



Blatt 1 von 3

**Abnahmeprüfzeugnis**  
**Inspection Certificate**  
**Certificat de Réception (EN 10204-3.2)**  
**Certificato Collaudo Materiali**

Kunde - Customer - Acheteur - Committente:  
**ENTECH DOO**

Hersteller - Manufacturer - Fabricant - Produttore:

Wuliyao, Yanshan County, Hebei province, China.

Prüf-Nr. - Inspection No.: **230417**

Certificat N<sup>o</sup> - N<sup>o</sup> di collaudo:

Teil - Part - Partie - Parte:

Blatt-Nr. - Sheet No. - Page-N<sup>o</sup> - Pag-N<sup>o</sup>: **1/3**

Kundenbestell-Nr. - Client order No - N<sup>o</sup> de la commande **01-HC/2016**

vom - dated - date - in data:

Werks-Nr. - Works-No - N<sup>o</sup> usine - Comessa N<sup>o</sup>:

**Prüfgegenstand - Article - Produit - Prodotto: Seamless steel Pipe**

Prüfgrundlagen/Anforderungen - Technical requirements/Demand - Spécifications techniques/Exigences - Norma di controllo/Requisiti:

**Approval according to EN 10216-2 and customer's requirement.**

Werkstoff - Material - Matière -

entsprechend - according to - suivant - secondo:

Ausgabe - Edition - Edizione:

**13CrMo4-5**

**EN 10216-2**

**2007**

Lieferzustand - State of delivery - Etat de livraison - Stato di fornitura:

**Normalized at 940°C and Tempered at 700°C**

Hergesteuter prozess - Fabricated process :

**Hot finished**

Kennzeichnung - Marking - Marquage -  
 Punzonature:

Herstellerzeichen - Brand of the manufacturer -  
 Marque du fabricant - Marchio del produttore: **HC**

**Brand, Heat no. standard, steel name, dimension Order No.**

Stempel des Sachverständigen - Inspector's stamp  
 -Poinçon de l'expert - Punzone dell'ispettore:

**Umfang der Lieferung - Extent of material delivery - Liste descriptive - Descrizione della fornitura:**

Pos.Nr. Item No Poste N <sup>o</sup> N <sup>o</sup> pos.	Los-Nr. Lot No.	Stückzahl Number of Qte Numero pezzi	Gegenstand - Article - Désignation du produit - Tipo di prodotto	Schmelze-Nr. Heat No N <sup>o</sup> Coulée N <sup>o</sup> Colata	Probe-Nr. Test No N <sup>o</sup> d'éprouvette N <sup>o</sup> di prova*
1	HC20160612001	7pcs	SMLS steel pipes with I.D.550x15mm, the total length of the pipes is 45m.	1621827	06-22-001

Zusätzliche Angaben - Additional remarks - Autres remarques - Osservazione:

Die gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirement are fulfilled as per Annex. - Les concitions imposées sont satisfaites suivant annexes. -

I risultati sono conformi ai requisiti richiesti come da allegati

**Hersteller-Manufacturer**

Werkssachverständige / Authorized representative

Beijing

(Ort - Location - Lieu - Localita)

Anlagen - Annexes - Allegati: <sup>1)</sup> Ergebnis der Prüfungen - Test results - Résultats des essais - Risultati delle prove

Weitere Anlagen in <sup>1)</sup> - Other annexis in <sup>1)</sup> - Autres annexes en <sup>1)</sup> - Altri allegati in <sup>1)</sup>

TÜV SÜD Industrie Service GmbH



Mr. Bingjiang Liu

June 25, 2016

(Datum - Date - Data)



Prüf-Nr. - Inspection No.: **230417**

Certificat No. :

Teil - Part:

