# MUSSARI S.r.l.

Trafileria tubi inox di alta precisione
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22075 LURATE CACCIVIO/COMO (ITALY)
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TEST CERTIFICATE ACCORDING TO
EN 10204 / 3.1
ABNAHMEPRUFZEUGNIS
CERTIFICAT D'ESSAIS
CERTIFICATO DI COLLAUDO

N. 2154 - 2017

DATE - Datum/Data
25 luglio 2017

Comm. Nr. 2028/17

DELIVERY BILL - Lieferschein/Bulletin de Livraison/Bolla di consegna
1682

CUSTOMER ORDER N° - Bestellung/Commande Client/Ordine Cliente
2017141

## MECHANICAL TEST
Mechanische Prufungen/Essai Mécaniques/Caratteristiche meccaniche

SPECIFICATIONS Anforderugen/Specifiations/Normative:
ASTM A 213/269* - MSR-HP Tubes

| STEEL GRADE | DIMENSIONS | QUANTITY | | | YIELD POINT | | TENSILE STRENGHT | | ELONGATION | | HARDNESS | | TECHNOLOGICAL TEST | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Menge/Quantita/Quantita | | | Streck-Dehngrenze / Limite d'élasticité / Limite di snervamento | | Zugfestigkeit / Résistance à traction / Limite di Rottura | | Bruchdehnung / Allongement / Allungamento | | Haerte / Dureté / Durezza | | Technologische Prufung / Examen Technologique / Prova tecnologiche | |
| Werkstoff/Nuance / Materiale | Abmessungen / Dimensions/Dimensioni | MT / Mt | PC. / pz. | LGTH / mm | RP0.2% req. | N/mm² result | N/mm² req. | result | % LO2" req. | result | HRB req. | result | FLARING TEST: Erweitenversuch/Evasement/Allargamento | = |
| TP 316 - 316L | 1/4" x 0.083" 6.35 x 2.10 | 317,53 | | | ≥ 689 | 785,8 777,0 | ≥ 758 | 922,5 936,4 | ≥ 18% | 20,0 20,0 | ≥ 95 | 101,2 100,8 | FLANGE TEST: Krempeversuch/Bordage/Bordatura | = |
| | | | | | RP1.0%N/mm2 req. | result | | | | | | | FLATTENING TEST: Abflachungversuch/Aplatissement/Schiacciamento | = |
| | | | | | | | | | | | | | BENDING REV.TEST: Faltversuch/Pliange/Piegamento | = |
| | | | | | | | | | | | | | RING FLATTENING TEST: Ring Faltversuch/Ecrasement annsau/Prova di Schiacciamento | = |
| | | | | | | | | | | | | | DRIFT EXPANDING TEST : Aufweitversuch/Mandrin.ann./Mandrinatura Anelle | = |

| STEEL GRADE Werkstoff/Nuance Materiale | DIMENSIONS Abmessungen Dimensions/Dimensioni | HEAT N° Schmelze Coulée/Colata | %C MAX 0.035 | %Mn MAX 2.00 | %SI MAX 0.75 | %P MAX 0.045 | %S MAX 0.03 | %NI MIN 10.00 MAX 14.00 | %Cr MIN 16.00 MAX 18.00 | %Mo MIN 2.00 MAX 3.00 | %TI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TP 316 - 316L | 1/4" x 0.083" 6.35 x 2.10 | A03775 | 0,020 | 1,150 | 0,420 | 0,033 | 0,005 | 10,290 | 16,780 | 2,100 | |
| | PRODUCT ANALYSIS: | | | | | | | | | | |
| | PRODUCT ANALYSIS: | | | | | | | | | | |

REMARKS
Bemerkungen/Notes/Note

smls tubes cold drawn HARD pickled

nahtloses rohr kalt gezogen HART gebeizt - Tubes sans soudure étirés à froid

Ecrui décapés - Tubi senza saldatura trafilati a freddo CRUDI decapati

*Only For Chemical Analysis

Suitable for 60.000 Psi

| | |
|---|---|
| HEAT TREATMENT : Warmebehandlung/Traitement Termique/trattamento termica | N.A. |
| PMI TEST on each tube: Verwechlungsprufing/Essai P.M.I./Prova anti mescolanze | = |
| Intergranular corrosion test acc. To A262/pract. E Korrosionsfordeinde Ruckstander/Essai residues corrosif/Prova residui corrosivi | = |

FLOW TECHNOLOGY LTD
TEST CERTIFICATE
VERIFIED TRUE
COPY OF ORIGINAL

*100% hydrostatic pressure tested at* == *During 5 sec :* ==
Wasserdruckversuch/Essai Hydraulique/Prova idraulica

*100% eddy current test acc.to A1016-NFA 49872-SEP 1914-ASTM A450/E426-EN 10893-1-EN 10893-2-EN10246-2 :GOOD*
Eddy current/Courant de Foucault/Eddy Current

| | | | |
|---|---|---|---|
| *Visual and Dimensional control :* Besichtugung und Ausmessung/Controle Visuel et Dimensionel/Controllo Visivo e Dimensionale | OK | *Straightness control* Geradheit Kontrolle/Contrôle de rectitude/Controllo rettilineità | = |

MARKING-Kennzeichnung/Marquage/Marcatura

MSR - ASTM A213/269 - AISI 316-316L Heat Nr.... MSR-HP Tubes Size 1/4"x0.083" O.D....x....mm I.D. C.D. tubes Suit. For 60.000 PSI

We certify that the material described has been manifactured acc. With above standards and specifications and satisfies the order's requirements.
Wir besteegen, dass die gelieferte Ware den Bestellevorschriften entspricht/Nous attestons que les produits livres sont conformes aux références de la commande/Noi attestiamo che il materiale spedito e' conforme ai requisiti dell'ordine

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INSPECTION DEPARTMENT SIGNATURE
MUSSARI S.r.l.

F13340 - 1/4" HIGH PRESSURE NIPPLE 77mm LONG 60K 316L