

Abnahmeprüfzeugnis / Inspection certificate
 nach / according to EN 10204-3.1

Besteller / purchaser : **DELTA GmbH** Bestell-Nr. / order No.: **2024-PO-200** Datum / date: **23.09.2024**

Werks-Auftrags-Nr. / works order No.: **2091523 Pos.1** Abteilung / department **QM/Li** Datum / date: **06.12.2024**

Anzahl / quantity	Schmelzen-Nr. heat-no.	Erzeugnisform / product
2	19/05951 005000 41100 17/75437 5023908 3007 230925 282968	Reflexanzeiger R100-RAV947/1 2xVI LF2 c/c=762mm VL=493mm
NPS	CLASS	Werkstoff / material
2"	300	A350 LF2

Prüfung nach / test according to IST 06.2.K

Festigkeitsprüfung Shell test	77 bar	Medium: Wasser medium: water
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Bauprüfung Contraction Approval	Besichtigung und Abmessung ergaben keine Beanstandung / visual and dimensional inspection, no complaint. Armaturenzeichnung entspricht DIN EN 19 / valves and gauges type-marked to DIN EN 19
Kennzeichnung Marking	Prüf-Nr. Certificate No. VC24-01061 Test No.
Prüfergebnis Test result	Die durchgeführten Prüfungen zeigten keine Undichtheiten. The tests carried out did not reveal any leakage.

KLINGER SCHÖNEBERG GmbH



i. V. P. L.

Der Werkssachverständige / Technical Responsible



Quality management
system certificate Nr.
50 100 12554

CERTIFICATO NR. VC24-01061
CERTIFICATE NO.
DEL / OF 05/12/2024

CLIENTE KLINGER SCHOENEBERG GmbH
CUSTOMER
HEIDELBERGER STR. 3
76676 GRABEN-NEUDORF
DE


DATE 05/12/24
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Ns REF ODV24-01906
DDT No.

POS. ITEM	Q.TA' Q.TY	ARTICOLO ARTICLE	DESCRIZIONE DESCRIPTION	RIF. ORD. CLI. YR. ORDER	CLASSE RATING	PR. IDRAULICA HYDR. TEST - bar	PR. PNEUMATICA PNEUMAT. - TEST	SEAT TEST
20000	2,00	4BA06C654HB1	IND.R100-RAV947/1 LF2 2xVI 2" 300RF + AB18 3/4"	6077497 dated 01/10/24		77		

TAG : RU0001A-02, RU0001B-02

30000	1,00	4AA637111D40	IND.R25-D FS/H VII DN20 PN40 +ABL12	6077497 dated 01/10/24		38		
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Pos. Item	Descrizione Description	Materiale Material	Colata Heat	Codice Heat Code	C %	SI %	Mn %	P %	S %	Cr %	NI %	Mo %	TI %	Snerv. Yel. Poi. 0,2% N/mm2	Rottura Tensile Strength N/mm2	Allung. Elongat. %	Strizione Reduct. od Area %	Durezza Hardness HB		
20000	TAPPO PREMIBOSSOLO LF2 AB 18	A350 LF2	19/05951	19/05951	0,200	0,240	0,940	0,012	0,010	0,080	0,040	0,010	0,016	0,000	0,000	356,0	516,0	28,9	55,9	0,0
20000	TAPPO T.E. LF2 1/2" NPT	LF2	005000	L500	0,191	0,219	0,909	0,013	0,010	0,106	0,243	0,055	0,000	0,000	0,000	345,0	550,0	30,0	51,0	165,0
20000	TAPPO T.E. LF2 3/4" NPT	105/LF2	41100	Y10	0,185	0,210	1,020	0,021	0,006	0,155	0,030	0,006	0,000	0,000	0,000	321,0	514,0	28,0	46,0	148,0

NOTE / REMARKS	ENTE COLLAUDATORE INSPECTION AGENCY	Klinger Italy Srl	
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* 3.1 certificate for materials in the original are available at Klinger Italy srl

* We certify that the material conforms to the order

Hydraulic test in according to IST 06.2.K



Quality management
 system certificate Nr.
 50 100 12554

CERTIFICATO NR.	VC24-01061
CERTIFICATE NO.	
DEL / OF	05/12/2024

CLIENTE KLINGER SCHOENEBERG GmbH
CUSTOMER

DATE 05/12/24
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HEIDELBERGER STR. 3
 76676 GRABEN-NEUDORF

Ns REF ODV24-01906
DDT No.