Anlage - Annex: 2

Blatt-Nr. - Page No.: 1/2

**Ergebnis der Prüfungen**  
**Test Results**  
**Résultats des Essais**

**1. Mechanische Prüfungen - Mechanical Tests - Essais mecaniques - Prove meccaniche**

Prüfart - Test Type - Type d'essai - Tipo di prove: Probenart - Specimen Type - Type de l'éprouvette - Tipo di Provette: Probenzustand - State of delivery of specimen - Traitement de l'éprouvette - Stato delle provette:			Tensile test Normalized and Tempered								Impact test											
Probe-Nr. Test No. N° d'éprouvette No di prova	Probenabmessung Dim. of specimen Dim. de l'éprouvette Dim. della provetta		Probenentnahme Specimen Prélevement Prelevamento			Prüftemperatur Test temperature Température d'essai Temperatura di Sireck-Dehngrenze Yield point Proof stress Limite d'élasticité in allungamento Zugfestigkeit Tensile strength Resistance a la trac- tion	Bruchdehnung Elongation Allongement Bruchdehnung Reduction of area Striction/Strizione	Rp 0.2 MPa	Rm MPa	A5 %	Z %**	1 = (J) Schlagarbeit - Energy of impact - Energie de rupture - Energia di rottura	2 = (J/cm²) Kerbschlagzähigkeit - Impact strength	3 = (%) Résilience - Resilienza Krist. Bruchanteil - Cryst. proportion Partie cristalline - Proporzione cristallina	4= (mm 10 <sup>-2</sup> ) Breitung - Expansion Enlargissement - Espansione	5 = (%) Härte (Einheiten) - Hardness Dureté - Durezza	6 =	Werte - Values - Valeurs				Remark
	Dicke Thickness Epaisseur Spessore mm	Breite, Ø Width, Ø Largeur, Ø Largh, Ø mm	Ort - Location - Lieu - Zona	Richtung - Direction - Sensio	Lage - Position Posizione	°C	MPa											MPa	%	%	1	
Schmelze - Nr. Heat No. N° Coulée Colata No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17					
Requirements				L			RT 450	≥ 290 ≥ 168	440-590	≥ 22						≥ 27						
06-22-001		Ø5 10*10*55		L L T			RT 450 RT	375 405	540 602	32.5 9.1	66	1	149	164	152	155						

L: longitudinal T: transverse

**2. Chemical composition: %**

Test No.	C	Mn	Si Max.	P Max.	S Max.	Cr	Mo	Ni Max.	Al <sub>tot</sub> Max.	Cu Max.
Chemical Requirements (product analysis)	0.10-0.17	0.40-0.70	0.35	0.025	0.020	0.70-1.15	0.40-0.60	0.30	0.040	0.30
Test Result										
06-22-001	0.14	0.52	0.2	0.013	0.012	0.99	0.55	0.01	0.002	0.02

**3. Other test:**

- 1) Visual examination and dimensional check: without objection.
- 2) UT test: without objection to EN10246.
- 3) Material identification (PMI) test: without objection.
- 4) Technological properties test (flattening test): without objection.
- 5) Leaking test(hydrostatic test at 70bar): without objection.
- 6) Marking check: without objection.
- 7) Microstructure photos, see attached picture.

**4. Other enclosures:**

Material certificate 3.1: HC20160625001, dated on 2016-06-25

**Hersteller/Manufacturer**

**TÜV SÜD Industrie Service GmbH**

Werkssachverständige / Authorized representative

Beijing  
(Ort - Location - Lieu - Localita)



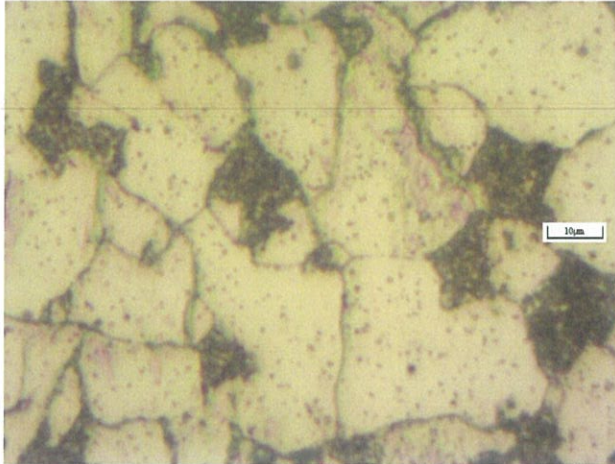
Mr. Ping ZHANG  
June 25, 2016  
(Datum) - Date - Data

