSABILE QUALITA' / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi fratelli
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