DE

QTY	DESCRIPTION	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
20000	COR.RUB.A105 AB18 1/2"NPTMx3/4"NPT F	105/LF2	1775437	O-AH	0,185	0,220	0,960	0,015	0,010	0,150	0,080	0,010	0,017	0,000	0,000	319,0	514,0	32,5	56,8	155,0	
20000	FRONTALE FORATO A105/LF2 75X20 VI	A105-LF2	5023908	O-AC	0,187	0,235	1,023	0,011	0,006	0,080	0,156	0,032	0,000	0,000	0,000	390,0	546,0	35,0	66,0	0,0	
20000	FLANGIA LF2 BLIND 2" ANSI 300 RF	A350/LF2	3007	3007	0,180	0,204	1,178	0,013	0,008	0,115	0,089	0,018	0,018	0,000	0,000	343,9	496,9	35,3	57,0	147,0	
20000	CORPO RAV PERNO D.26,5 A105 M38x1/2"	105/LF2	230925	F-NH	0,180	0,210	1,180	0,013	0,003	0,180	0,110	0,030	0,000	0,000	0,000	326,0	510,0	43,4	77,1	161,0	
20000	CORPO LIV.38MM LF2 2 X VI 1/2"R	A350 LF2	19/05951	19/05951	0,200	0,240	0,940	0,012	0,010	0,080	0,040	0,010	0,016	0,000	0,000	356,0	516,0	28,9	55,9	0,0	
20000	FLANGIA LIBERA A105/LF2 RAV V.I.	A105/LF2	282968	282968	0,188	0,270	0,990	0,007	0,002	0,090	0,090	0,030	0,120	0,000	0,000	354,0	518,0	30,5	65,0	155,0	
20000	PERNO RAV LF2 1/2"NPT GR1/023/P	A350 LF2	19/05951	19/05951	0,200	0,240	0,940	0,012	0,010	0,080	0,040	0,010	0,016	0,000	0,000	356,0	516,0	28,9	55,9	0,0	
30000	TAPPO PREMIBOSSOLO C40/C45 AB 12	C45	585850	850	0,470	0,170	0,660	0,006	0,012	0,130	0,080	0,014	0,000	0,000	0,000	669,0	790,0	13,0	52,0	234,0	
30000	TAPPO PREMIBOSSOLO C40/C45 AB 18	C43	E01241901	901	0,430	0,180	0,650	0,019	0,027	0,130	0,100	0,020	0,000	0,000	0,000	712,0	726,0	11,0	0,0	162,0	

NOTE / REMARKS	ENTE COLLAUDATORE	Klinger Italy Srl
	INSPECTION AGENCY	



KLINGER Italy Srl
 SIMONA DALMA
 Quality Assistant

* 3.1 certificate for materials in the original are available at Klinger Italy srl
 * We certify that the material conforms to the order
 Hydraulic test in according to IST 06.2.K

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 fratelli

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

CLIENTE / Purchaser KLINGER ITALY S.r.l.	CERTIFICATO DI COLLAUDO <i>Works certificate</i>	EN 10204 3.1	FOGLIO Sheet
ORDINE / Order 1934	ns.DdT 1076	N. 67831	DEL / Of 14/11/2024
			1/1

ITEM Item	Q.TA' Q.ty	DESCRIZIONE / Description	COD.COLATA Heat Code	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill Certificate	RIF.INT. Record	ACCIAIERIA / FORNITORE Steel plant / Supplier
1	100	VS.ORD. 1934 DEL 12-11-2024 TAPPO/T.ESAG. 3/4 NPT F316L	DP83	272143	A182 F316L/316	072946/2017	2959.3	VALBRUNA - Italy
2	50	TAPPO/T.ESAG. 1/2 NPT LF2	L500	005000	A350 LF2	047792	1255.1	RODACCIAI - Italy

ANALISI CHIMICA - Chemical Analysis

COD.COLATA Heat Code	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	W %	C.E. %	PRE %
DP83	0,012	1,410	0,580	0,029	0,028	10,000	16,740	2,020						0,060			
L500	0,191	0,909	0,219	0,013	0,010	0,243	0,106	0,055		0,003	0,345	0,021	0,003			0,415	

COD.COLATA Heat Code	Fe %	Co %	Ta %	Sn %	Zn %	Pb %	Zr %	Ca %	B %	%	%	%	Ferrite %	Grain size ASTM E112
DP83														
L500														

CARATTERISTICHE MECCANICHE - Mechanical Test

COD.COLATA Heat Code	R Tens.Str. N/mm2	S Yield Point N/mm2	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
DP83	652	440	48,0	65,0							SOLUT. TREATED	1050	
L500	550	345	30,0	51,0				165 168	70 144 37	-46	NORMALIZED	900	

NATURA DEL MATERIALE / Kind of material Acciaio elaborato al forno elettrico Steel made by electric furnace	NORMA DI RIFERIMENTO Referenced standard Material: ASTM /ASME latest editions. Dimensions: ASME B16.11, MSS SP83-95-97, ASTM A733 latest editions.	NOTE / Remarks
COLLAUDI INTERNI / Works inspection Dimensionale/Visivo Dimensional/Visual	RISULT. Result. Ok Ok	COLLAUDI SUPPLEMENTARI /Supplementary tests RISULT. Result.
RESPONSABILE QUALITA' / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi fratelli

PRODUZIONE RACCORDI E COMPONENTI PER IMPIANTISTICA INDUSTRIALE PETROLCHIMICA

Cliente / Purchaser: 000799 KLINGER ITALY SRL VIALE DE GASPERI 88 20017 RHO (MI) (IT)	Certificato di Collaudo Numero documento 475 Data documento 19/07/2016 Work Certificate EN 10204 3.1
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Pos.	Descrizione	Quantità	Sigla	Colata	Materiale	Acciaiera
10	TAPPO MTE 3/4 NPT SA105/LF2	30,000	Y10	41100	ASTM A105/LF2	ASA