Blatt 3 von 3

**Ergebnis der Prüfungen**  
**Test Results**  
**Résultats des Essais**

Prüf-Nr. - Inspection No.: **230417**  
Certificat No. :  
Teil - Part:  
Anlage - Annex: **2**  
Blatt-Nr. - Page No.: **2/2**

**5. microstructure photos, x500**

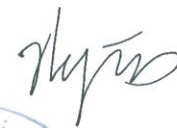


**Hersteller/Manufacturer**

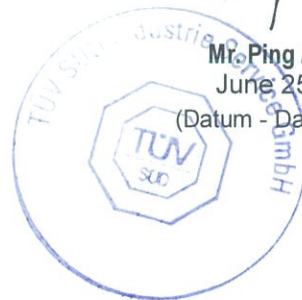
**TÜV SÜD Industrie Service GmbH**

Werkssachverständige / Authorized representative

Beijing  
(Ort - Location - Lieu - Localita)



**Mr. Ping ZHANG**  
June 25, 2016  
(Datum - Date - Data)





Blatt 1 von 3

**Abnahmeprüfzeugnis**  
**Inspection Certificate**  
**Certificat de Réception (EN 10204-3.2)**  
**Certificato Collaudo Materiali**

Kunde - Customer - Acheteur - Committente:  
**ENTECH DOO**

Hersteller - Manufacturer - Fabricant - Produttore:

Wuliyao, Yanshan County, Hebei province, China.

Prüf-Nr. - Inspection No.: **230418**

Certificat N<sup>o</sup> - N<sup>o</sup> di collaudo:

Teil - Part - Partie - Parte:

Blatt-Nr. - Sheet No. - Page-N<sup>o</sup> - Pag-N<sup>o</sup>: **1/3**

Kundenbestell-Nr. - Client order No - N<sup>o</sup> de la commande **01-HC/2016**

vom - dated - date - in data:

Werks-Nr. - Works-No - N<sup>o</sup> usine - Comessa N<sup>o</sup>:

**Prüfgegenstand - Article - Produit - Prodotto: Seamless Steel Pipes**

Prüfgrundlagen/Anforderungen - Technical requirements/Demand - Spécifications techniques/Exigences - Norma di controllo/Requisiti:

**Approval according to EN 10216-2 and customer's requirement.**

Werkstoff - Material - Matière -

entsprechend - according to - suivant - secondo:

Ausgabe - Edition - Edizione:

**10CrMo9-10**

**EN 10216-2**

**2007**

Lieferzustand - State of delivery - Etat de livraison - Stato di fornitura:

**Normalized at 940°C and Tempered at 740°C**

Hergesteuter prozess - Fabricated process :

**Hot finished**

Kennzeichnung - Marking - Marquage -  
 Punzonature:

Herstellerzeichen - Brand of the manufacturer - **HC**  
 Marque du fabricant - Marchio del produttore:

**Brand, Heat no. standard, steel name, Dimension Order No.**

Stempel des Sachverständigen - Inspector's stamp  
 -Poinçon de l'expert - Punzone dell'ispettore:

**Umfang der Lieferung - Extent of material delivery - Liste descriptive - Descrizione della fornitura:**

Pos.Nr. Item No Poste N <sup>o</sup> N <sup>o</sup> pos.	Los-Nr. Lot No.	Stückzahl Number of Qte Numero pezzi	Gegenstand - Article - Désignation du produit - Tipo di prodotto	Schmelze-Nr. Heat No N <sup>o</sup> Coulée N <sup>o</sup> Colata	Probe-Nr. Test No N <sup>o</sup> d'éprouvette N <sup>o</sup> di prova*
1	HC20160613002	12pcs	SMLS steel pipes with I.D.600x16mm, the total length of the pipes is 70m.	1630202	06-22-002

Zusätzliche Angaben - Additional remarks - Autres remarques - Osservazione:

Die gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirement are fulfilled as per

