technical	**QUALITY CONTROL PLAN**	Job:	24/2385
		Document:	QCP-24/2385
		Page:	1 of 2

SAFETY AND RELIEF VALVES

Customer	**DELTA GmbH**
Project	-
Order	**DELTA-TECHNICAL-2024-PO-200**

CODICI DI INTERVENTO / Intervention codes

H	**Hold point** Works may not proceed until the inspection has been carried out or the Purchaser / Third Party has informed the Supplier in writing about renunciation of the inspection.
W	**Witness point** Inspection Authority witness; notifications will be issued as per agreements and the activity will proceed even if Inspectors / Third Party are not attending on the notified date.
R	**Doc and certification control** Review of documentation

Inspection Authority

(1) TECHNICAL
(2) CUSTOMER
(3) THIRD PARTY
(4) END USER

Remarks

Customer Approvals

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
1	02/10/2024	SECOND EMISSION	RB	LDV	RB
0	20/09/2024	FIRST EMISSION	RB	LDV	RB

tecHnical	**QUALITY CONTROL PLAN**	Job	24/2385
		Document	QCP-24/2385
		Revision	2
		Page	2 of 2

SAFETY AND RELIEF VALVES

No.	Inspection & Test	Reference Parts	Applicability %	Reference Standard and Documentation	Document Type	INSPECTION AUTHORITY			
						(1)	(2)	(3)	(4)
1	MATERIAL CERTIFICATE	BODY-NOZZLE-DISC	100%	ASME II A-B / ASTM UNI EN EN 10204 3.1	MATERIAL TEST CERTIFICATE	R	R		
2	HYDROSTATIC TEST	BODY-NOZZLE-BONNET CAP	100%	ASME B16.34 ASME VIII-Div.1 & XIII MSS-SP61 TCH PROC. IL10	TEST REPORT	H	R		
3	SET PRESSURE TEST	ASSEMBLED VALVE	100%	TCH PROC. IL42 ASME VIII-Div.1 & XIII EN ISO 4126	CONSTRUCTION DECLARATION	H	R		
4	SEAT LEAKAGE TEST	ASSEMBLED VALVE	100%	API 527 TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
5	SECONDARY PRESSURE TEST	ASSEMBLED VALVE	100%	ASME VIII-Div.1 & XIII TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
6	ACCESSORY CHECK	ASSEMBLED VALVE	100%	TCH DRAWINGS TCH BOM / ODL	CONSTRUCTION DECLARATION	H	R		
7	VISUAL AND DIMENSIONAL CHECK	ASSEMBLED VALVE	100%	TCH DRAWINGS TCH PROC. IL42	CONSTRUCTION DECLARATION	H	W		
8	MEASURE TOOL CERTIFICATE VERIFICATION	PRESSURE GAUGES	-	TCH PROC. IT03	CALIBRATION CERTIFICATE	R	R		
9	PAINTING CHECK	ASSEMBLED VALVE	100%	PAINTING SYSTEM (1)	REPORT	R	R		
10	VALVE NAMEPLATE	ASSEMBLED VALVE	100%	ASME XIII TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
11	PACKING CHECK	ASSEMBLED VALVE	100%	TCH PROC. PP17	REPORT	H	R		
12	RELEASE NOTE	ASSEMBLED VALVE	100%	-	CUSTOMER'S RELEASE NOTE	R	H		

NOTES:

(1) ACCORDING TO BUYER'S PAINTING PROCEDURE SUPPLIED WITH THE PO

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 24/2385-1-150

PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 294898
Cod. o Mod: 3A0-E23-BW
Ingresso/Inlet: 1" 300RF
Uscita/Outlet: 2" 150RF
Orifizio/Orifice: 13,3 mm
Taratura/Set Press.: 22 barg
Tipo/Type: E

Anno/Year: 2024
Classe: BW

Contropressione/Back pressure
Imp.Costante/Imp.Constant:
Imp.Variabile/Imp.Variable:
Generata/Generated:

Taratura banco/C.D. test pressure: 22 barg
Portata certificata/Certified capacity: 1236 scfm
Press. esercizio/Operating press.: 4,7 bara
Temp. esercizio/Operating temp.: -0,07 °C

Quantità/Quantity: 1 Sigla/Tag: PSV-RU0001A-03

material list		accessories	painting
Corpo/Body:	A 352 LCB	TEST GAG	CLIENT CYCLE
Boccaglio/Nozzle:	AISI 316L		
Otturature/Disc:	AISI 316L		note
Molla/Spring:	ALLOY STEEL		
Mod. Molla/Spring:	50-3207-00		

ASME CODE

Sovrappressione/Overpressure 10% - Alzata/Lift mm 3,1

Campo molla ±5% della pressione di taratura/Spring range ±5% of set pressure

Fluido/Fluid VAPOR

COLLAUDO BANCO DI PROVA
a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH
ambient temperature

Pressione taratura
Set pressure: 22 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-xx

Prova in contropressione/Backpressure test: 2,1 bar

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check(IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order #	Cliente / Customer	Ispettore / Inspector	Technical / Data
DELTA-TECHNICAL-2024-PO-200	DELTA GmbH		Authorised Representative Enrica Brenna 2025-gen-09

Mod. Prg 001 - 07/12

Sede Legale, Stab. ed Uffici:
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E-mail: sales@technical.it - Web site: www.technical.it

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 24/2385-1-151

PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 294899
Cod. o Mod: 3A0-E23-BW
Ingresso/Inlet: 1" 300RF
Uscita/Outlet: 2" 150RF
Orifizio/Orifice: 13,3 mm
Taratura/Set Press.: 22 barg
Tipo/Type: E

Anno/Year: 2024
Classe: BW

Contropressione/Back pressure
Imp.Costante/Imp.Constant:
Imp.Variabile/Imp.Variable:
Generata/Generated:

Taratura banco/C.D. test pressure: 22 barg
Portata certificata/Certified capacity: 1236 scfm
Press. esercizio/Operating press.: 4,7 bara
Temp. esercizio/Operating temp.: -0,07 °C

Quantità/Quantity: 1 Sigla/Tag: PSV-RU0001B-03

material list		accessories	painting
Corpo/Body:	A 352 LCB	TEST GAG	CLIENT CYCLE
Boccaglio/Nozzle:	AISI 316L		
Otturature/Disc:	AISI 316L		note
Molla/Spring:	ALLOY STEEL		
Mod. Molla/Spring:	50-3207-00		

ASME CODE

Sovrappressione/Overpressure 10% - Alzata/Lift mm 3,1

Campo molla ±5% della pressione di taratura/Spring range ±5% of set pressure

Fluido/Fluid VAPOR

COLLAUDO BANCO DI PROVA
a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH
ambient temperature

Pressione taratura
Set pressure: 22 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-xx

Prova in contropressione/Backpressure test: 2,1 bar

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check(IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order #	Cliente / Customer	Ispettore / Inspector	Technical / Data
DELTA-TECHNICAL-2024	DELTA GmbH		Authorised Representative Enrica Brenna 2025-gen-09

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DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 24/2385-2-152

PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 294900
Cod. o Mod: 3A0-FA3-BW
Ingresso/Inlet: 1½" 300RF
Uscita/Outlet: 2" 150RF
Orifizio/Orifice: 16,6 mm
Taratura/Set Press.: 22 barg
Tipo/Type: F

Anno/Year: 2024
Classe: BW

Contropressione/Back pressure
Imp.Costante/Imp.Constant:
Imp.Variabile/Imp.Variable:
Generata/Generated:

Taratura banco/C.D. test pressure: 22 barg
Portata certificata/Certified capacity: 1925 scfm
Press. esercizio/Operating press.: 19,7 bara
Temp. esercizio/Operating temp.: 56,32 °C

Quantità/Quantity: 1 Sigla/Tag: PSV-RU0001A-02

material list	accessories	painting
Corpo/Body: A 352 LCB	TEST GAG	CLIENT CYCLE
Boccaglio/Nozzle: A 351 CF3M		
Otturature/Disc: AISI 316L		
Molla/Spring: ALLOY STEEL		
Mod. Molla/Spring: 50-3091-00		

note

ASME CODE

Sovrappressione/Overpressure 10% - Alzata/Lift mm 4,0

Campo molla ±5% della pressione di taratura/Spring range ±5% of set pressure

Fluido/Fluid VAPOR

COLLAUDO BANCO DI PROVA
a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH
ambient temperature

Pressione taratura
Set pressure: 22 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-xx

Prova in contropressione/Backpressure test: 2,1 bar

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check(IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order #	Cliente / Customer	Ispettore / Inspector	Technical / Data
DELTA-TECHNICAL-2024-PO-200	DELTA GmbH		Authorised Representative Enrica Brenna 2025-gen-09

Mod. Prg. 001 - 07/12

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DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 24/2385-2-153

PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 294901
Cod. o Mod: 3A0-FA3-BW
Ingresso/Inlet: 1½" 300RF
Uscita/Outlet: 2" 150RF
Orifizio/Orifice: 16,6 mm
Taratura/Set Press.: 22 barg
Tipo/Type: F

Anno/Year: 2024
Classe: BW

Contropressione/Back pressure
Imp.Costante/Imp.Constant:
Imp.Variabile/Imp.Variable:
Generata/Generated:

Taratura banco/C.D. test pressure: 22 barg
Portata certificata/Certified capacity: 1925 scfm
Press. esercizio/Operating press.: 19,7 bara
Temp. esercizio/Operating temp.: 56,32 °C

Quantità/Quantity: 1 Sigla/Tag: PSV-RU0001B-02

material list		accessories	painting
Corpo/Body:	A 352 LCB	TEST GAG	CLIENT CYCLE
Boccaglio/Nozzle:	A 351 CF3M		
Otturature/Disc:	AISI 316L		note
Molla/Spring:	ALLOY STEEL		
Mod. Molla/Spring:	50-3091-00		

ASME CODE

Sovrappressione/Overpressure 10% - Alzata/Lift mm 4,0

Campo molla ±5% della pressione di taratura/Spring range ±5% of set pressure

Fluido/Fluid VAPOR

COLLAUDO BANCO DI PROVA
a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH
ambient temperature

Pressione taratura
Set pressure: 22 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-xx

Prova in contropressione/Backpressure test: 2,1 bar

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check(IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order #	Cliente / Customer	Ispettore / Inspector	Technical / Data
DELTA-TECHNICAL-2024	DELTA GmbH		Authorised Representative Enrica Brenna 2025-gen-09

Mod. Prg. 001 - 07/12

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SAFETY VALVE
DATASHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	24-2385 / 1	4	Project	PO DELTA-TECHNICAL-2024-PO-200	DELTA GMBH
2	Valve Code	3A0-E23-BW	5	Quantity	2	
3	Tag Number	PSV-RU0001A-03, PSV-RU0001B-03,				

BASIS OF SELECTION

6	Basis	FIRE WETTED	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	UV Stamp	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF	
15	Valve Model	30000	21	Orifice Designation/Area	E - 1,389 cm²	
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3,1 mm	
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED	
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST	
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP	

SERVICE CONDITION

26	Design Pressure	Pd	22	bar g	42	Design Temp.		-45 /120	ºC
27	Operating Pressure	Pop	3,7	bar g	43	Operating Temp.		-0,07	ºC
28	Ambient Pressure	Patm	1,013	bar a	44	Ambient Temp.		RT	ºC
29	Set Pressure	Ps	22	bar g	45	Relieving Temperature		70,1	ºC
30	CDTP		22	bar g	46	Phase / Medium	GAS / PROPANE		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	3197	kg/h
32	Relieving Pressure	P0	27,63	bar a	48	Discharge Coefficient	KD	0,951	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	3276,79	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	44,10	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	0,80	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1,11	-
37	Built-up Backpressure	Pbb	0	bar g	53	Density	ρ	-	kg/m3
38	Total BackPressure	Pb	0	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1,3552	cm²	55	Specific Volume	v	-	m3/kg
40	Selected Area	As	1,389	cm²	56	Dynamic Viscosity	μ	-	cP
41	Area Gain	-	2,00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A352 LCB	65	Stem	SS 316L
59	Bonnet	A352 LCB	66	Blowdown Ring	SS 316L
60	Cap	A352 LCB	67	Disc-Holder	SS 316L
61	Nozzle	A351 CF3M / A479 316L	68	Spring	ALLOY STEEL
62	Disc	A479 316L / A182 F316L	69	Spring Washer	CARBON STEEL
63	Seat	N/A	70	Gaskets	ARMED GRAPHITE + SS 316L
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	YES	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	SYSTEM 24-2385 RAL 7038	85		

REMARKS

Process data are under customer responsibility.