Rif. Vs. Ordine : 1.145/OAC

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ce	Temp
0,185	1,020	0,210	0,021	0,006	0,030	0,155	0,006	0,000	0,004	0,059	0,030	0,003	0,000	0,000	,393	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R	Y	A	C	BENDIN	FLATTENING	HYDRAULIC	HARDNESS	IMPACT	TEMP	STATO FORN.
TENSILE STRENGTH	YIELD POINT	ELONGATION %	REDUCTION OF AREA %	TEST	TEST	TEST	TEST	TEST	TEST	
n / nmq.	n / nmq.									
514,00	321,00	28,000	46,000	0,000	0,000	0,000	0,000	48 50 52	-46,0	NORMALIZ

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

IL MATERIALE A 350 LF2 CL.1 / A333G6 IN ACCORDO MR 0103 "STEEL MADE BY ELECTRIC FURNACE" ASTM-ASME II PART.A ED 2011a

Pos.	Descrizione	Quantità	Sigla	Colata	Materiale	Acciaiera
20	TAPPO MTE 3/4 NPT F316L	30,000	E6	359570	A182 F316L	OLARRA

Rif. Vs. Ordine : 1.145/OAC

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ce	Temp
0,021	1,680	0,410	0,035	0,023	10,05	16,55	2,030	0,000	0,000	0,000	0,000	0,000	0,000	0,025	,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R	Y	A	C	BENDIN	FLATTENING	HYDRAULIC	HARDNESS	IMPACT	TEMP	STATO FORN.
TENSILE STRENGTH	YIELD POINT	ELONGATION %	REDUCTION OF AREA %	TEST	TEST	TEST	TEST	TEST	TEST	
n / nmq.	n / nmq.									
595,00	481,00	48,000	73,000	0,000	0,000	0,000	187,00		0,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

F316/F316L ASTM . "STEEL MADE BY ELECTRIC FURNACE" - ASME II PART. A ED.2013 -IN ACC. NACE MR 01.75/03 .

Pos.	Descrizione	Quantità	Sigla	Colata	Materiale	Acciaiera
10	NT A106 1/2 S80 L70 NPTxNPT ^	50,000	G1	14898	ASTM A106 GR.B	ZELEZIARNE

Rif. Vs. Ordine :

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ce	Temp
0,140	0,490	0,220	0,008	0,005	0,070	0,050	0,020	0,002	0,006	0,190	0,020					

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R	Y	A	C	BENDIN	FLATTENING	HYDRAULIC	HARDNESS	IMPACT	TEMP	STATO FORN.
TENSILE STRENGTH	YIELD POINT	ELONGATION %	REDUCTION OF AREA %	TEST	TEST	TEST	TEST	TEST	TEST	
n / nmq.	n / nmq.									
511,00	421,00	31,300	41,000							

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

Dichiarazione di Conformità


Garbagnate Monastero, li 26/10/2017

<i>Cliente: Klinger Italy srl.</i>	<i>Codice Cliente: C0141</i>
<i>Ordine N°: 17 02960</i>	<i>Ordine int. O.M.R.: 155</i>
<i>Disegno N°: 35101104</i>	<i>DDT N°: 479 del 26/10/2017</i>
	<i>N° Pezzi: 2409</i>

<i>Materiale: A105LF2</i>	<i>Colata: 75437</i>	<i>Marcatura: KLINGER ABK18 O AH KLINGER A105 LF2</i>
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Dichiariamo che il materiale fornito a fronte dell'ordine in oggetto è conforme ai requisiti dell'ordine e delle relative norme

I controlli visivi e dimensionali sul prodotto hanno dato esito soddisfacente

O.M.R. S.r.l.
Il responsabile CQ

Francesco Colombo

RAIMCO.TERM.

Via Bachelet 19, 20013, Magenta (MI) - Tel: 02/97002264 - e-mail: laboratorio@raimco.com

CERTIFICATO DI CONFORMITA'

Cliente:	O.M.R. S.R.L.		
Ordine/DDT:	430	Data DDT.:	09/10/17
Particolare:	CORPO RUB. MASC.	PZ./Kg.:	776
Trattamento Richiesto:	NORMALIZZAZIONE		
Caratt. Richieste:	//		
Acciaio:	A105	Colata:	75437
Codice Articolo:	35101103030	Commessa:	//

CARATTERISTICHE RILEVATE AL COLLAUDO

Durezza:
In superficie:
A cuore:
Microdurezza:
Profondità durezza efficace:
Caratteristiche strutturali:
Struttura in superficie:
Struttura a cuore:
Altre caratteristiche:
Note:

RAIMCO.TERM.SRL

CODICE FISCALE E PARTITA IVA: 09805060960 / PEC: RAIMCO@PEG.IT / NUMERO REA: MI - 2114437

CAPITALE SOCIALE: € 10.000 INTERAMENTE VERSATO

WWW.RAIMCO.COM





Laboratorio T.O.S.I. s.r.l.