Annex. - Les concitions imposées sont satisfaites suivant annexes. -

I risultati sono conformi ai requisiti richiesti come da allegati

**Hersteller-Manufacturer**

**TÜV SÜD Industrie Service GmbH**

Werkssachverständige / Authorized representative

Beijing

(Ort - Location - Lieu - Località)

Anlagen - Annexes - Allegati: <sup>1)</sup> Ergebnis der Prüfungen - Test results - Résultats des essais - Risultati delle prove

Weitere Anlagen in <sup>1)</sup> - Other annexis in <sup>1)</sup> - Autres annexes en <sup>1)</sup> - Altri allegati in <sup>1)</sup>





Prüf-Nr. - Inspection No.: **230418**

Certificat No. :

Teil - Part:

Anlage - Annex: 2

Blatt-Nr. - Page No.: 1/2

**Ergebnis der Prüfungen**  
**Test Results**  
**Résultats des Essais**

**1. Mechanische Prüfungen - Mechanical Tests - Essais mecaniques - Prove meccaniche**

Prüfart - Test Type - Type d'essai - Tipo di prove: Probenart - Specimen Type - Type de l'éprouvette - Tipo di Provette: Probenzustand - State of delivery of specimen - Traitement de l'éprouvette - Stato delle provette:			Tensile test Normalized and Tempered								Impact test						
Probe-Nr. Test No. N° d'éprouvette No di prova	Probenabmessung Dim. of specimen Dim. de l'éprouvette Dim. della provetta		Probenentnahme Specimen Prélevement Prelevamento			Prüftemperatur Test temperature Température d'essai Temperatura di essal	Streck-/Dehnungsgrenze Yield point Pointe d'élasticité Limite di elasticità	Zugfestigkeit Tensile strength Résistance à la traction	Bruchdehnung Elongation Allongement	Bruchreduktion Reduction of area Striction/Strizione	1 = (J)	Schlagarbeit - Energy of impact - Energie de rupture - Energia di rottura					
	Schmelze - Nr. Heat No. N° Coulée Colata No	Dicke Thickness Eppaisseur Spessore mm	Breite, Ø Width, Ø Largeur, Ø Largh, Ø mm	Ort - Location Lieu - Zona	Richtung - Sensio Direction - Senso	Lage - Position Posizione	°C	MPa	MPa	%	%	Kerbschlagzähigkeit - Impact strength Résilience - Resilienza Krist. Bruchanteil - Cryst. proportion Partie cristalline - Proporzione cristallina Breitung - Expansion Enlargissement - Espansione Härte (Einheiten) - Hardness Dureté - Durezza					
											Werte - Values - Valeurs				Remark		
											1	2	3	Σ/3			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
<b>Requirements</b>				L		RT 500	≥280 ≥180	480-630	≥22							≥27	
06-22-002		Ø5 10*10*55		L L T		RT 500 RT	325 485	510 562	35.0 14.0	65	1	290	288	270	283		

L: longitudinal T: transverse

**2. Chemical composition: %**

Test No.	C	Mn	Si Max.	P Max.	S Max.	Cr	Mo	Ni Max.	Al <sub>tot</sub> Max.	Cu Max.
Chemical Requirements (product analysis)	0.08-0.14	0.30-0.70	0.50	0.025	0.020	2.00-2.50	0.90-1.10	0.30	0.040	0.3
Test Result										
06-22-002	0.11	0.42	0.24	0.012	0.003	2.12	0.94	0.02	0.003	0.02

**3. Other test:**

- 1) Visual examination and dimensional check: without objection.
- 2) UT test: without objection to EN10246.
- 3) Material identification (PMI) test: without objection.
- 4) Technological properties test (flattening test): without objection.
- 5) Leaking test (hydrostatic test at 70bar): without objection.
- 6) Marking check: without objection.
- 7) Microstructure photos, see attached picture.