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
1	03/10/2024	REVISED AS PER CLIENT COMMENTS	L. DI VIRGILIO	P.L.DELPONTE	R. BIANCHI
0	30/09/2024	FIRST ISSUE	R. BIANCHI	P.L.DELPONTE	R. BIANCHI

SAFETY VALVE
DATASHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	24-2385 / 2	4	Project	PO DELTA-TECHNICAL-2024-PO-200	DELTA GMBH
2	Valve Code	3A0-FA3-BW	5	Quantity	2	
3	Tag Number	PSV-RU0001A-02, PSV-RU0001B-02,				

BASIS OF SELECTION

6	Basis	FIRE WETTED	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	UV Stamp	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1,5" 300# RF	20	Outlet	2" 150# RF	
15	Valve Model	30000	21	Orifice Designation/Area	F - 2,164 cm²	
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 4 mm	
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED	
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST	
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP	

SERVICE CONDITION

26	Design Pressure	Pd	22	bar g	42	Design Temp.		-45 /120	ºC
27	Operating Pressure	Pop	19,7	bar g	43	Operating Temp.		56,32	ºC
28	Ambient Pressure	Patm	1,013	bar a	44	Ambient Temp.		RT	ºC
29	Set Pressure	Ps	22	bar g	45	Relieving Temperature		70,1	ºC
30	CDTP		22	bar g	46	Phase / Medium	GAS / PROPANE		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	3479	kg/h
32	Relieving Pressure	P0	27,63	bar a	48	Discharge Coefficient	KD	0,951	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	5105,09	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	44,10	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	0,80	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1,11	-
37	Built-up Backpressure	Pbb	0	bar g	53	Density	ρ	-	kg/m3
38	Total BackPressure	Pb	0	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1,4748	cm²	55	Specific Volume	v	-	m3/kg
40	Selected Area	As	2,164	cm²	56	Dynamic Viscosity	μ	-	cP
41	Area Gain	-	47,00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A352 LCB	65	Stem	SS 316L
59	Bonnet	A352 LCB	66	Blowdown Ring	SS 316L
60	Cap	A352 LCB	67	Disc-Holder	SS 316L
61	Nozzle	A351 CF3M / A479 316L	68	Spring	ALLOY STEEL
62	Disc	A479 316L / A182 F316L	69	Spring Washer	CARBON STEEL
63	Seat	N/A	70	Gaskets	ARMED GRAPHITE + SS 316L
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	YES	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	SYSTEM 24-2385 RAL 7038	85		

REMARKS

Process data are under customer responsibility.

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
1	03/10/2024	REVISED AS PER CLIENT COMMENTS	L. DI VIRGILIO	P.L.DELPONTE	R. BIANCHI
0	30/09/2024	FIRST ISSUE	R. BIANCHI	P.L.DELPONTE	R. BIANCHI

SAFETY VALVE
SIZING SHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	24-2385 / 1	4	Project	PO DELTA-TECHNICAL-2024-PO-200	DELTA GMBH	
2	Valve Code	3A0-E23-BW	5	Quantity	2		
3	Tag Number	PSV-RU0001A-03, PSV-RU0001B-03,					

DESIGN DATA

6	Operating Pressure	3,7	bar g	10	Operating Temperature	-0,07	ºC
7	Ambient Pressure	1,013	bar a	11	Sizing Code	API Std 520	
8	Basis	FIRE WETTED		12	Fire Case	Yes	
9	Governing Case	Yes		13	Rupture Disc	No	

INSTALLATION DATA

14	Inlet	1" 300# RF			22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**			23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp				24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0	bar g	25	Set Pressure	Ps	22,000	bar g
18	Variable	Pbvs	0	bar g	26	CDTP		22,000	bar g
19	Total	Pbs	0	bar g	27	Overpressure	Overp	21	%
20	Built-up Backpressure	Pbb	0	bar g	28	Relieving Temperature	T_0	70,1	ºC
21	Total BackPressure	Pb	0	bar g	29	Required Flow Rate	W	3197,00	kg/h

FLUID PROPERTIES

30	Phase	GAS			35	Density	ρ	-	kg/m3
31	Medium	PROPANE			36	Specific Volume	v	-	m3/kg
32	Ratio of Specific Heats	k	1,11	-	37	Specific Gravity	G	-	-
33	Molecular Weight	M	44,10	kg/kmol	38	Dynamic Viscosity	μ	-	cP
34	Compressibility Factor	Z	0,8	-	39	Dryness Steam Factor	x0	-	-

SIZING — **CRITICAL FLOW - GAS&VAPOURS - API 520**

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_0	27,633	bar a
42	C Factor	C	2,4890	-
43	Discharge Coefficient	K_D	**0,951**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1,3552	cm^2
54	Orifice Designation	-	E	-
55	Selected Area	A_S	**1,389**	cm^2
56	Area Gain	-	2	%
57	Maximum Flow Rate	W_T	3276,79	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — **API 520 PART II** — **OPEN DISCHARGE TO ATMOSPHERE**

59	Reaction force (Flow)	FF	264	N	$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	0	N	
61	Total Reaction Force	FT	264	N	

NOISE EVALUATION — **API 521** — **Not Applicable for Liquid**

62	Noise Level @ 30m	L30	103,8	dB	$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right)$; $c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0.5}$
63	Distance d	d	1	m	
64	Outlet Tube Diameter	da	0,05	m	
65	Noise Level @ distance d	Ld	133,8	dB	$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$

REMARKS: Process data are under customer responsibility.

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
0	30/09/2024	FIRST ISSUE	R. BIANCHI	P.L.DELPONTE	R. BIANCHI

FILE: 24-2385_DELTA_STD_R19.xlsm

SAFETY VALVE
SIZING SHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	24-2385 / 2	4	Project	PO DELTA-TECHNICAL-2024-PO-200 / DELTA GMBH
2	Valve Code	3A0-FA3-BW	5	Quantity	2
3	Tag Number	PSV-RU0001A-02, PSV-RU0001B-02,			

DESIGN DATA

6	Operating Pressure	19,7	bar g	10	Operating Temperature	56,32	ºC
7	Ambient Pressure	1,013	bar a	11	Sizing Code	API Std 520	
8	Basis	FIRE WETTED		12	Fire Case	Yes	
9	Governing Case	Yes		13	Rupture Disc	No	

INSTALLATION DATA

14	Inlet	1,5" 300# RF		22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0 bar g	25	Set Pressure	Ps	22,000	bar g
18	Variable	Pbvs	0 bar g	26	CDTP		22,000	bar g
19	Total	Pbs	0 bar g	27	Overpressure	Overp	21	%
20	Built-up Backpressure	Pbb	0 bar g	28	Relieving Temperature	T_o	70,1	ºC
21	Total BackPressure	Pb	0 bar g	29	Required Flow Rate	W	3479,00	kg/h

FLUID PROPERTIES

30	Phase	GAS		35	Density	ρ	-	kg/m3
31	Medium	PROPANE		36	Specific Volume	v	-	m3/kg
32	Ratio of Specific Heats	k	1,11 -	37	Specific Gravity	G	-	-
33	Molecular Weight	M	44,10 kg/kmol	38	Dynamic Viscosity	μ	-	cP
34	Compressibility Factor	Z	0,8 -	39	Dryness Steam Factor	x0	-	-

SIZING — CRITICAL FLOW - GAS&VAPOURS - API 520

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_o	27,633	bar a
42	C Factor	C	2,4890	-
43	Discharge Coefficient	K_D	**0,951**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_c	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_v	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1,4748	cm^2
54	Orifice Designation	-	F	-
55	Selected Area	A_s	**2,164**	cm^2
56	Area Gain	-	47	%
57	Maximum Flow Rate	W_T	5105,09	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_s}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — API 520 PART II — OPEN DISCHARGE TO ATMOSPHERE

59	Reaction force (Flow)	FF	411	N
60	Reaction force (Static Bkp)	FB	0	N
61	Total Reaction Force	FT	411	N

$$F_F = \frac{129 W_{MAX}}{0.9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}\ ;\ F_B = \frac{A_2 P_b}{10}\ ;\ F_T = F_F + F_B$$

NOISE EVALUATION — API 521 — Not Applicable for Liquid

62	Noise Level @ 30m	L30	106,1	dB
63	Distance d	d	1	m
64	Outlet Tube Diameter	da	0,05	m
65	Noise Level @ distance d	Ld	135,7	dB

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0.9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0.5}$$

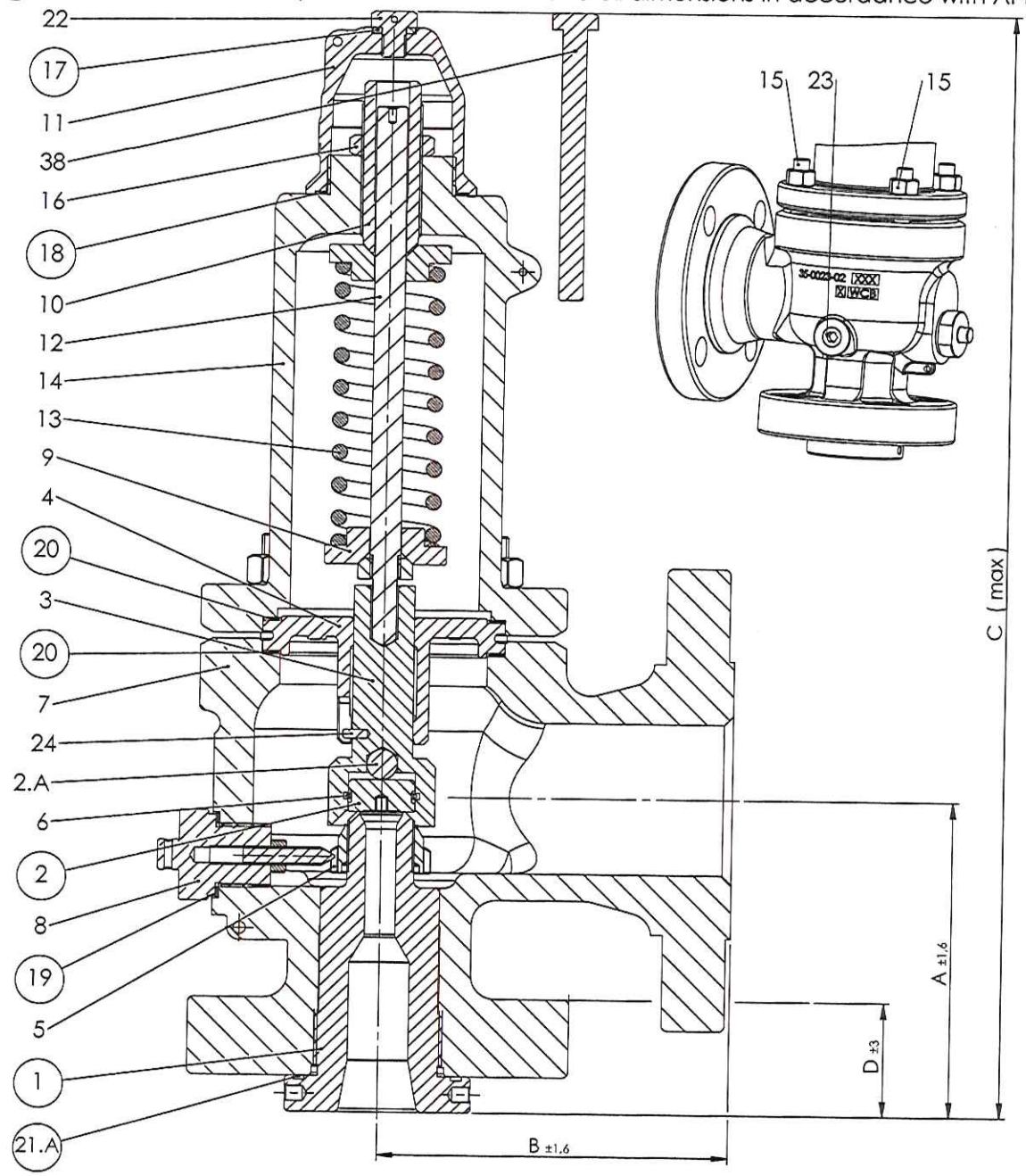
$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
0	30/09/2024	FIRST ISSUE	R. BIANCHI	P.L.DELPONTE	R. BIANCHI

recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	E	Kg
1" 300 RF	2" 150 RF		105	115	380	37,5			1,389	15

Model: 3A0-E23-BW	Tag: PSV-RU0001A-03 PSV-RU0001B-03	Job. n°: 24/2385
Customer: DELTA GmbH	Order. n°: DELTA-TECHNICAL-2024-PO-200	Doc. n°: 24/2385_DWG_1

Rev.	Date	Description	Prepared	Checked	Approved
1	02/10/2024	REVISED AS PER CLIENT COMMENTS	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.
0	20/09/2024	ISSUED for ORDER	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.