Tecnici Organizzati al Servizio delle Imprese

Sede Legale e Unità Operativa: 20025 Legnano (MI) - Via Pisanone, 46
Tel. 0331.549631 / 0331.456119 - Fax 0331.470141 / 0331.451616

Internet: www.laboratoriotosi.it - E-mail: info@labtosi.it - P.IVA e C.F. 12805730152

Cliente: O.M.R. srl Ordine n° # del # Rapporto di prova n° 17P3395
Customer: via Europa, 13 Order no. of Test report no.
Garbagnate Monastero
Bolla n° 458 del 18/10/17 Data 07/11/17
Delivery note of date
Colata n° 75437 Materiale ASTM A 105 Foglio 1 di 1
Heat no. Material ASTM A 360 LF2 cl.1 page of

Materiale ricevuto In data: <u>19/10/17</u> Material received on		Prove eseguite in data: <u>07/11/17</u> Tests date	
Macchina di prova	T86 Zwick/Roell	X	T75 Zwick 450J
	T2 Brinell Wolpert		T5 Mohr & Federhaff 100KN
Test Machine	T3 Tinius Olsen 358J		T6 Mohr & Federhaff 600KN
		X	T95 Lonos Test TT1000
Q.tà prove Tests qty	Descrizione delle prove richieste e del materiale Required tests and material description		
	<u>Corpo GR.RUB.AB18-3/4, sample mark N3389</u>		
1	Tensile test at room temperature, according to ASTM E8/E8M-16a (3389-1)		
3	Charpy V Notch impact test at -46°C, according to ASTM E23-16b (3389-2)		
Contrassegno o n° provetta Specimens no. or marks		Valori richiesti - Required	
n°	Contrassegno	Temp. °C	Snerv./Scost. Y.stress/strength Rs N/mm²
	N3389	rt -46	>=250
			Rottura Tensile strength Rm N/mm²
			>=485
			Allungamento Elongation A %
			>=22
			Strizione Red. of area Z %
			>=30
			Resilienza KV -Impact test KV Unitaria - Single J Media - Average J
			>=27 (*)
			Durezza Hardness HBW
			Piega Bend α/D
Prov. n° Specimens no	Forma Shape De mm X mm Di	Sez. Section mm²	Temp. °C
3389-1	Ø12,42	121,15	rt
3389-2	10,0 x 10,0		-46
			Rp0,2% N/mm²
			308
			Rm N/mm²
			495
			A %
			34
			Z %
			71
			Unitaria - Single J
			28
			Media - Average J
			28 50 35,3
			Durezza HBW
Osservazioni: Remarks: (*) customer required			
I risultati del rapporto di prova si riferiscono ai soli campioni testati Test report values relate to the tested specimens only			
Ente Autorizzato Authorized Inspector <u>O.M.R. s.r.l.</u> VERIFICATO	Esecutore Examiner <u>B...</u>	Responsabile Laboratorio Laboratory Responsible <u>...</u>	

Questo documento non può essere riprodotto parzialmente senza autorizzazione scritta del Laboratorio T.O.S.I. s.r.l.

Dichiarazione di Conformità

Garbagnate Monastero, li 01/07/2024

<i>Cliente: Klinger Italy srl.</i>	<i>Codice Cliente: C00038</i>
<i>Ordine N°: ODA24-00783 del 06/05/2024</i>	<i>Ordine int. O.M.R.: 2400113</i>
<i>Disegno N°: 40101306</i>	<i>DDT N°: 2400165 del 01/07/2024</i>
	<i>N° Pezzi: 500</i>

<i>Materiale: A105LF2</i>	<i>Colata: 5023908</i>	<i>Marcatura: KLINGER A105LF2 O-AC VI</i>
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I controlli visivi e dimensionali sul prodotto hanno dato esito soddisfacente

*O.M.R. S.r.l.
Il responsabile CQ*

Francesco Colombo



CERTIFICATO DI COLLAUDO - INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION - ABNAHMEPRÜFZEUGNIS

N° 695326
DATE: 01/02/2024

Acciaierie Venete Spa S.S. € 126.000.000 i.v. C.F. e P.IVA 00224180281
R.I. di Trento 00224180281 V.A.T. N° IT 00224180281
Sede Legale: 38051 Borgo Valsugana (TN) Via Piuale, 4 - Italy
Direzione/Amministrazione: 35127 Padova Z.I. Sud - Riviera Francia, 9 - Italy Tel. 049 828.28.20 (r.a.)

300478 - MARELLI SALVATORE SRL
VIA SAN MICHELE DEL CARSO
20823 CIGNAGO DI LENTATE SUL SE (MB)

ORDINE CLIENTE - PURCHASE ORDER
COMMANDE CLIENT - KUNDENAUFTRAG
mail 15/01/2024
ORDINE - ORDER
COMMANDE - AUFTRAG
188723 / 30

ARTICOLO (ACCIAIO) - ITEM (STEEL) - ITEM (ACIER) - ARTIKEL (STAHL)

PROFilo - PROFILE BILLETTA 40 mm

STATO DI FORNITURA - DELIVERY CONDITION NATURALE

STATO DI ESECUZIONE - STATE OF EXECUTION LAMINATO

PESO - WEIGHT 4165 COLLI - ITEMS 3 DDT - DELIVERY NOTE 01/02/2024
POIDS - GEWICHT (kg) COLIS - KOLLI (Nr) BON DE LIVRAISON - LIEFERSCHEIN L1000561

STAB. SPEDIZIONE: ODOLO (BS)

COMPOSIZIONE CHIMICA (%) - CHEMICAL COMPOSITION (%) - CHEMISCHE ZUSAMMENSETZUNG (%)