**4. Other enclosures:**

Material certificate 3.1: HC20160625001, dated on 2016-06-25

**Hersteller/Manufacturer**

TÜV SÜD Industrie Service GmbH

Werkssachverständige / Authorized representative

Beijing

(Ort - Location - Lieu - Localita)



Mr. Ping ZHANG

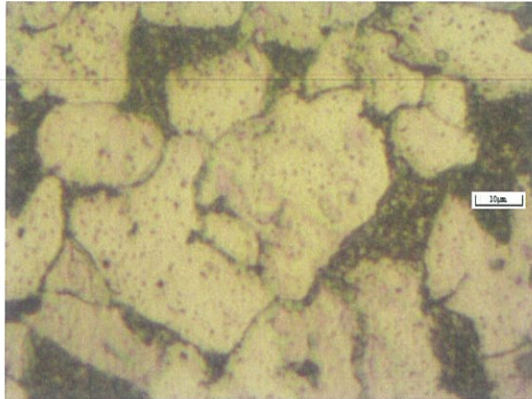
June. 25, 2016

(Datum - Date - Data)

**Ergebnis der Prüfungen**  
**Test Results**  
**Résultats des Essais**

Prüf-Nr. - Inspection No.: **230418**  
Certificat No. :  
Teil - Part:  
Anlage - Annex: **2**  
Blatt-Nr. - Page No.: **2/2**

**5. microstructure photos, x500**

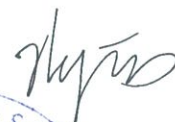


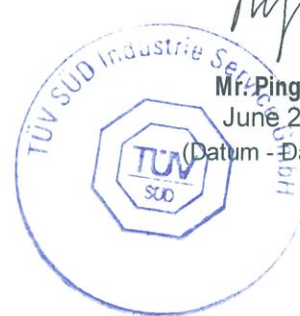
**Hersteller/Manufacturer**

**TÜV SÜD Industrie Service GmbH**

Werkssachverständige / Authorized representative

Beijing  
(Ort - Location - Lieu - Localita)

  
**Mr. Ping ZHANG**  
June 25, 2016  
(Datum - Date - Data)





Blatt 1 von 3

**Abnahmeprüfzeugnis**  
**Inspection Certificate**  
**Certificat de Réception (EN 10204-3.2)**  
**Certificato Collaudo Materiali**

Kunde - Customer - Acheteur - Committente:  
**ENTECH DOO**

Hersteller - Manufacturer - Fabricant - Produttore:

Wuliyao, Yanshan County, Hebei province, China.

Prüf-Nr. - Inspection No.: **230419**

Certificat N° - N° di collaudo:

Teil - Part - Partie - Parte:

Blatt-Nr. - Sheet No. - Page-N° - Pag-N°: **1/3**

Kundenbestell-Nr. - Client order No - N° de la commande **01-HC/2016**

vom - dated - date - in data:

Werks-Nr. - Works-No - N° usine - Comessa N°:

**Prüfgegenstand - Article - Produit - Prodotto: Seamless Steel Elbows**

Prüfgrundlagen/Anforderungen - Technical requirements/Demand - Spécifications techniques/Exigences - Norma di controllo/Requisiti:

**Approval according to EN 10253-2 and customer's requirement.**

Werkstoff - Material - Matière -

entsprechend - according to - suivant - secondo:

Ausgabe - Edition - Edizione:

**13CrMo4-5**

**EN 10253-2**

**2007**

Lieferzustand - State of delivery - Etat de livraison - Stato di fornitura:

**Normalized at 940°C and Tempered at 700°C**

Hergesteuter prozess - Fabricated process :

**Hot Deformation**

Kennzeichnung - Marking - Marquage -  
 Punzonature:

Herstellerzeichen - Brand of the manufacturer - **HC**  
 Marque du fabricant - Marchio del produttore:

**Brand, standard, Type, steel name, Heat no.**  
**Angle, Dimension, Order No.**

Stempel des Sachverständigen - Inspector's stamp  
 -Poinçon de l'expert - Punzone dell'ispettore:

**Umfang der Lieferung - Extent of material delivery - Liste descriptive - Descrizione della fornitura:**

Pos.Nr. Item No Poste N° N° pos.	Los-Nr. Lot No.	Stückzahl Number of Qte Numero pezzi	Gegenstand - Article - Désignation du produit - Tipo di prodotto	Schmelze-Nr. Heat No N° Coulée N° Colata	Probe-Nr. Test No N° d'éprouvette N° di prova*
1	HC20160612001	20pcs	Seamless elbow 90 Deg., R838, OD580*16mm, Type B, acc. EN10253-2	1605483	06-22-003

Zusätzliche Angaben - Additional remarks - Autres remarques - Osservazione:

Die gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirement are fulfilled as per

Annex. - Les concitions imposées sont satisfaites suivant annexes. -

I risultati sono conformi ai requisiti richiesti come da allegati

**Hersteller-Manufacturer**

Werkssachverständige / Authorized representative

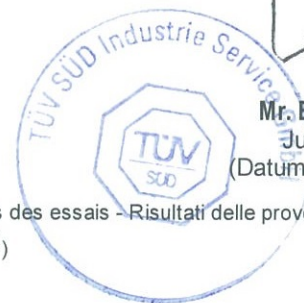
Beijing

(Ort - Location - Lieu - Localita)

Anlagen - Annexes - Allegati: <sup>1)</sup> Ergebnis der Prüfungen - Test results - Résultats des essais - Risultati delle prove

Weitere Anlagen in <sup>1)</sup> - Other annexis in <sup>1)</sup> - Autres annexes en <sup>1)</sup> - Altri allegati in <sup>1)</sup>

TÜV SÜD Industrie Service GmbH



Mr. Bingjiang Liu

June 25, 2016

(Datum - Date - Data)

## Ergebnis der Prüfungen Test Results Résultats des Essais

### 1. Mechanische Prüfungen - Mechanical Tests - Essais mecaniques - Prove meccaniche

Prüfart - Test Type - Type d'essai - Tipo di prove: Probenart - Specimen Type - Type de l'éprouvette - Tipo di Provette: Probenzustand - State of delivery of specimen - Traitement de l'éprouvette - Stato delle provette:			Tensile test								Impact test					
			Normalized and Tempered													
Probe-Nr. Test No. N° d'éprouvette No di prova	Probenabmessung Dim. of specimen Dim. de l'éprouvette Dim. della provetta		Probenentnahme Specimen Prélevement Prelevamento			Prüftemperatur Test temperature Temperature d'essai Temperatura di	Streck-/Dehnungsgrenze Yield point Pointe de l'élasticité Limite di snervamento	Zugfestigkeit Tensile strength Résistance à la traction	Bruchdehnung Elongation Allongement	Bruchreinschnürung Reduction of area Striction/Strizione	1 = (J) Schlagarbeit - Energy of impact - Energie de rupture - Energia di rottura Kerbschlagzähigkeit - Impact strength 3 = (%) Résilience - Resilienza Krist. Bruchanteil - Cryst. proportion Partie cristalline - Proporzione cristallina 4 = (mm · 10 <sup>-2</sup> ) Breitung - Expansion Enlargissement - Espansione Härte (Einheiten) - Hardness Dureté - Durezza	Werte - Values - Valeurs				Remark
	Schmelze - Nr. Heat No. N° Coulée Colata No	Dicke Thickness Epaisseur Spessore mm	Breite, Ø Width, Ø Largeur, Ø Largh, Ø mm	Ort - Location - Lieu - Zona	Richtung - Sensus Direction - Senso	Lage - Position Posizione	°C	MPa	MPa	%	% **	1	2	3	Σ/3	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>Requirements</b>				L		RT 450	≥290 ≥168	440-590	≥22							
06-22-003		Ø10 10*10*55		L L T		RT 450 RT	355 202	530 451	30.0 19.0	79	1	250	251	235	245	

L: longitudinal T: transverse

### 2. Chemical composition: %

Test No.	C	Mn	Si Max.	P Max.	S Max.	Cr	Mo	Ni Max.	Al <sub>tot</sub> Max.	Cu Max.
Chemical Requirements (product analysis)	0.10-0.17	0.40-0.70	0.35	0.025	0.020	0.70-1.15	0.40-0.60	0.30	0.040	0.30
Test Result										
06-22-003	0.14	0.53	0.23	0.012	0.002	0.98	0.48	0.01	0.005	0.01

### 3. Other test:

- 1) Visual examination and dimensional check: without objection.
- 2) UT test: without objection to EN10246.
- 3) Material identification (PMI) test: without objection.
- 4) Marking check: without objection.
- 5) Microstructure photos, see attached picture.