Type: E2 1" 300 RF

jpg : 320-E23

tecHnical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material	Job. n° 24/2385
	Model 3A0-E23-BW	Tag PSV-RU0001A-03 PSV-RU0001B-03	SPT-075

LANGUAGE	IT/EN		TYPE	3A0	Accessori	3
MATERIAL CLASS	BW	-	SPRING	22	CHROME ALLOY STEEL	

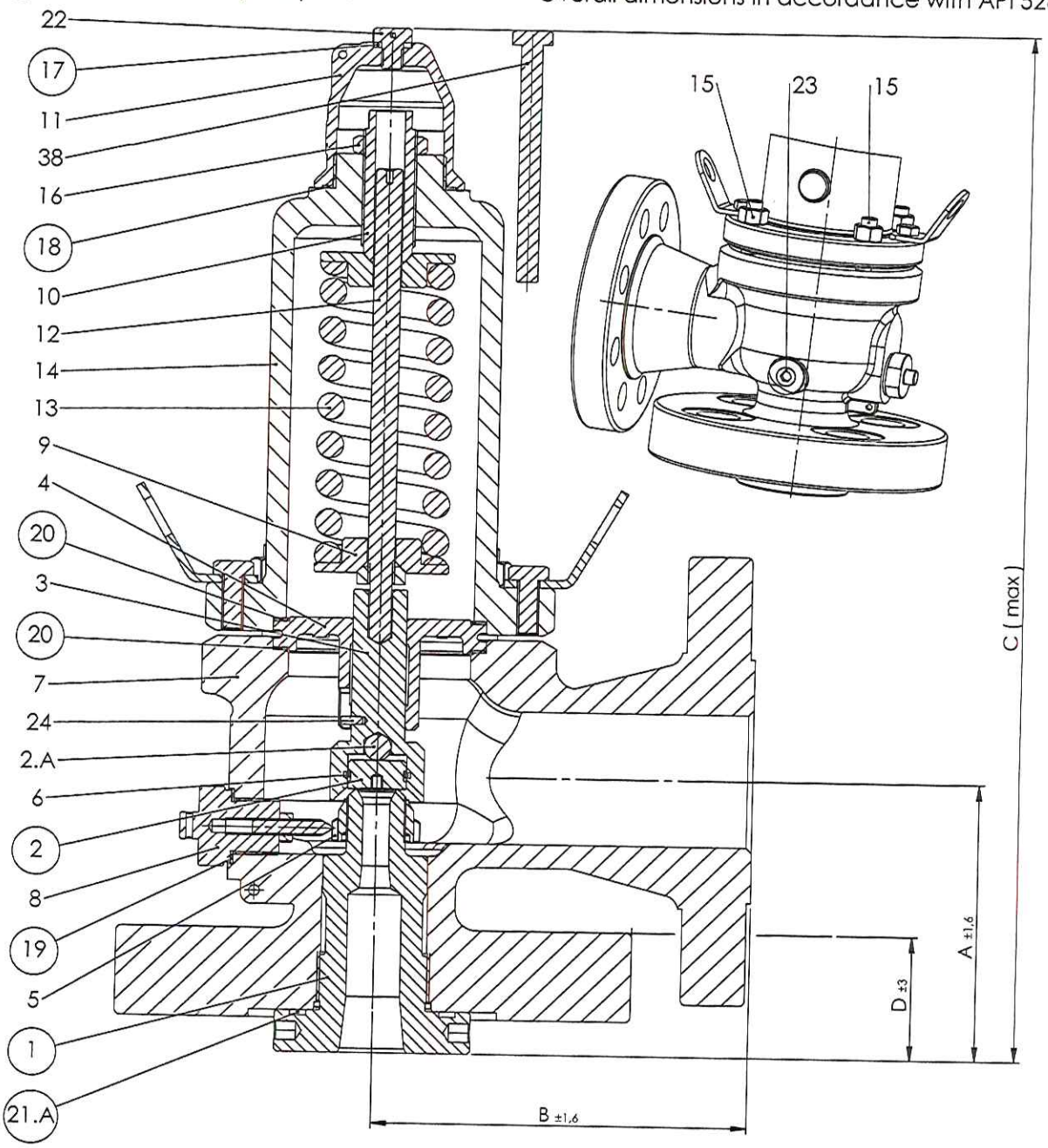
Quantity	Peening	DESCRIZIONE / PART DESCRIPTION	MATERIALE / PART MATERIAL
	1	Boccaglio / Nozzle	A351 CF3M / A479 316L
	2	Otturatore / Disc	A479 316L / A182 F316L
	2a	Sfera / Ball	SS 420
	3	Portaotturatore / Disc-holder	SS 316L
	4	Guida / Liner	SS 316L
	5	Anello Blowdown / Blowdown ring	SS 316L
	6	Anello otturatore / Disc ring	SS 316
	7	Corpo / Body	A352 LCB
	8	Vite blowdown / Blowdown screw	SS 316L
	9	Piattello molla / Spring washer	CARBON STEEL
	10	Vite taratura / Adjusting screw	SS 431
	11	Cappello / Cap	A352 LCB
	12	Stelo / Stem	SS 316L
	13	Molla / Spring	CHROME ALLOY STEEL
	14	Coperchio / Bonnet	A352 LCB
	15	Tiranteria / Bolting - nut	A193 B8M / A194 8M
	16	Controdado / Lock nut	SS 316L
	17	Guarnizione test gag / Gasket test gag	ARMED GRAPHITE + 316L
	18	Guarnizione / Gasket	ARMED GRAPHITE + 316L
	19	Guarnizione / Gasket	ARMED GRAPHITE +316L
	20	Guarnizione / Gasket	ARMED GRAPHITE + 316L
	21a	Guarnizione boccaglio / Nozzle gasket	ARMED GRAPHITE + 316L
	22	Vite cappello / Cap screw	SS 316
	23	Tappo drenaggio / Drain plug	SS 316
	24	Spina / Pin	SS 316
	38	Vite di blocco / Test gag	SS 316

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
1	02/10/2024	REVISED AS PER CLIENT COMMENTS	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.
0	20/09/2024	ISSUED for ORDER	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.

○ recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	F	Kg
1½" 300 RF	2" 150 RF		124	152	435	40			2,164	21
Model: 3A0-FA3-BW			Tag: PSV-RU0001A-02 / PSV-RU0001B-02						Job. n°: 24/2385	
Customer: DELTA GmbH			Order. n°: DELTA-TECHNICAL-2024-PO-200						Doc. n°: 24/2385_DWG_2	

Rev.	Date	Description	Prepared	Checked	Approved
1	02/10/2024	REVISED AS PER CLIENT COMMENTS	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.
0	20/09/2024	ISSUED for ORDER	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.

Type: FA 1½" 300 RF

jpg : 320-FA3

technical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material	Job. n° 24/2385
	Model 3A0-FA3-BW / Tag PSV-RU0001A-02 PSV-RU0001B-02	SPT-075

		LANGUAGE	IT/EN		TYPE	3A0	Accessori 3
		MATERIAL CLASS	BW -		SPRING	22	CHROME ALLOY STEEL
Quantity	Peening	DESCRIZIONE / PART DESCRIPTION			MATERIALE / PART MATERIAL		
	1	Boccaglio / Nozzle			A351 CF3M / A479 316L		
	2	Otturatore / Disc			A479 316L / A182 F316L		
	2a	Sfera / Ball			SS 420		
	3	Portaotturatore / Disc-holder			SS 316L		
	4	Guida / Liner			SS 316L		
	5	Anello Blowdown / Blowdown ring			SS 316L		
	6	Anello otturatore / Disc ring			SS 316		
	7	Corpo / Body			A352 LCB		
	8	Vite blowdown / Blowdown screw			SS 316L		
	9	Piattello molla / Spring washer			CARBON STEEL		
	10	Vite taratura / Adjusting screw			SS 431		
	11	Cappello / Cap			A352 LCB		
	12	Stelo / Stem			SS 316L		
	13	Molla / Spring			CHROME ALLOY STEEL		
	14	Coperchio / Bonnet			A352 LCB		
	15	Tiranteria / Bolting - nut			A193 B8M / A194 8M		
	16	Controdado / Lock nut			SS 316L		
	17	Guarnizione test gag / Gasket test gag			ARMED GRAPHITE + 316L		
	18	Guarnizione / Gasket			ARMED GRAPHITE + 316L		
	19	Guarnizione / Gasket			ARMED GRAPHITE + 316L		
	20	Guarnizione / Gasket			ARMED GRAPHITE + 316L		
	21a	Guarnizione boccaglio / Nozzle gasket			ARMED GRAPHITE + 316L		
	22	Vite cappello / Cap screw			SS 316		
	23	Tappo drenaggio / Drain plug			SS 316		
	24	Spina / Pin			SS 316		
	38	Vite di blocco / Test gag			SS 316		

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
1	02/10/2024	REVISED AS PER CLIENT COMMENTS	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.
0	20/09/2024	ISSUED for ORDER	PERACCHI M.	DI VIRGILIO L.	BIANCHI R.

DIMENSIONAL TEST REPORT

Report N.	**QUA-031-001/2024**
Technical Job:	**24/2385**
Customer:	**DELTA GmbH**
Order N.	**DELTA-TECNHNICAL-2024-PO-200**

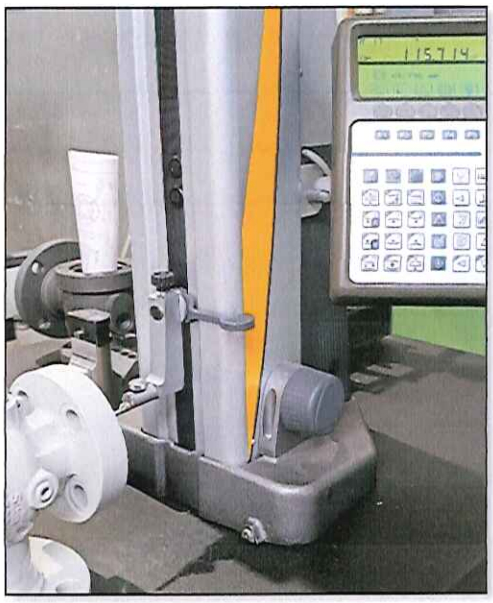
SERIAL No.	TAG No.	CODE	DWG No.	NOMINAL QUOTE (mm)	DETECTED QUOTE (mm)	RESULT
294898	PSV-RU0001A-03	3A0-E23-BW	24/2385_DWG_1	A – 105 (±1,6)	105,52	POSITIVE
				B – 115 (±1,6)	115,71	POSITIVE
				C – 380 (max)	362,41	POSITIVE
				D – 37,5 (±3)	36,68	POSITIVE
294899	PSV-RU0001B-03	3A0-E23-BW	24/2385_DWG_1	A – 105 (±1,6)	105,18	POSITIVE
				B – 115 (±1,6)	115,72	POSITIVE
				C – 380 (max)	362,35	POSITIVE
				D – 37,5 (±3)	37,45	POSITIVE
294900	PSV-RU0001A-02	3A0-FA3-BW	24/2385_DWG_2	A – 124 (±1,6)	124,26	POSITIVE
				B – 152 (±1,6)	152,92	POSITIVE
				C – 435 (max)	413,33	POSITIVE
				D – 40 (±3)	42,07	POSITIVE
294901	PSV-RU0001B-02	3A0-FA3-BW	24/2385_DWG_2	A – 124 (±1,6)	124,21	POSITIVE
				B – 152 (±1,6)	152,77	POSITIVE
				C – 435 (max)	413,35	POSITIVE
				D – 40 (±3)	40,21	POSITIVE