C 0.1870 Si 0.2352 Mn 1.0237 P 0.0119 S 0.0063 Cu 0.2827 Cr 0.0807 Ni 0.1560 Sn 0.0103 Al 0.0248 As 0.0059 Mo 0.0321
V 0.0011 Nb 0.0045

CR+MO=0.113; NI+CR+MO+V+CU=0.553

COLATA - HEAT - COULEE - SCHMELZE
5023908
MARCA ACCIAIO - STEEL GRADE - MARQUE ACIER - STAHLGÜTE
A105/A350LF2

NORMA - SPECIFICATION - NORME - NORM
ASTM A350:2018 + A105:2021

BLUMO - BLOOM
BLOOM - KNÜPPEL
RIDUZIONE - REDUCTION
REDUCTION - UMFORMUNGSGRAD

ANALISI GAS - GAS ANALYSIS - ANALYSE GAZ - GAS ANALYSE
H2= (ppm) | O2= (ppm) | N2= (ppm)
CEV= 0.410% CEV=C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
D.I. (ASTM A255)

FUSIONE: FORNO ELETRICO (EAF) - ELABORAZIONE FUORI FORNO: AFFINAZIONE (LF) - COLAGGIO: COLATA CONTINUA (CC)

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES
CARACTERISTIQUES MECANQUES-MECHANISCHE EIGENSCHAFTEN

PROVINO - SAMPLE EPROUVETTE - MUSTER	STATO - CONDITION ETAT - ZUSTAND	TTRATTAMENTO TERMICO - HEAT TREATMENT TRAITMENT TERMIQUE - WÄRMEBEHANDLUNG	Rm MPa	Re MPa	A %	Z %	ASTM A370	TIPO - TYPE - TYPE - ART °C	Mean	DUREZZA - HARDNESS - DURETE - HÄRTE
25	NORMALIZZATO	900°C ARIA	546	390	35	66	ASTM E23 KV	-46	101 106 105	

VALORI ALLO STATO DI FORNITURA - VALUES IN DELIVERY CONDITION - WERTE IM LIEFERZUSTAND

THE PRODUCT COMPLIES WITH THE REQUIREMENTS OF THE EUROPEAN DIRECTIVE 2000/63/EC

TEMPERABILITÀ - HARDENABILITY
TREMPEABILITE - HÄRTBARKEIT

GRANO - GRAIN EN ISO 643 AUSTENITICO	INCLUSIONI NON METALLICHE - NON METALLIC INCLUSIONS - INCLUSIONS NON METALLIQUES - NICHTMETALLISCHE EINSCHLÜSSE			
	ASTM E45 (A)			
Min	A (SS)	B (OA)	C (OS)	D (OG)
6	Thin Heavy	Thin Heavy	Thin Heavy	Thin Heavy
8	2.0 1.0 0.5	2.0 1.0 0.0	0.0 0.0	1.0 1.0

ENTI COLLAUDATORI
INSPECTION AUTHORITIES
SERVICE D'ESSAI
ABNAHMEBEHORDE

O.M.R. S.R.L.
VERIFICATO
DATA: 01/02/2024 FIRMA: [Signature]

NOTE - NOTES - NOTES - ANMERKUNGEN
MARELLI SALVATORE S.P.A.
COPIA
CONFORME ALL'ORIGINALE
Date: 01/02/2024 Firma: [Signature]



CONTROLLO QUALITÀ - QUALITY CONTROL - CONTROLE QUALITE - QUALITÄTSTELLE

CONTROLLO ANTIMESCOLAMENTO - ANTIMIXING CONTROL
CONTROLE ANTIMELANGE - VERWECHSLUNGSPRÜFUNG 100%



s.p.a.

SEDE LEGALE: VIA BONESCHI, 1 - 20040 CAMBIAGO (MI) ITALIA
 TEL : +39 02 959420 FAX : +39 02 95942323 INTERNET: www.fadflange.it - E-MAIL: info@fadflange.it
 CAPITALE SOCIALE / SHARE EQUITY € 3.000.000,00 REG.IMP. MONZA BRIANZA /C.F. 03840080158
 PARTITA IVA / V.A.T. No. IT 00763980968 - REA MI/975057 - N.MECCANOGRAFICO MI 100012

Test certificate - Certificat d'epreuves - Werksabnahmezeugnis
 EN 10204 / 3.1

CLIENTE / Customer - Client - Kunde
 KLINGER ITALY SRL CON SOCIO UNICO
 VIA DE GASPERI, 88
 MAZZO DI RHO
 20017 RHO MI ITALIA

DATA / Date - Date - Datum 24/10/2024
 COMMESSA / Mill order / Comf. de commande / Komm 2418272

ORDINE / Order / Commande / Auftrag ODA24-01804
 D.D.T. / Delivery note / Bulletin de livraison / Lieferschein 8.374