### 4. Other enclosures:

Material certificate 3.1: HC20160625001, dated on 2016-06-25

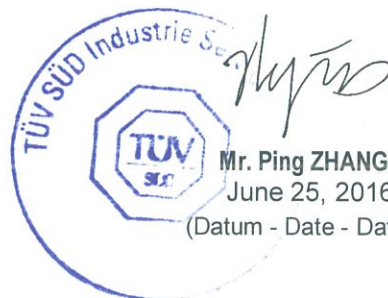
Hersteller/Manufacturer

TÜV SÜD Industrie Service GmbH

Werkssachverständige / Authorized representative

Beijing

(Ort - Location - Lieu - Localita)



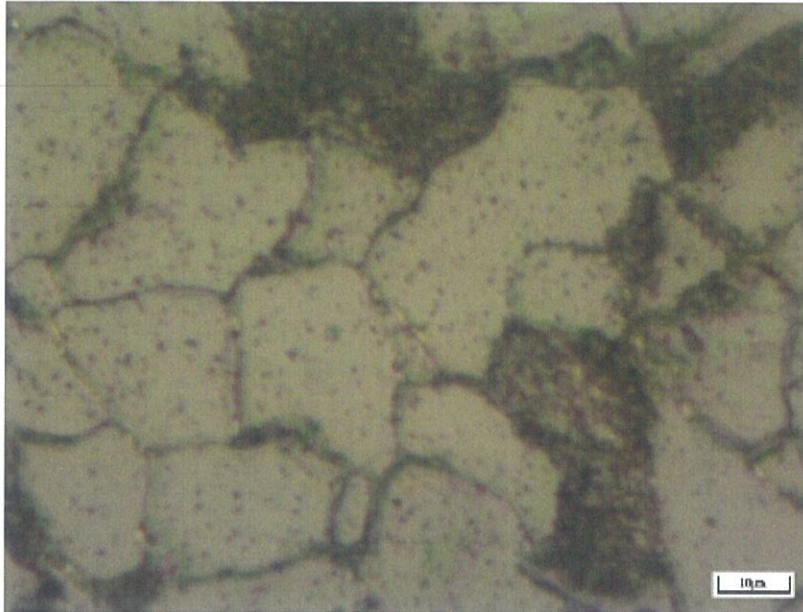
Mr. Ping ZHANG  
June 25, 2016  
(Datum - Date - Data)



**Ergebnis der Prüfungen**  
**Test Results**  
**Résultats des Essais**

**5. microstructure photos, x500**

Prüf-Nr. - Inspection No.: **230419**  
Certificat No. :  
Teil - Part:  
Anlage - Annex: **2**  
Blatt-Nr. - Page No.: **2/2**


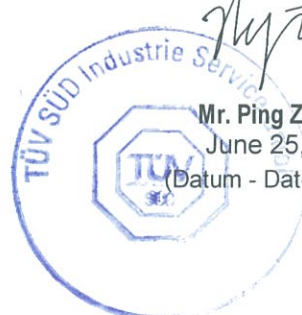


**Hersteller/Manufacturer**

**TÜV SÜD Industrie Service GmbH**

Werkssachverständige / Authorized representative

Beijing  
(Ort - Location - Lieu - Localita)

  
  
**Mr. Ping ZHANG**  
June 25, 2016  
(Datum - Date - Data)



Blatt 1 von 3

**Abnahmeprüfzeugnis**  
**Inspection Certificate**  
**Certificat de Réception (EN 10204-3.2)**  
**Certificato Collaudo Materiali**

Kunde - Customer - Acheteur - Committente:  
**ENTECH DOO**

Hersteller - Manufacturer - Fabricant - Produttore:

Wuliyao, Yañshan County, Hebei province, China.