Date of inspection:	2024.12.20
Measuring Instrument:	C01-008-01
Expiration date:	2027.02.13

PRODUCER	CUSTOMER	INSPECTOR
technical SRL Quality Assurance Elena Adornato Date Stamp and signature 2024 DIC 20	Date Stamp and signature	Date Stamp and signature

Annex 1 -

S.N. 294898 - QUOTE A



S.N. 294898 - QUOTE B

S.N. 294898 - QUOTE C

S.N. 294898 - QUOTE D

Annex 2 -

S.N. 294899 - QUOTE A

S.N. 294899 - QUOTE B

S.N. 294899 - QUOTE C

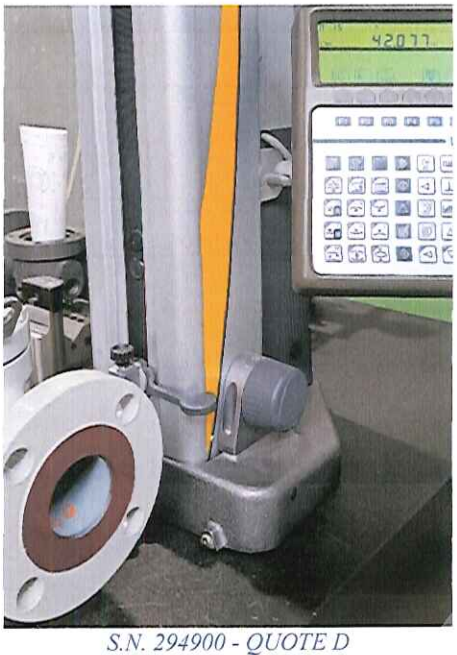
S.N. 294899 - QUOTE D

Annex 3 -

S.N. 294900 - QUOTE A

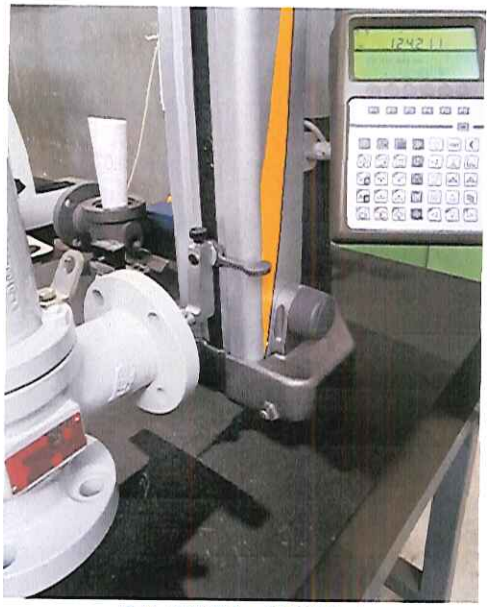
S.N. 294900 - QUOTE B

S.N. 294900 - QUOTE C

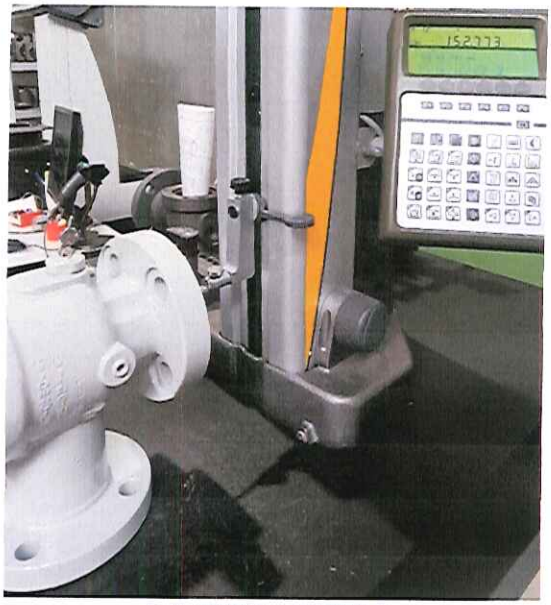


S.N. 294900 - QUOTE D

Annex 4 -

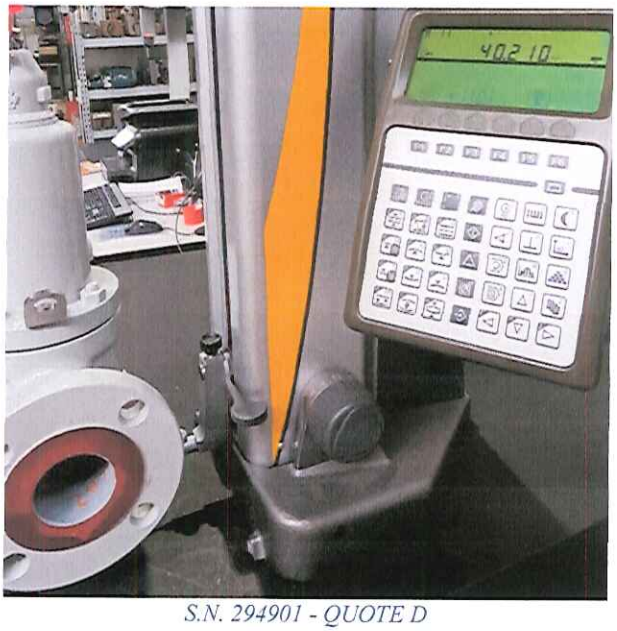


S.N. 294901 - QUOTE A



S.N. 294901 - QUOTE B

S.N. 294901 - QUOTE C



S.N. 294901 - QUOTE D

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LABORATORIO METROLOGICO

Via Lago Maggiore, 18
36015 SCHIO (VI)

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www.micro-tec.vi.it

Centro di Taratura LAT N° 181
Calibration Centre
Laboratorio Accreditato di Taratura
Accreditated Calibration Laboratory

tecHnical
Validity: 3 year
from calibration date according to
Instruction IT02

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAT N° 181

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

- Data di emissione / *date of issue*: 2024-02-14
- Cliente / *customer*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)
- Destinatario / *receiver*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 181 rilasciato in accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT N° 181 granted according to decrees connected with Italian law No. 273/1991 which has established the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

Si riferisce a
Referring to

- oggetto / *item*: Altimetro digitale
- costruttore / *manufacturer*: Tesa
- modello / *model*: 0076220
- matricola / *serial number*: 1R 021 V2.24 (C00-008-01)
- data di ricevimento oggetto / *date of receipt of item*: 2024-02-13
- data delle misure / *date of measurements*: 2024-02-13
- registro di laboratorio / *laboratory reference*: 2024

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura *k* corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore *k* vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

VERIFIED BY tecHnical
2024 FEB 14
QUALITY ASSURANCE

Direzione Tecnica
(Approving Officer)
Ivo Gazziero

Firma digitale - *Digital signature*

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tecHnical SRL
Quality Assurance
Elena Adornato

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technical
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from calibration date according to Instruction IT02

ACCREDIA
LAT N° 181
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Di seguito vengono riportate le seguenti informazioni:
In the following, information is reported about:

- la descrizione dell'oggetto in taratura (se necessaria);
description of the item to be calibrated (if necessary)

Altimetro digitale

- l'identificazione delle procedure in base alle quali sono state eseguite le tarature;
technical procedures used for calibration performed

PTA-02 rev.2

- I campioni che garantiscono la catena della riferibilità del Centro;
instruments or measurement standards which guarantee the traceability chain of the Centre

BPP011	Set Blocchetti piano paralleli
BPP012	Set Blocchetti piano paralleli
BPP040	Set Blocchetti piano paralleli
BPP029	Set Blocchetti piano paralleli
PDR001	Piano di riscontro
TRG007	Misuratore di temperatura

- Gli estremi dei certificati di taratura di tali campioni e l'Ente che li ha emessi; *relevant calibration certificates of those standards with the issuing Body*	Data di taratura; *Calibration date*
LAT181 23-3287P06B0	**2023-12-05**
LAT181 23-3284P06B0	**2023-12-05**
LAT181 23-3299P05B0	**2023-12-06**
LAT 107 230207MAH	**2023-12-12**
LAT172 PR0024/20	**2020-08-21**
LAT198 0639/23 0640/23	**2023-05-05**

- le condizioni ambientali e di taratura:
calibration and environmental conditions

- Luogo di taratura :
Calibration Place

TECHNICAL s.r.l.
via Toscana, 9
20060 VIGNATE (MI)

Temperatura **(20 ± 5) °C**
Temperature

Umidità relativa **< 80% U.R.**
Relative Humidity

- Normative di riferimento
Standards

Norma - *Standard code*	Anno - *Year*
(BIPM) The International System of Units (SI)	ed.9 2019
UNI EN ISO 1	2022
UNI 9052	1987
UNI EN ISO 13225	2012
UNI EN ISO 14253-1	2018

Valutazione di conformità : Non richiesta
Comformity assessment : *Not required*

MODALITA' DI TARATURA
Calibration method

1 - La taratura viene eseguita per interposizione dei campioni di riferimento e loro composizione tra le superfice del piano di riscontro e il tatore del misurando rilevandone la misura sul dispositivo di lettura. Se il misurando è dotato di dispositivo di azzeramento lo strumento viene azzerato posizionado il tastatore sul piano di appoggio.
The calibration is performed by interposing the reference samples and their composition between the support plan and contact surfaces of the instruments by detecting the measurement on the reading device. If the measurand is equipped with a zeroing device, the instrument is zeroed by positioning the probe on the support.

2 - I coefficienti di dilatazione termica lineare non sono misurati pertanto sono considerati pari a:
Campioni (10,05 ± 2) · 10^{-6} °C^{-1}
misurando (11,5 ± 2) · 10^{-6} °C^{-1}
The linear thermal expansion coefficients are not measured therefore they have been considered equal to:
Samples (10,05 ± 2) · 10^{-6} ° C^{-1}
measurand (11,5 ± 2) · 10^{-6} ° C^{-1}

3 - La differenza massima di temperatura tra campione e misurando è di:
1 °C nell'intervallo indicato.
The maximum difference of temperature between standard and measurand is:
1 °C with in the indicated interval.