CODICE Line code Code Code	COLATA Heat Coulé Schmelze	CERTIFICATO ORIGINE Certificate of origin Certificat d'usine Werkszeugnis	NORMA / MAT. / DESCRIZIONE Standard / Material / Description Norme / Matière / Description Standard / Werkstoff / Gegenstand	POS. ORD. Item order Pos. de comm Auftragslab	QUANTITÀ Quantity Quantité Stückzahl																				
34225	RIVA	F.FLG.ASME B16.5 A/SA105-21	BL 600 1.1/2" RF	10	4																				
ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Si % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0,175 0,970 0,009 0,005 0,220 0,170 0,070 0,010 0,007 0,140 0,001 0,010 0,001 0,028 0,014 0,390 B % Ca % H2 % O2 % W % Sb % As % Fe % Co % PRE % % % % 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000																									
CARATTERISTICHE MECCANICHE / Mechanical test / Epreuves mecaniques / Mechanische elgenscharte																									
<table border="1"> <thead> <tr> <th>MPA Tensile strenght Rupture Zugfestigkeit</th> <th>MPA Yield point Limite elasticite Streckgrenze</th> <th>4D % Elongation Allongement Dehnung</th> <th>Reduction of area Striction % Einschnürung</th> <th>HB Hardness Dureté Harte</th> <th>Impact test Resilience Kerbschlagzähigkeit</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>508,0</td> <td>315,0</td> <td>34,0</td> <td>60,0</td> <td>156 156</td> <td>10/10 KV 0°C 64 68 72 J</td> <td>A</td> <td>A</td> <td>X</td> <td>X</td> </tr> </tbody> </table>						MPA Tensile strenght Rupture Zugfestigkeit	MPA Yield point Limite elasticite Streckgrenze	4D % Elongation Allongement Dehnung	Reduction of area Striction % Einschnürung	HB Hardness Dureté Harte	Impact test Resilience Kerbschlagzähigkeit	1	2	3	4	508,0	315,0	34,0	60,0	156 156	10/10 KV 0°C 64 68 72 J	A	A	X	X
MPA Tensile strenght Rupture Zugfestigkeit	MPA Yield point Limite elasticite Streckgrenze	4D % Elongation Allongement Dehnung	Reduction of area Striction % Einschnürung	HB Hardness Dureté Harte	Impact test Resilience Kerbschlagzähigkeit	1	2	3	4																
508,0	315,0	34,0	60,0	156 156	10/10 KV 0°C 64 68 72 J	A	A	X	X																
1201	NIC	F.FLG.ASME B16.5 A/SA105-21	BL 600 3" RF	20	2																				
ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Si % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0,190 1,030 0,013 0,004 0,220 0,044 0,060 0,001 0,000 0,044 0,010 0,000 0,001 0,000 0,000 0,378 B % Ca % H2 % O2 % W % Sb % As % Fe % Co % PRE % % % % 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000																									
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MPA Tensile strenght Rupture Zugfestigkeit	MPA Yield point Limite elasticite Streckgrenze	4D % Elongation Allongement Dehnung	Reduction of area Striction % Einschnürung	HB Hardness Dureté Harte	Impact test Resilience Kerbschlagzähigkeit	1	2	3	4																
525,0	330,0	32,0	68,0	154 152	10/10 KV 0°C 86 74 70 J	A	A	X	X																
506188	OLARRA	F.FLG.ASME B16.5 A/SA182F316L	BL 600 1" RF	30	6																				
ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Si % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0,024 1,620 0,033 0,026 0,310 16,530 10,070 2,040 0,000 0,000 0,000 0,033 0,000 0,000 0,000 0,000 B % Ca % H2 % O2 % W % Sb % As % Fe % Co % PRE % % % % 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,250 0,000																									
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MPA Tensile strenght Rupture Zugfestigkeit	MPA Yield point Limite elasticite Streckgrenze	4D % Elongation Allongement Dehnung	Reduction of area Striction % Einschnürung	HB Hardness Dureté Harte	Impact test Resilience Kerbschlagzähigkeit	1	2	3	4																
584,0	271,0	56,0	74,0	152 158	10/10 KV -50°C 170 165 173 J	B	D	X	X																
3007	BVS	F.FLG.ASME B16.5 A/SA350L F2-1	BL 300 2" RF	40	6																				
ANALISI CHIMICA / Chemical analysis / Analyse chimique / Chemische Zusammensetzung C % Mn % P % S % Si % Cr % Ni % Mo % Ti % Cu % Nb % N % V % Al % Sn % CE % 0,180 1,178 0,013 0,008 0,204 0,115 0,089 0,018 0,018 0,183 0,002 0,010 0,003 0,024 0,000 0,421 B % Ca % H2 % O2 % W % Sb % As % Fe % Co % PRE % % % % 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000																									
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496,9	343,9	35,3	57,0	147 150	10/10 KV -50°C 30 43 37 J	A	A	X	X																

- 1 PRODUZIONE ACCIAIO / Steel production / Production acier / Stahlproduktion
- 2 TRATT. TERMICO / Heat treatment / Traitement thermique / Wärmebehandlung
- 3 X - CERTIFICATO SECONDO ASME SAII ED. 21 AD. 5 CE = C + Mn + Cr+Mo+V + Cu+Ni
- 4 X - CONTROLLO VISIVO E DIMENSIONALE SODDISFACENTE / Inspection et controle dimensionel satisfasant / Besichtigung und masskontrolle bestanden.
- 5 DOUBLE CERTIFICATION: C.S./SA105/SA350L F2-1 - S.S./SA182F316L & A/SA182F304/304L

RESP. CONTROLLO CERTIFICATI Issued by Cert. contrôle Zeugnisprüfungsamt	ENTE UFFICIALE DI COLLAUDO Inspection authority Service inspection official Abnahme verein	CAPO COLLAUDO Chief inspector Chef de la reception Chef de abnahmeabteilung
--	---	--



FEAT GROUP S.p.A.

FEAT INDUSTRIALE DIVISION

Registered Office: 20123 Milano Italy - Viale L. Majno 31 - VAT Number IT 08203090157-
 Head Office: 23842 Bosisio Parini (Lc) Italy - Via dei Livelli s.n.c. -
 Departments: 23861 Cesana Brianza (Lc) Italy - Via G. Parini 30, Via L. Ariosto 1/3/5/7 -
 - Tel. 00390316591 - www.featgroup.com - info@featgroup.com -

Cert N. 2021/3001576

Date 09/04/2021

Page 1

KLINGER ITALY SRL CON SOCIO UNICO

VIA DE GASPERI, 88

20017 MAZZO DI RHO

MI

Customer Orders
ODA21-00429

Delivery Note
2021/00I/0000094

Invoice
3 0000104

Quantity
508,00

Feat Code
227003027011D

Description
BODY

Customer Code
40101402

Customer Drawing
GR1/029/G

Rev
3

Material & Specification

P355NL1/1.0566/LF2/A105 EN10222-4/ASTM A350/A105 Last Ed

Heat Number
230925

Steel Mill
ACCIAIERIE BERTOLI SAFAU SPA

Trade Mark
F-

Forging Code
NH

CHEMICAL ANALYSIS

Elem.	Al	C	C.E.	Cr	Cr+Mo	Cu	Mn	Mo	N	NA001	NA005	Nb	Nb+v	Ni	P
Min	0,020						1,100								
Max	0,050	0,180	0,430	0,250	0,320	0,200	1,350	0,070	0,015	0,450	1,000	0,020	0,120	0,300	0,020

Heat	0,021	0,148	0,408	0,180	0,210	0,190	1,180	0,030	0,006	0,400	0,510	0,002	0,006	0,110	0,013
C.A.															

Elem.	S	Si	Ti	V	Zr
Min		0,150			
Max	0,008	0,300	0,030	0,020	0,050

Heat	0,003	0,210	0,002	0,004	0,000
C.A.					

MECHANICAL PROPERTIES / HEAT TREATMENT

Laboratory Order	N.	Description	UM1	Min	Max	Value	UM2	Value
227-NH	01	Rs 02% T +20C	N/mm2	250,000		326,000	PSI	47270,000
227-NH	01	Rm T +20C	N/mm2	485,000	655,000	510,000	PSI	73950,000
227-NH	01	A% T Lo=4Do +20C	%	22,000		43,400		
227-NH	01	A% T Lo=5Do +20C	%	21,000		39,300		
227-NH	01	Z% T +20C	%	30,000		77,100		
227-NH	01	Average HBW	HB	0,000	187,000	161,000		
227-NH	01	KV T -50C	J	27,000		180,000		
227-NH	02		J	27,000		185,000		
227-NH	03		J	27,000		99,000		
	01	Normalized	Degrees C	870,000	940,000		OK	
	01	Holding Time	hour/25mm	1,000			OK	
	01	Air Cooling	Ambiance				OK	

Remarks

3.1 CERTIFICATE ACCORDING TO EN 10204 LAST EDITION

Filled in by

Piera Spreafico

FEAT INDUSTRIALE DIVISION states that material hereby certified is in compliance with the quality and technical requirements as described in the customer's order, or FEAT acknowledgement.

- The results of chemicals analysis is a true and correct copy of the mill certificate issued by the manufacturer of the steel employed or by the laboratory which has determined it.
- The material or components shipped under the above order number did not come in direct contact with mercury or any of its components; or with any mercury containing devices employing a single boundary of containment, during the manufacturing process inspection or storage.