4 - Riepilogo dei risultati vedi pag. 4
Summary of results see pag. 4

VERIFIED BY technical
2024 FEB 14
QUALITY ASSURANCE

technical SRL
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Validity: 3 year
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LAT N° 181

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Descrizione : Altimetro digitale
Description
Codice : C00-008-01
Code
Matricola : 1R 021 V2.24
Serial number

Campo : 0 - 600 mm
Range
Divisione di scala : 0,001 mm
Scale interval

Errore di indicazione
Length measurement errore

Lunghezza di riferimento *Reference length* L_n / mm	Misura *Measure* L_x / mm	Errore *Deviation* $E = L_x - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
0,000	0,000	0	1
1,100	1,100	0	1
1,500	1,501	1	1
1,900	1,901	1	1
10,300	10,300	0	1
25,000	25,000	0	1
75,000	74,999	-1	2
100,000	100,000	0	3
200,000	199,999	-1	5
400,000	399,999	-1	9
600,000	600,003	3	13

Errore di forma del tastatore piatto
Flat shape Error

Lunghezza campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measuer 2* M_2 / mm	Errore *Deviation* $\Delta l_f = \lvert M_2 - M_1 \rvert$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	/	/	/	/

Errore di misura bidirezionale
Bidirectional meaurement error

Lunghezza campione *Master length* L_n / mm	Misura *Mesure to M* / mm	Errore Massimo *Max Deviation* $B = M - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	25,000	0	1
75,000	74,999	-1	2

Ripetibilità scala principale
Repeatability main scale

Lunghezza del campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measure 2* M_2 / mm	Misura 3 *Measure 3* M_3 / mm	Misura 4 *Measure 4* M_4 / mm	Misura 5 *Measure 5* M_5 / mm	Deviazione standard *Standard Deviation* $s(M_i)$ / µm
200,000	199,999	200	199,999	200	199,999	0,55

Riepilogo risultati *Summay of results*		Misure *Measure* / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
Errore di indicazione *Length measurement error*	E	3	13
Errore di forma del tastatore piatto *Flat shape Error*	Δl_f	/	/
Errore di misura bidirezionale *Bidirectional meaurement error*	B	-1	2
Ripetibilità scala principale *Repeatability main scale*	$R(2s)$	1,4	/

Note : non presenti
Notes

VERIFIED BY technical
2024 FEB 14
QUALITY ASSURANCE

Data delle misure
Date of measurements
2024-02-13

Operatore
Technician
Andrea Cinel

technical SRL
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technical SRL
Quality Assurance
Elena Adornato

technical	**QUALITY CONTROL PLAN**	Job:	24/2385
		Document:	QCP-24/2385
		Page:	1 of 2

SAFETY AND RELIEF VALVES

Customer	**DELTA GmbH**
Project	-
Order	**DELTA-TECHNICAL-2024-PO-200**

CODICI DI INTERVENTO / Intervention codes

	Hold point
H	Works may not proceed until the inspection has been carried out or the Purchaser / Third Party has informed the Supplier in writing about renunciation of the inspection.
	Witness point
W	Inspection Authority witness; notifications will be issued as per agreements and the activity will proceed even if Inspectors / Third Party are not attending on the notified date.
	Doc and certification control
R	Review of documentation

Inspection Authority

(1) TECHNICAL
(2) CUSTOMER
(3) THIRD PARTY
(4) END USER

Remarks

Customer Approvals

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
1	02/10/2024	SECOND EMISSION	RB	LDV	RB
0	20/09/2024	FIRST EMISSION	RB	LDV	RB

tecHnical	**QUALITY CONTROL PLAN**	Job	24/2385
		Document	QCP-24/2385
		Revision	2
		Page	2 of 2

SAFETY AND RELIEF VALVES

No.	Inspection & Test	Reference Parts	Applicability %	Reference Standard and Documentation	Document Type	INSPECTION AUTHORITY			
						(1)	(2)	(3)	(4)
1	MATERIAL CERTIFICATE	BODY-NOZZLE-DISC	100%	ASME II A-B / ASTM UNI EN EN 10204 3.1	MATERIAL TEST CERTIFICATE	R	R		
2	HYDROSTATIC TEST	BODY-NOZZLE-BONNET CAP	100%	ASME B16.34 ASME VIII-Div.1 & XIII MSS-SP61 TCH PROC. IL10	TEST REPORT	H	R		
3	SET PRESSURE TEST	ASSEMBLED VALVE	100%	TCH PROC. IL42 ASME VIII-Div.1 & XIII EN ISO 4126	CONSTRUCTION DECLARATION	H	R		
4	SEAT LEAKAGE TEST	ASSEMBLED VALVE	100%	API 527 TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
5	SECONDARY PRESSURE TEST	ASSEMBLED VALVE	100%	ASME VIII-Div.1 & XIII TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
6	ACCESSORY CHECK	ASSEMBLED VALVE	100%	TCH DRAWINGS TCH BOM / ODL	CONSTRUCTION DECLARATION	H	R		
7	VISUAL AND DIMENSIONAL CHECK	ASSEMBLED VALVE	100%	TCH DRAWINGS TCH PROC. IL42	CONSTRUCTION DECLARATION	H	W		
8	MEASURE TOOL CERTIFICATE VERIFICATION	PRESSURE GAUGES	-	TCH PROC. IT03	CALIBRATION CERTIFICATE	R	R		
9	PAINTING CHECK	ASSEMBLED VALVE	100%	PAINTING SYSTEM (1)	REPORT	R	R		
10	VALVE NAMEPLATE	ASSEMBLED VALVE	100%	ASME XIII TCH PROC. IL42	CONSTRUCTION DECLARATION	H	R		
11	PACKING CHECK	ASSEMBLED VALVE	100%	TCH PROC. PP17	REPORT	H	R		
12	RELEASE NOTE	ASSEMBLED VALVE	100%	-	CUSTOMER'S RELEASE NOTE	R	H		

NOTES:

(1) ACCORDING TO BUYER'S PAINTING PROCEDURE SUPPLIED WITH THE PO

VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3792-002**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 2" 150 RF	35-0023-LTMG	SA 352 LCB

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
KDO3	1	HT A 3792 – 28	PSV-RU0001A-03
KDO3	1	HT A 3792 – 31	PSV-RU0001B-03

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	97 % **ACQUA** *WATER* 3 % **PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES* :

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR*	**DATA** *DATE*
DATA *DATE*	2024.12.04

technical SRL
Quality Assurance
Elena Adornato

tecHnical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** ***HYDROSTATIC TEST REPORT***	N° **HT 3573-004**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 2" 150 RF	**35-0035-LT**	**SA 352 LCB**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG No.
LGS2	1	HT A 3573 – 30	PSV-RU0001A-03
LGS2	1	HT A 3573 – 24	PSV-RU0001B-03

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	tecHnical 01	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES* :

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR*	**DATA** *DATE*
DATA *DATE*	2024.12.04

tecHnical SRL
Quality Assurance
Elena Adornato

VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3468-001**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
CAP Outlet connection 2" 150 RF	35-0120-LS	SA 352 LCB

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
BMZ2	1	HT A 3468 – 7	PSV-RU0001A-03
BMZ2	1	HT A 3468 – 8	PSV-RU0001B-03
BMZ2	1	HT A 3468 – 9	PSV-RU0001A-02
BMZ2	1	HT A 3468 – 10	PSV-RU0001B-02

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	97 % **ACQUA** *WATER*	3 % **PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	technical 01	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES* :

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR* **DATA** *DATE*	**DATA** *DATE* 2024.12.04	technical SRL Quality Assurance Elena Adornato

VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° **HT 3779-001**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 1" 300 RF	**42-1141-37**	**A479 AISI 316L**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
294420	1	HT A 3779 – 9	PSV-RU0001A-03
294420	1	HT A 3779 – 10	PSV-RU0001B-03

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**80 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*		
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE È RISULTATO:
Visual and Dimensional check:

☒ **CONFORME** *(accepted)*	☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR*	**DATA** *DATE*	tecHnical SRL Quality Assurance Elena Adornato
DATA *DATE*	2024.12.04	

VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3921-001**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 2" 150 RF	**35-0155-LT**	**SA352 LCB**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
KDL3	1	HT A 3921 – 3	PSV-RU0001A-02
KDL3	1	HT A 3921 – 1	PSV-RU0001B-02

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	technical 02	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR*	**DATA** *DATE*	technical SRL Quality Assurance Elena Adornato
DATA *DATE*	2024.12.04	

technical VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° **HT 2064-008**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 2" 150 RF	**35-0040-LT**	**SA 352 LCB**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
XAH0	1	HT A 2064 – 40	PSV-RU0001A-02
XAH0	1	HT A 2064 – 41	PSV-RU0001B-02

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	technical 01
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR* **DATA** *DATE*	**DATA** *DATE* 2024.12.04

technical SRL
Quality Assurance
Elena Adornato

VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° **HT 3904-001**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 1½" 300 RF	35-0263-37	SA351 CF3M

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
CDJ4	1	HT A 3904 – 15	PSV-RU0001A-02
CDJ4	1	HT A 3904 – 17	PSV-RU0001B-02

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	97 % **ACQUA** *WATER*	3 % **PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**80 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	TECHNICAL 02	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 24/2385
Customer: DELTA GmbH
Customer order number: DELTA-TECHNICAL-2024-PO-200

ISPETTORE *INSPECTOR*	**DATA** *DATE*
DATA *DATE*	2024.12.04

technical SRL
Quality Assurance
Elena Adornato

Testing Report n° 24.5579, 15th November, 2024 – English version

Customer
TECHNICAL S.R.L.

VIA TOSCANA 9
20052 VIGNATE (MI)

Sample number:	5579	**Matrix:**	Drinking water
Received date:	17/10/2024		
Started date:	21/10/2024	**Finished date:**	15/11/2024
Sample description:	Colourless clear liquid		
Sample label:	Demineralized water – Rif. comm 2240417 C/L CD		

Sample quantity:	1 l			
Packaging:	Plastic bottle	**Sampling procedure:**	Not declared	CD
Sample fetched by:	Customer	**Sampling date:**	17/10/2024	CD
Reference limits:	none			

Name test	Method	Unit	Value	Uncertainty (±)	Limit min	Limit max
Ammonia	APHA Standard Methods for the Examination of Water and Wastewater 4500 NH3 D (2021)	mg/l	0,404	0,069		
Nitrite (NO2)	APAT CNR IRSA 4050 Man 29 2003	mg/l	< 0,010			
Nitrate (NO3)	APHA Standard Methods for the Examination of Water and Wastewater 4110 B (2020)	mg/l	< 5,0			
* Bicarbonate	APHA Standard Methods for the Examination of Water and Wastewater 2320 B (2017)	mg(HCO3)/l	4,0			
Chloride	APHA Standard Methods for the Examination of Water and Wastewater 4110 B (2020)	mg/l	< 5,0			
Fluoride	APHA Standard Methods for the Examination of Water and Wastewater 4110 B (2020)	mg/l	< 0,5			
Sulphates (as SO4)	APHA Standard Methods for the Examination of Water and Wastewater 4110 B (2020)	mg/l	< 5			
pH	APAT CNR IRSA 2060 Man 29 2003	pH units	6,32	0,15		
Conductivity	APHA Standard Methods for the Examination of Water and Wastewater 2510 B (2021)	µS/cm at 20°C	16	1		
* Hardness	APAT CNR IRSA 2040 B Man 29 2003	°F	< 0,5			
* Dry residue at 180°C	UNI 10506:1996	mg/l	4			
* Arsenic	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	µg/l	< 1			
* Calcium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	mg/l	1,1			
* Total Chromium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	µg/l	< 1			
* Magnesium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	mg/l	< 1,0			

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technical SRL
Quality Assurance
Elena Adornato

EST srl Via Marconi, 14 Grassobbio (BG) Tel.035335638 laboratorio@estambiente.it www.estambiente.it C.F.,P.I. 01679870160

* Manganese	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	µg/l	< 1
* Potassium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	mg/l	< 1,0
* Sodium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2023	mg/l	< 2,0

Laboratory Manager
Dr.ssa Chim. Silvia De Matteis

REVISION REASON : Wrong data reported.
* Test not qualified by Accredia
OB out of bounds D derogation CD Customer Data
This Testing Report exclusively refers to the examined sample. It cannot be reproduced partially without laboratory approval.
The uncertainty reported is calculated to a confidence level of 95%, with a confidence level factor of k=2.
In case of sampling made by customer, results refer on sample as received. Laboratory decline any responsibility about information received by customer.

Document with advanced digital signature in accordance with current legislation.