Laboratory Manager

Dagris Tapparello

0A/2023/288

 <p>ACCIAIERIE BERTOLI SAFAU SpA Via Buttrio n.28 - Frazione Cargnacco - 33050 Pozzuolo del Friuli (UD) Tel. +39 0432 613211 - Fax +39 0432 613209 - www.absacciai.it</p>	<h2 style="margin:0;">CERTIFICATO DI COLLAUDO</h2> <p style="margin:0;">Inspection Certificate 3.1/Certificat de reception 3.1/ Abnahmeprufzeugnis 3.1</p>	<p>N. 377866 / 1 Data 16.08.2023 COLATA N. 282968 Heat-Coulee-Schmelze Pag. 1 / 2</p>
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CLIENTE Customer-Client-Besteller PROFILO Shape-Section-Profil ACCIAIO Steel-Acier-Stahl CAPITOLATO ABS: Technical Specification: CAPITOLATO DI ANALISI: Material Specification: CAPITOLATO DI FORNITURA: Technical Delivery Requirements:	METALLURGICA LEGNANESE SPA HOT ROLLED ROUND BARS , 90 MM - A350LF2/A105N ABS MET.LEGNANESE ASTM A350LF2/A105N MOD. MET.LEGNANESE REV.02.4 17-02-2016	ORDINE Order-Commande-Bestellung ORDINE LF2 STATO DI FORNITURA SupplyCondition-Etat de livraison NORMALIZED COMESSA/POS Sales Order/Pos: 1094069/60
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COMPOSIZIONE CHIMICA DI COLATA %												
CAST ANALYSIS % - COMPOSITION CHIMIQUE DE COULEE % - SCHMELZE CHEMISCHE ANALYSE %												
	C	Mn	Si	P	S	Cr	Ni	Mo	Al (T)	Cu	Sn	Ti
Min		0,60	0,15									
Max	0,200	1,35	0,30	0,030	0,025	0,30	0,40	0,12	0,300	0,30	0,100	0,0500
Colata/Heat	0,188	0,99	0,27	0,007	0,002	0,09	0,09	0,03	0,029	0,12	0,007	0,0026
	B (T)	V	Nb	As	Ca	Sb	Co	O/ppm	H/ppm	N/ppm	C EQ. LONG FORMULA	Cr+Mo
Min												
Max	0,0008	0,080	0,020	0,100	0,1000	0,100	0,300	20,00	2,00		0,420	0,32
Colata/Heat	0,0001	0,003	0,002	0,003	0,0016	0,001	0,008	12,00	0,70	63	0,392	0,12
	Cr+Ni+Mo+V+Cu	P+S										
Min												
Max	1,00	0,050										
Colata/Heat	0,33	0,009										

CARATT. MECCANICHE
MECHANICAL PROPERTIES - CARACTERISTIQUES MECANIQUE - MECHANISCHE EIGENSCHAFTER

TENSILE/IMPACT TEST ON PRODUCT	TRATTAMENTO TERMICO HEAT TREATMENT
--------------------------------	------------------------------------

TRAZIONE TENSILE TEST												
	R LONG.	RS LONG.	A%4D LONG.	Z% LONG.								
Min	485N/mm ²	250N/mm ²	22%	30%								
Max	655N/mm ²											
Colata/Heat	518N/mm ²	354N/mm ²	30,5%	65%								

RESILIENZE IMPACT TEST												
	KV -50°C Long	KV -50°C Long	KV -50°C Long	KV -50°C Average Long								
Min	22J	22J	22J	27J								
Max												
Colata/Heat	56J	78J	85J	73J								

DUREZZE HARDNESS												
	SURFACE HARDNESS		SURFACE HARDNESS		SAMPLES HARDNESS							
Min												
Max		22HRC		197HB		197HB						
Colata/Heat		7HRC		158HB		155HB						

KLINGER ITALY S.r.l.
DIVISIONE BUROCCO
APPROVATO
D. ROVERE
 26/10/2023


ACC. TO NACE MR01/75-MR0103

INCLUSIONI NON METALLICHE
NON METALLIC INCLUSION - INCLUSIONS NON METALLIQUES - PRUFUNG NICHEMETALLISCHE EINSCHLUSSE

K4	
0	

MICROINCLUSIONS : METHOD K
MICROINCLUSIONS: STANDARD UNI 3244

GRANO
GRAIN - GRAIN - KORNGROSSE



ACCIAIERIE BERTOLI SAFAU
ABSOLUTE STEEL QUALITY

ACCIAIERIE BERTOLI SAFAU SpA

Via Buttrio n.28 - Frazione Cargnacco - 33050 Pozzuolo del Friuli (UD)
Tel. +39 0432 613211 - Fax +39 0432 613209 - www.absacciai.it

CERTIFICATO DI COLLAUDO

Inspection Certificate 3.1/Certificat de reception 3.1/
Abnahmeprüfzeugnis 3.1

N. 377866 / 1
Data 16.08.2023
COLATAN.
Heat-Couée-Schmelze 282968
Pag. 2 / 2

AUSTENITIC GRAIN : STANDARD UNI 3245
AUSTENITIC GRAIN: METHOD MC QUAD
TEMPERATURE AUSTENITIC GRAIN 920 °C
AUSTENITIC GRAIN SIZE 8

ALTRE PROVE
OTHER TESTS - AUTRES ESSAIS - SONSTIGE PRUFUNGEN

BANDING: LEVEL 2
BANDING: STANDARD UNI 8449

NOTE

INTERNAL DEFECT METHOD UT 100%
INTERNAL DEFECTS ACC. TO EN 10308 CL.4
ANTIMIX 100 %
R/R = 9
TEST CERTIFICATE ISSUED ACCORDING TO: EN 10204/3.1
Manufacturer approved according to PED 2014/68/EU Annex 1 Section 4.3
FULLY KILLED .
FINE GRAIN STEEL .
ELECTRIC ARC FURNACE STEEL .
VACUUM DEGASSED STEEL .
COUNTRY OF ORIGIN : ITALY
- Material free from lead, mercury, cadmium and hexavalent chromium (dir. 2000/53/CE - dir. 2011/65/UE as amended)
- Material with radioactivity not exceeding 0,1Bq/g (d.lgs. 230/1995 as amended)

CONTROLLO QUALITA'
QUALITY CONTROL - CONTROLE DE QUALITE - QUALITATSSTEILE

Company with a management system certified by IGQ to
ISO 9001 and IATF 16949

Verif.: Yara Buratti

yara Buratti

KLINGER ITALY S.p.A.
DIVISIONE BURECCO
APPROVATO
D. ROVERE