END OF TEST REPORT

EST srl Via Marconi, 14 Grassobbio (BG) Tel.035335638 laboratorio@estambiente.it www.estambiente.it C.F.,P.I. 01679870160

think PC PROGETTI
Via Artigianato, 34 - 22069 ROVELLASCA (CO) - ITALIA - Tel. +39.02.9674.5416 - e-mail: info@pcprogetti.it

CALIBRATION REPORT Nr. 24-303-CT1

INSTRUMENTS	Pressure transmitter
TYPE	STS
S/N	1107934-037
FULL SCALE	700 bar
RESOLUTION	0,1 bar
CLASS	*0,25%
Master Instrument	Digital GAUGE
Type	TRAFAG
Serial Number	702282-029
F.S. Range	1600 bar
Resolution	0,1 bar
Class	*0,034%
Certification N°	LAT 093 N. 6824P
Procedure	PC001

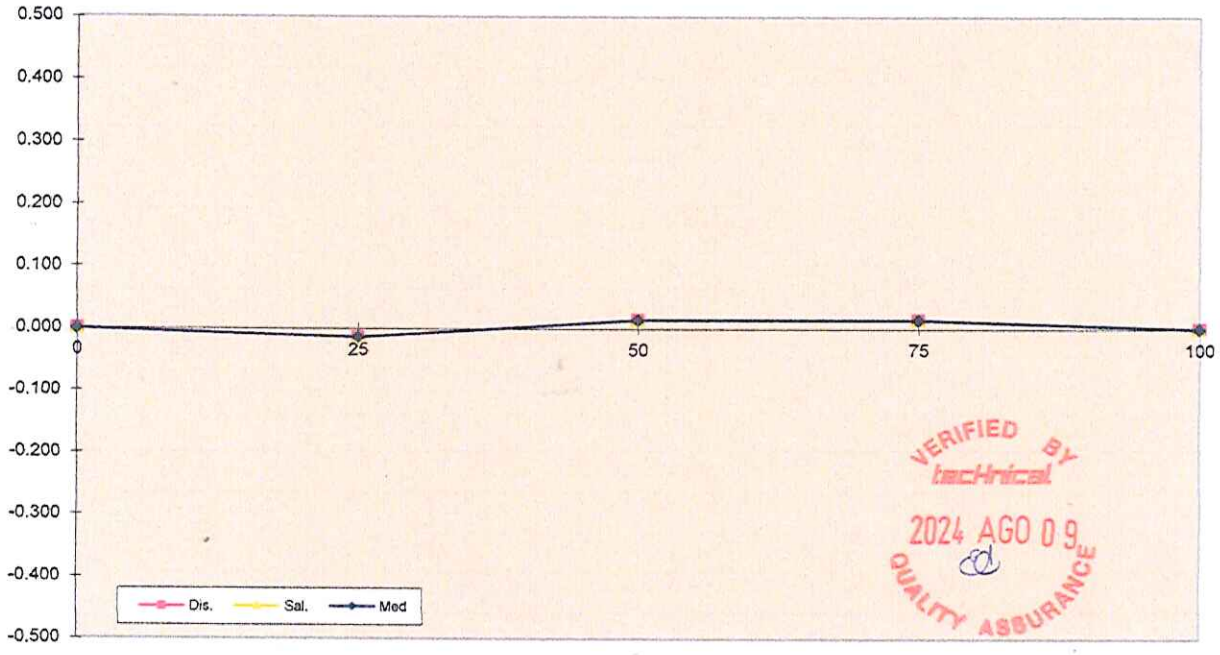
Amb. P. (mbar)	*
Dew (%)	*
Amb. Temp. (°C)	30°C
JOB	PC303
P.O.	C26-004-01
Result	POSITIVE
Date	09/08/2024
Expiration	09/08/2025
Operator	

CALIBRATION RESULTS (% Vs. Master Instruments)

Acc. Measured	Max Pos.	0.01
	Max Neg.	-0.01
Avarege Error	Max Pos.	0.01
	Max Neg.	-0.01
Hysteresis		0.00
Repeatability		0.00

Note:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MASTER		MEASURED VALUES						ERRORS (% F.s.)						Calculated Dev. (% F.s.)					
Mis	Mis.	Up	1	Up	2	Up	3	Up	1	Up	2	Up	3	Avarage			Hyst.	Ripetibility	
%	bar	1	Dwn	2	Dwn	3	Dwn	1	Dwn	2	Dwn	3	Dwn	Sal.	Disc.	Med		Up	Dwn
0	0.0	0.0						0.00								0.00			
24.3	170.3	170.2						-0.01								-0.01			
46.4	324.6	324.7						0.01								0.01			
75.3	526.8	526.9						0.01								0.01			
100.0	700.3	700.3						0.00								0.00			



Notes:

This report is referred to whole Trasmitter & A/D board of PLC

LENA ANTICORROSIONE s.r.l.

24046 OSIO SOTTO (BG) - Italy - Via Ciserano, 20 - Tel. 035 88.14.91
Fax 035 48.23.278 - www.lenaanticorrosione.it - e-mail: info@lenaanticorrosione.it

ISO 9001:2015 CERTIFIED SYSTEM IAS REGISTER Cert. N. 01178

Date: **20/12/2024**	**TEST REPORT** UNI EN 10204:2004 (2.2)	No. **241634**

Customer: **TECHNICAL SRL**

Order no.: **0225** *Our job no.:* 241000659 *OP:* **21.506** *LENA W.P.:* **IO14**

Job no.: **24/2385**

Contractor: **DELTA GmbH**

Painting specification: **SYSTEM 24-2385 REV.0**

Serial Number / *Tag:*

294899 294898

Material description: **S.VALVE 30000N 1"x2" 300x150 RF WCB 3A0-E23-BW** *Pieces:* **2** *Item:*

Serial Number / *Tag:*

294901 294900

Material description: **S.VALVE 30000 1½"x2" 300x150RF WCB 3A0-FA3-BW** *Pieces:* **2** *Item:*

SURFACE PREPARATION

DEGREASING

Product Name

NETTOYANT CARROSSERIE 547

Batch A H198306

Equipment Description:

HYDRO-JET SOLVENT

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
START	WATCH		17/12/2024 08,00	FINISH	WATCH		17/12/2024 08,30
CLEANING CHECK (SSPC-SP1)	VISUAL	no sign of dirt/grease	OK				

PROTECTION UNPAINTED SURFACES

Equipment Description:

TAPE/RUBBER/PLASTIC CAPS

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
MASKING CHECK	VISUAL	masking performed	17/12/2024 OK				

BLASTING

Product Name

GARNET 20-40 MESH

Batch A 3601

Equipment Description:

MANUAL BLASTING BOOTH

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
START	WATCH		17/12/2024 11,00	FINISH	WATCH		17/12/2024 11,30
SURFACE CLEANLINESS (ISO 8501-1)	VISUAL	SA 2½	OK				

Date: **20/12/2024**

TEST REPORT
UNI EN 10204:2004 (2.2)

No. **241634**

COATING

PRIMER APPLICATION

Product Name

CARBOGUARD 893 SG GREY

Batch A 240416017A - ***Batch B*** 240429045A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
PRODUCT CHECK	VISUAL	unexpired	OK	START	WATCH		17/12/2024 13,00
FINISH	WATCH		17/12/2024 14,00	DRY FILM THICKNESS (SSPC-PA2)	DELTASCOPE FMP30 FISCHER SN.92	MIN.75µm	18/12/2024 OK
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	18/12/2024 OK / GREY				

INTERMEDIATE APPLICATION

Product Name

CARBOGUARD 893 WHITE

Batch A 230509004A - ***Batch B*** 240229051A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
PRODUCT CHECK	VISUAL	unexpired	OK	START	WATCH		18/12/2024 14,00
FINISH	WATCH		18/12/2024 15,00	DRY FILM THICKNESS (SSPC-PA2)	DELTASCOPE FMP30 FISCHER SN.92	MIN.75µm (TOT.150µm)	19/12/2024 OK
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	19/12/2024 OK / WHITE				

TOP-COAT APPLICATION

Product Name

CARBOTHANE 134 HP RAL 7038

Batch A 230816009A - ***Batch B*** 240515022A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
PRODUCT CHECK	VISUAL	unexpired	OK	START	WATCH		19/12/2024 13,30
FINISH	WATCH		19/12/2024 14,30	DRY FILM THICKNESS (SSPC-PA2)	DELTASCOPE FMP30 FISCHER SN.92	MIN.75µm (TOT.225µm)	20/12/2024 OK

FINAL TEST

FINAL TEST

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
DRY FILM THICKNESS (SSPC-PA2)	DELTASCOPE FMP30 FISCHER SN.92	TOT.MIN. 225µm	20/12/2024 OK	VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	20/12/2024 OK / GREY RAL 7038

Notes:

PERFORMED BY	*REVIEW BY Q.C. MANAGER*	*CUSTOMER INSPECTOR*
LENA ANTICORROSIONE S.r.l.	LENA ANTICORROSIONE S.r.l. Resp. G. Qualità Alberto Lena	
DATE: 20/12/2024	*DATE:* 20/12/2024	*DATE:*

VIGNATE- MI - ITALY

RIEPILOGO CERTIFICATI - *CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
DELTA GmbH	***2024-PO-200***	***24/2385***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*
CORPO *BODY*	KDO3	P315/U	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	2	294898÷899
COPERCHIO *BONNET*	LGS2	N341/K	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	3	294898÷899
CAPPELLO *CAP*	BMZ2	N065/R1	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	4	294898÷899
BOCCAGLIO *NOZZLE*	294420	MEST117105/2024	ASME SA479 2010 S31603	ACCIAIERIE VALBRUNA	5 - 8	294898÷899
OTTURATORE *DISC*	292536	MEST070807/2024	ASME SA479 2010 S31603	ACCIAIERIE VALBRUNA	9 - 12	294898÷899
CORPO *BODY*	KDL3	P315/T	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	13	294900÷901
COPERCHIO *BONNET*	XAH0	L261/K3	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	14	294900÷901
CAPPELLO *CAP*	BMZ2	N065/R1	ASME SA352 LCB	SANDORI CASTINGS PVT. LTD.	4	294900÷901
BOCCAGLIO *NOZZLE*	CDJ4	Q049/K	ASME SA-351 CF3M 2010	SANDORI CASTINGS PVT. LTD.	15	294900÷901
OTTURATORE *DISC*	288924	MEST134665/2022	ASME SA479 2010 S31603	ACCIAIERIE VALBRUNA	16 - 18	294900÷901

ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*

ISPETTORE TECHNICAL / *TECHNICAL INSPECTOR*

technical SRL
Quality Assurance
Elena Adornato

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : 000656 / 1 / 1.0619/WCB/WCC/LCC/LCB / KDO3 / P315

Name of Customer : TECHNICAL S.R.L
Certificate Confirms To : EN 10204 3.1
Material Specification : EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB

DC No. : P315/U - 27/02/2024
Invoice No. : P315 - 27/02/2024

Purchase Order No. : 000656 - 26/10/2023
Order Acceptance No. : 0891/23-24 - 26/10/2023

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE			HTB No.
Min.	--	0.180	0.300	0.500											
Max.	--	0.230	0.600	1.000	0.020	0.020	0.300	0.400	0.120	0.300	0.030	0.430			
KDO3	09/11/2023	0.196	0.407	0.880	0.019	0.014	0.036	0.049	0.009	0.040	0.005	0.359			03/991/23 & 03/992/23

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -46 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	275.00	485.00	22.00	35.00							
Max.		600.00			237.00	27J	27J	27J	27J		
KDO3	307.29	539.39	30.60	49.82	144-150	32	44	40	38.67	BODY 1"600 x 2" 150RF Cust. Drg. No. : 35-0023-LTMG Rev. No. : 01 Mach. Drg. No. : 07-0523-A Rev. No. : 04 Customer Part ID : 07-0523-LTMG PO Line No. : 1 Wt./Pc. : 8.99	22

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY technical
2024 MAG 07
QUALITY ASSURANCE

Conclusion : Material Confirms to EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB Specification.

This alloy meets basic requirement of EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000717. / 2 / 1.0619/WCB/WCC/LCC/LCB / LGS2 / N341**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB**

DC No. : N341/K - 04/03/2023
Invoice No. : N341 - 04/03/2023

Purchase Order No. : 000717. - 07/10/2022
Order Acceptance No. : 0968/22-23 - 10/10/2022

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE			HTB No.
Min.	--	0.180	0.300	0.500											
Max.	--	0.230	0.600	1.000	0.020	0.020	0.300	0.400	0.120	0.300	0.030	0.430			
LGS2	17/12/2022	0.186	0.454	0.960	0.019	0.010	0.069	0.020	0.013	0.022	0.003	0.366			03/1315/22 & 03/1316/22,04/ 831/22 & 04/832/22

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -46 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
Min.	275.00	485.00	22.00	35.00		1	2	3	Avg		
Max.		600.00			237.00	27J	27J	27J	27J		
LGS2	306.29	531.12	30.60	49.99	144-150	36	44	40	40.00	BONNET 1½"X2" Cust. Drg. No. : 35-0035-LTMG Rev. No. : 04 Mach. Drg. No. : 10-0350-A Rev. No. : 01 Customer Part ID : 10-0350-LTMG PO Line No. : 2 Wt./Pc. : 3.01	56

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY technical
2023 GIU 19
QUALITY ASSURANCE

Conclusion : Material Confirms to EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB Specification.

This alloy meets basic requirement of EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA **(Laboratory Incharge)**	RAJESH VACHHANI **(Engineer - QA)**	V.M.BARIYA **(Authorised Inspector)**

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000780. / 2 / 1.0619/WCB/WCC/LCC/LCB / BMZ2 / N065**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB**

DC No. : N065/R1 - 31/05/2022
Invoice No. : N065 - 31/05/2022

Purchase Order No. : 000780. - 12/11/2021
Order Acceptance No. : 1270/21-22 - 13/11/2021

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE			HTB No.
Min.	--	0.180	0.300	0.500											
Max.	--	0.230	0.600	1.000	0.020	0.020	0.300	0.400	0.120	0.300	0.030	0.430			
BMZ2	25/02/2022	0.198	0.382	0.860	0.014	0.009	0.062	0.061	0.010	0.030	0.004	0.363			03/212/22 & 05/128/22

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Impact Test at -46 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	275.00	485.00	22.00	35.00							
Max.		600.00			237.00	27J	27J	27J	27J		
BMZ2	365.59	595.96	27.92	64.57	144-150	42	34	46	40.67	CAP TEST GAG 10/20/30000 Cust. Drg. No. : 35-0120-LS Rev. No. : 01 Mach. Drg. No. : 10-0354-A Rev. No. : 01 Customer Part ID : 10-0354-LS PO Line No. : 2 Wt./Pc. : 0.28 Max Wall Thick. : 9.0MM	58

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY technical
2022 NOV 15
QUALITY ASSURANCE

Conclusion : Material Confirms to EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB Specification.

This alloy meets basic requirement of EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA **(Laboratory Incharge)**	RAJESH VACHHANI **(Engineer - QA)**	V.M.BARIYA **(Authorised Inspector)**

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i. Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37 Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST117105 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell Your order Commande Num. de pedido: ORDINE 591

Conferma ordine nr. / Werks/Our Order/Ref nr. Num. de confirmación de pedido: MI24007170

Avviso di Spedizione / Lieferanzeige/Packing list/B.L. Aviso de embarque: A-MI24005470

Stato di fornitura / Lieferzustand Delivery state Etat de livraison Estado de la entrega: Laminato Solubilizzato - Pelato

Tipo di Elaborazione / Erschmelzungsart Melting process Mode d'elaboration Método de fusión: E+AOD

Qualità / Werkstoff/Grade/Nuance Calidad: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung Brand / Nuance / Marca: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes Trade marks Sigles de l'usine productrice Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen Inspector's stamp/Poinçon de l'assayeur Sello del Comprobador: MR

Punzonatura / Kennzeichnung Marking Marquage / Sello: 1.4401/1.4404

SPECIFICHE : / Anforderungen / Requirements / Exigences / Especificaciones

Note: / Aufzeichnungen / Notes / Notes / Notas

VAL STOCK W2 A/1 1.4404/316L A
IS107 01 316 A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
ASME SA182 2023 S31600/03 A (4)
ASME SA193 2023 B8M CLASS 1D (5)
ASME SA276 2023 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2023 S31600/03 A (8)
ASTM A182 2024 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1D
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2024A S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2024 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
ACH CO . .
KV L -196C . ISO 148-1
PREN . .

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 03.2022 AD 2000-MERKBLATT W 10 edition 06.2022
(3)AD 2000-MERKBLATT W 2 edition 03.2022 AD 2000-MERKBLATT W 10 edition 06.2022
(4)Section II Part A 2023 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2023 EDITION
(6)Section II Part A 2023 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2023 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021
(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

VERIFIED BY technical 2024 OTT 04 QUALITY ASSURANCE

		Tolleranza: k12 Toleranz/Allowance/Tolerance/Tolerancia					
Pos. nr. Pos. nr. / Item nr. Nr. de poste Numero de articulo	Oggetto Gegenstand / Product description Descrip. du produit Descripción del producto	Dimensioni - mm Abmessungen Dimension Dimension / Dimensiones	Lunghezza - mm Lange Length Longueur / Longitud	Colata Schmelze Heat Coulée / Colada	Pezzi Stückzahl Pieces Pieces / Piezas	Peso - KG Gewicht Weight Poids / Peso	Lotto nr. Losnr. Lot nr. Lot nr. / Lote nro.
0030	Tondo	65,000	6100/ 6110	294420		161,0	404704030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 02/10/2024
VCQ008 - MEST117105

Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad: **R.BERTELLI**

Direzione Prodotto / Produktmanagement/Product Management/Direction Produit/Gerente de producto: **P.MESSORI**

Pagina 1 di 4

technical SRL
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COPY TRUE TO THE ORIGINAL

technical SRL
Quality Assurance
Elena Adornato

Acciaierie Valbruna S.p.A.

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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37 Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1 — Certificato nr. MEST117105 / 2024 /
Nach/According to/Selon/De conformidad con — Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. ORDINE 591
Bestell Your order Commande Num. de pedido

Conferma ordine nr: MI24007170
Works/Our Order/Ref nr. Num. de confirmación de pedido

Avviso di Spedizione: A-MI24005470
Lieferanzeige/Packing list/B.L. Aviso de embarque

Stato di fornitura : Laminato Solubilizzato - Pelato
Lieferzustand Delivery state Etat de livraison Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart Melting process Mode d'elaboration Método de fusión

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung Brand / Nuance / Marca

Produttore :
Hersteller/Item/Usine productrice/Productor
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV MR
Zeichen des Lieferwerkes Trade marks Sigles de l'usine productrice Marcas de fábrica

Punzone del Collaudatore:
Stempel des Werkssachverständigen Inspector's stamp/Poinçon de l'assayeur Sello del Comprobador

Punzonatura: 1.4401/1.4404
Kennzeichnung Marking Marquage / Sello

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material asi come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicacion 1)	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elastico Rp 0,2% N/mm2	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elastico Rp 1% N/mm2	Resistenza Zugfestigkeit/Tensile strength Resistance à traction Resistencia a la traccion Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement / Elongación A5 %		Strizione Einschnürung Reduction of area Striction / Reducción de área Z %		Resilienza Kerbschlagarbeit Impact Value/ Resilience Prueba de impacto			Durezza Haerte Hardness Durete / Dureza HB		
Valori richiesti Anforderungen/Required values Valeurs demandees / Valores requeridos		min		200	235	500	40	-	-	-	-			-		
		max				700								215		
A	10	20	L	280	325	590	51		68					173		
I	10	20	L	274	321	585	53		66					171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material asi come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			5

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Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicacion 1)	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs demandees / Valores requeridos		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	199	210	205	1,850	1,810	1,675	67	70	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicacion 1)	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elastico Rp 0,2% N/mm2	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elastico	Resistenza Zugfestigkeit/Tensile strength Resistance à traction Resistencia a la traccion Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement / Elongación E 4d %		Strizione Einschnürung Reduction of area Striction / Reducción de área RA %		Resilienza Kerbschlagarbeit Impact Value/ Resilience Prueba de impacto			Durezza Haerte Hardness Durete / Dureza HB		
Valori richiesti Anforderungen/Required values Valeurs demandees / Valores requeridos		min		205	-	515	-	40	-	50	-			-		
		max												223		
C	12,5	20	L	285		589		55		69				174		

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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST117105 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell / Your order / Commande / Num. de pedido: ORDINE 591

Conferma ordine nr. / Werks/Our Order/Ref nr. / Num. de confirmación de pedido: MI24007170

Avviso di Spedizione / Lieferanzeige/Packing list/B.L. / Aviso de embarque: A-MI24005470

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega: Laminato Solubilizzato - Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión: E+AOD

Qualità / Werkstoff/Grade/Nuance / Calidad: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance / Marca: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Herstellwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4401/1.4404

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Lang.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicación 1)	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		100	100	100	-	-	-	-	-	-
F	10X10	20	L	258	251	248						
G	10X10	20	L	253	247	250						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

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Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique/Análisis químico

Colata/Heat/Coulée / Schmelze/Colada																
	min	23,0	-	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-
	max	28,0	0,030	1,00	2,00	18,00	2,50	13,00	-	0,045	0,030	0,100	-	-	-	-
	PRE	C %	Si %	Mn %	Cr %	Mo %	Ni %	Co %	P %	S %	N %				
294420	24,6	0,019	0,49	1,49	16,96	2,00	10,01	0,137	0,032	0,030	0,065				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 02/10/2024
VCQ008 - MEST117105

Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad
R.BERTELLI

Direzione Prodotto / Produktmanagement/Product Management/Direction Produit/Gerente de producto
P.MESSORI

Pagina 3 di 4

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https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon/De conformidad con

Certificato nr. MEST117105 / 2024 /
Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 591
Bestell / Your order / Commande / Num. de pedido

Conferma ordine nr: MI24007170
Werks/Our Order/Ref nr. / Num. de confirmación de pedido

Avviso di Spedizione: A-MI24005470
Lieferanzeige/Packing list/B.L. / Aviso de embarque

Stato di fornitura : Laminato Solubilizzato - Pelato
Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance / Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance / Marca

Produttore :
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV MR
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage / Sello

Solution annealing by process annealing 1040°C min /
/ cooling rapidly
Controlled rolled
Reduction ratio = 9,2 : 1
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 1X equivalent to EN 10277-1 Cl.3
"Issued in agreement with TÜV SÜD Industrie Service GMBH
(07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by
Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouve conforme aux exigences / El material cumple de acuerdo a los requisitos

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/OES portable : OK / Prueba de anti mezcla con tecnica XRF/OES portatil: OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant / Inspección visual y dimensional: cumple los requisitos

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

VERIFIED BY technical 2024 OTT 04 QUALITY ASSURANCE

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 02/10/2024 VCQ008 - MEST117105	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit/Gerente de producto **P.MESSORI**	Pagina 4 di 4

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Elena Adornato

Acciaierie Valbruna S.p.A.

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Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon/De conformidad con

Certificato nr. MEST070807 / 2024 /
Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 331
Bestell
Your order
Commande
Num. de pedido

Conferma ordine nr: MI24004343
Werks/Our Order/Ref nr.
Num. de confirmación de pedido

Avviso di Spedizione: A-MI24003302
Lieferanzeige/Packing list/B.L.
Aviso de embarque

Stato di fornitura: Laminato Solubilizzato - FINITO A FREDDO
Lieferzustand
Delivery state
Etat de livraison
Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration
Método de fusión

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance
Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance / Marca

Produttore:
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
Marcas de fábrica

AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
Sello del Comprobador

MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage / Sello

SPECIFICHE:
Anforderungen / Requirements / Exigences / Especificaciones

VAL STOCK W2 A/1 1.4404/316L A,CF
AD 2000-M. W 2 2022 1.4401 A,CF (0)
AD 2000-M. W 2 2022 1.4404 A,CF (1)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A,CF
ASME SA182 2021 S31600/03 A (2)
ASME SA276 2021 S31600/03 A,CF (3)
ASME SA479 2021 S31600/03 A (4)
ASTM A182 2023 S31600/03 A (5)
ASTM A262 PR. E 2015 316/316L (6)
ASTM A276 2023 S31600/03 A,CF
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A,CF
EN 10088 PART 3 2014 1.4404 A,CF
EN 10272 2016. 1.4401 A,CF
EN 10272 2016. 1.4404 A,CF
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (7)
NACE MR0175 2015 S31600/03 A (8)
QQ-S-763 F 316/316L A,CF
ACH CO . .
KV L -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes / Notas

(0)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(1)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(3)Section II Part A 2021 EDITION
(4)Section II Part A 2021 EDITION
(5)For products machined directly from bar refer also to ASTM A479.
(6)Reapproved 2021
(7)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(8)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

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2024 MAG 30
QUALITY ASSURANCE

		Tolleranza: k12 Toleranz/Allowance/Tolerance/Tolerancia					
Pos. nr. Pos. nr. / Item nr. / Nr. de poste / Número de artículo	Oggetto Gegenstand / Product description / Descrip. du produit / Descripción del producto	Dimensioni - mm Abmessungen / Dimension / Dimension / Dimensiones	Lunghezza - mm Länge / Length / Longueur / Longitud	Colata Schmelze / Heat / Coulée / Colada	Pezzi Stückzahl / Pieces / Pieces / Piezas	Peso - KG Gewicht / Weight / Poids / Peso	Lotto nr. Losnr. / Lot nr. / Lot nr. / Lote nro.
0010	Tondo	25,000	6050/ 6060	292536		119,0	229400640

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 28/05/2024 VCQ052 - MEST070807	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit/Gerente de producto P.MESSORI	Pagina 1 di 4

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Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1 — Certificato nr. MEST070807 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 331
Conferma ordine nr: MI24004343
Avviso di Spedizione: A-MI24003302

Stato di fornitura: Laminato Solubilizzato - FINITO A FREDDO
Tipo di Elaborazione: E+AOD
Qualità: 1.4401/1.4404/316/316L
Marca: MVAPML (MAXIVAL)

Produttore:
ACCIAIERIE VALBRUNA S.P.A.
Marchi di Fabbrica: AV
Punzone del Collaudatore: MR
Punzonatura: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition — Prüfung auf lieferbereitem produkt — test a l'etat de fourniture — Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab			°C	Posiz. Saggio	Snervamento Rp 0,2% N/mm2	Snervamento Rp 1% N/mm2	Resistenza Rm N/mm2	Allungamento A5 %		Strizione Z %		Resilienza			Durezza HB		
Valori richiesti		min				200	235	500	20	-	-	-	-			-		
		max						900								315		
A	10	20	L			443	528	665	45		67					221		
G	10	20	L			447	530	669	44		66					224		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			5

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab			°C	Posiz. Saggio	Resilienza KV2 J			Espansione laterale Lateral ex mm			Shear % Shear %		
Valori richiesti		min				-	-	-	-	-	-	-	-	-
		max												
B	10X10	-196	L			170	170	164	1,592	1,400	1,455	70	68	68

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab			°C	Posiz. Saggio	Snervamento Rp 0,2% N/mm2	Snervamento Limite elastico	Resistenza Rm N/mm2	Allungamento E 4d %		Strizione RA %		Resilienza			Durezza HB		
Valori richiesti		min				210	-	517	-	30	-	50	-			-		
		max														235		
C	12,5	20	L			458		669		47		69				223		

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon/De conformidad con

Certificato nr. MEST070807 / 2024 /
Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 331
Bestell
Your order
Commande
Num. de pedido

Conferma ordine nr: MI24004343
Werks/Our Order/Ref nr.
Num. de confirmación de pedido

Avviso di Spedizione: A-MI24003302
Lieferanzeige/Packing list/B.L.
Aviso de embarque

Stato di fornitura: Laminato Solubilizzato - FINITO A FREDDO
Lieferzustand
Delivery state
Etat de livraison
Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration
Método de fusión

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance
Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance / Marca

Produttore:
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV MR
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
Marcas de fábrica

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
Sello del Comprobador

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage / Sello

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Prebestab Specimen/Eprouvette Larg./diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais. mm / Probeta	°C	Posiz. Saggio Prelievo Location Emplacement Ubicación	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs demandées / Valores requeridos		min		100	100	100	-	-	-	-	-	-
		max										
F	10X10	20	L	198	201	202						
H	10X10	20	L	191	206	200						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

VERIFIED BY technical
2024 MAG 30
QUALITY ASSURANCE

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique/Análisis químico

Colata/Heat/Coulée Schmelze/Colada		C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max	0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
292536		0,017	0,47	1,46	16,84	2,05	0,54	10,07	0,129	0,031	0,022	0,066				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	SATISFACTORY

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	SATISFACTORY

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 28/05/2024
VCQ052 - MEST070807

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit/Gerente de producto
P.MESSORI

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
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Certificato nr. MEST070807 / 2024 /
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VIA TOSCANA, 9
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Ordine nr: ORDINE 331
Bestell / Your order / Commande / Num. de pedido

Conferma ordine nr: MI24004343
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Avviso di Spedizione: A-MI24003302
Lieferanzeige/Packing list/D.L. / Aviso de embarque

Stato di fornitura: Laminato Solubilizzato - FINITO A FREDDO
Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance / Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance / Marca

Produttore:
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica

Punzone del Collaudatore: MR
Stampel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage / Sello

Reduction ratio = 61,1 : 1
Solution annealed 1040°C for 135'(total time)/water cooled.
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 2H
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforms aux exigences / El material cumple de acuerdo a los requisitos

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/OES portable : OK / Prueba de anti mezcla con técnica XRF/OES portátil: OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant / Inspección visual y dimensional: cumple los requisitos

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

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QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 28/05/2024 VCQ052 - MEST070807	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit/Gerente de producto **P.MESSORI**	Pagina 4 di 4

technical SRL
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COPY TRUE TO THE ORIGINAL

technical SRL
Quality Assurance
Elena Adornato

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : 000656 / 2 / 1.0619/WCB/WCC/LCC/LCB / KDL3 / P315

Name of Customer : TECHNICAL S.R.L
Certificate Confirms To : EN 10204 3.1
Material Specification : EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB

DC No. : P315/T - 27/02/2024
Invoice No. : P315 - 27/02/2024

Purchase Order No. : 000656 - 26/10/2023
Order Acceptance No. : 0891/23-24 - 26/10/2023

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE			HTB No.
Min.	--	0.180	0.300	0.500											
Max.	--	0.230	0.600	1.000	0.020	0.020	0.300	0.400	0.120	0.300	0.030	0.430			
KDL3	09/11/2023	0.208	0.417	0.840	0.019	0.017	0.043	0.067	0.011	0.043	0.005	0.367			03/991/23 & 03/992/23

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -46 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	275.00	485.00	22.00	35.00							
Max.		600.00			237.00	27J	27J	27J	27J		
KDL3	307.29	529.59	29.92	51.62	144-150	44	36	30	36.67	BODY 1½"600 x 2"150RF Cust. Drg. No. : 35-0155-LTMG Rev. No. : 00 Mach. Drg. No. : 07-0580-A Rev. No. : 02 Customer Part ID : 07-0580-LTMG PO Line No. : 2 Wt./Pc. : 11.66	11

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

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Conclusion : Material Confirms to EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB Specification.

This alloy meets basic requirement of EN 10213/SA216/SA352 GR. : 1.0619/WCB/WCC/LCC/LCB. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA	RAJESH VACHHANI	V.M.BARIYA
(Laboratory Inchargo)	(Engineer - QA)	(Authorised Inspector)

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000679 / 4 / 1.0619/WCB/WCC/LCC/LCB / XAH0 / L261**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **EN 10213/SA216/SA217 GR. : 1.0619/WCB/WCC/LCC/LCB**

DC No. : L261/K3 - 23/02/2021
Invoice No. : L261 - 23/02/2021

Purchase Order No. : 000679 - 06/11/2020
Order Acceptance No. : 1005/20-21 - 20/11/2020

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE		HTB No.
Min.	–	0.180	0.300	0.500										
Max.	–	0.230	0.600	1.000	0.020	0.020	0.300	0.400	0.120	0.300	0.030	0.430		
XAH0	07/12/2020	0.204	0.401	0.900	0.015	0.008	0.126	0.044	0.009	0.026	0.006	0.387		03/1025/20 & 03/1026/20

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Impact Test at -46 °C (Min. Joule)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	275.00	485.00	22.00	35.00							
Max.		600.00			237.00	27J	27J	27J	27J		
XAH0	358.32	527.32	28.32	65.09	144-150	40	60	46	48.67	BONNET 1½"X 3" Cust. Drg. No. : 35-0040-LT Rev. No. : 01 Mach. Drg. No. : 10-0362-A Rev. No. : 01 Customer Part ID : 10-0362-LS PO Line No. : 4 Wt./Pc. : 4.07	46

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY technical 2021 APR 04 QUALITY ASSURANCE

Conclusion : Material Confirms to EN 10213/SA216/SA217 GR. : 1.0619/WCB/WCC/LCC/LCB Specification.

This alloy meets basic requirement of EN 10213/SA216/SA217 GR. : 1.0619/WCB/WCC/LCC/LCB. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA **(Laboratory Inchargo)**	RAJESH VACHHANI **(Engineer - QA)**	V.M.BARIYA **(Authorised Inspector)**

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000078 / 1 / SA351 CF3M / CDJ4 / Q049**

Name of Customer : TECHNICAL S.R.L
Certificate Confirms To : EN 10204 3.1
Material Specification : ASME SA351/SA351M -23 GR. : SA351 CF3M

DC No. : Q049/K - 27/05/2024
Invoice No. : Q049 - 27/05/2024

Purchase Order No. : 000078 - 01/02/2024
Order Acceptance No. : 1311/23-24 - 02/02/2024

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %						HTB No.
Min.	--						17.000	9.000	2.000						
Max.	--	0.030	1.500	1.500	0.040	0.040	21.000	13.000	3.000						
CDJ4	09/03/2024	0.021	0.800	0.880	0.037	0.015	18.550	9.530	2.240						03/177/24

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -196 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	205.00	485.00	30.00								
Max.					237.00	60J	60J	60J	60J		
CDJ4	256.58	529.39	45.36	--	144-150	116	100	92	102.67	NOZZLE 1½"600-1500RF ØF Cust. Drg. No. : 35-0263-37 Rev. No. : 00 Mach. Drg. No. : 42-1181-A Rev. No. : 00 Customer Part ID : 42-1181-G1 PO Line No. : 1 Wt./Pc. : 1.75	27

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed 1100°C, 1 Hour per Inch Soaking, Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

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2024 AGO 08
QUALITY ASSURANCE

Conclusion : Material Confirms to ASME SA351/SA351M -23 GR. : SA351 CF3M Specification.

This alloy meets basic requirement of ASME SA351/SA351M -23 GR. : SA351 CF3M. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Inchargo)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST134665 / 2022 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 844
Bestell
Your order
Commande

Conferma ordine nr: MI22009429
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22007572
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Trafilato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 316/316L/1.4401
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

ASME SA479 2021 S31600/03 A (0)
EN 10088 PART 3 2014 1.4401 A,CF
EN 10088 PART 3 2014 1.4404 A,CF
EN 10272 2016. 1.4401 A,CF
EN 10272 2016. 1.4404 A,CF

Note:
Aufzeichnungen / Notes / Notes

(0)Section II Part A 2021 EDITION

Tolleranza: k12
Toleranz/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. Item nr. Nr. de poste	Gegenstand Product description Descrip. du produit	Abmessungen Dimension Dimension	Länge Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Los-nr. Lot nr. Lot nr.
0040	Tondo	30,000	6000/ 6060	288924	3	103,0	208704100

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material asi come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam./Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs demandées		min max			200	235	500 900	20	-	-	-	-			- 315		
A	10	20	L		445	506	647	43		60					222		
G	10	20	L		453	510	651	41		59					224		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material asi come entregado

TEST		min	max	
G	Dimensioni grano x ASTM E112			5

VERIFIED BY technical 2023 GEN 02 QUALITY ASSURANCE

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam.Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs demandées		min max			205	-	515	-	30	-	40	-			-		
D	12,5	20	L		467		650		45		70						

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 19/12/2022	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina
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Quality Assurance
Elena Adornato

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST134665 / 2022 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 844
Bestell / Your order / Commande

Conferma ordine nr: MI22009429
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22007572
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Trafilato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grede/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine productrice

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 316/316L/1.4401
Kennzeichnung / Marking / Marquage

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
E	10X10	20	L	217	220	215						
H	10X10	20	L	224	215	220						

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %						
min -	-	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	-	-	-	-	-	-	
288924	0,014	0,58	1,55	16,65	2,01	10,02	0,027	0,025	0,061						

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 42,9 : 1
Material annealed 1040°C for 160'(total time)/water cooled.
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 2H

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/QES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/QES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

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QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 19/12/2022 VCQ012 - MEST134665	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 3

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Punzonatura: 316/316L/1.4401
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

VERIFIED BY technical 2023 GEN 02 QUALITY ASSURANCE

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 19/12/2022 VCQ012 - MEST134665	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

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