Prüf-Nr. - Inspection No.: **230420**Certificat N<sup>o</sup> - N<sup>o</sup> di collaudo:

Teil - Part - Partie - Parte:

Blatt-Nr. - Sheet No. - Page-N<sup>o</sup> - Pag-N<sup>o</sup>: **1/3**Kundenbestell-Nr. - Client order No - N<sup>o</sup> de la commande **01-HC/2016**

vom - dated - date - in data:

Werks-Nr. - Works-No - N<sup>o</sup> usine - Comessa N<sup>o</sup>:**Prüfgegenstand - Article - Produit - Prodotto: Seamless steel Elbows**

Prüfgrundlagen/Anforderungen - Technical requirements/Demand - Spécifications techniques/Exigences - Norma di controllo/Requisiti:

**Approval according to EN 10253-2 and customer's requirement.**

Werkstoff - Material - Matière -

entsprechend - according to - suivant - secondo:

Ausgabe - Edition - Edizione:

**10CrMo9-10****EN 10253-2****2007**

Lieferzustand - State of delivery - Etat de livraison - Stato di fornitura:

**Normalized at 940°C and Tempered at 740°C**

Hergesteuter prozess - Fabricated process :

**Hot Deformation**Kennzeichnung - Marking - Marquage -  
Punzonature:Herstellerzeichen - Brand of the manufacturer - **HC**  
Marque du fabricant - Marchio del produttore:**Brand, standard, Type, steel name, Heat no.**  
**Angle, Dimension, Order No.**Stempel des Sachverständigen - Inspector's stamp  
-Poinçon de l'expert - Punzone dell'ispettore:**Umfang der Lieferung - Extent of material delivery - Liste descriptive - Descrizione della fornitura:**

Pos.Nr. Item No Poste N <sup>o</sup> N <sup>o</sup> pos.	Los-Nr. Lot No.	Stückzahl Number of Qte Numero pezzi	Gegenstand - Article - Désignation du produit - Tipo di prodotto	Schmelze-Nr. Heat No N <sup>o</sup> Coulée N <sup>o</sup> Colata	Probe-Nr. Test No N <sup>o</sup> d'éprouvette N <sup>o</sup> di prova*
1	HC20160612002	16pcs	Seamless elbow 90 Deg., R914, OD636*18mm, Type B, acc. to EN10253-2.	1652846	06-22-004
2	HC20160612002	3pcs	Seamless elbow 35 Deg., R914, OD636*18mm, Type B, acc. EN10253-2.	1652846	06-22-004
3	HC20160612002	2pcs	Seamless elbow 35.5 Deg., R914, 636*18mm, Type B acc. EN10253-2.	1652846	06-22-004
4	HC20160612002	3pcs	Seamless elbow 36.5 Deg., R914, 636*18mm, Type B, acc. EN10253-2.	1652846	06-22-004

Zusätzliche Angaben - Additional remarks - Autres remarques - Osservazione:

Die gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirement are fulfilled as per

Annex. - Les concitions imposées sont satisfaites suivant annexes. -

I risultati sono conformi ai requisiti richiesti come da allegati

**Hersteller-Manufacturer**

Werkssachverständige / Authorized representative

Beijing

(Ort - Location - Lieu - Localita)

Anlagen - Annexes - Allegati: <sup>1)</sup> Ergebnis der Prüfungen - Test results - Résultats des essais - Risultati delle proveWeitere Anlagen in <sup>1)</sup> - Other annexis in <sup>1)</sup> - Autres annexes en <sup>1)</sup> - Altri allegati in <sup>1)</sup>

TUV SUD Industrie Service GmbH



## Ergebnis der Prüfungen Test Results Résultats des Essais

### 1. Mechanische Prüfungen - Mechanical Tests - Essais mécaniques - Prove meccaniche

Prüfart - Test Type - Type d'essai - Tipo di prove: Probenart - Specimen Type - Type de l'éprouvette - Tipo di Provette: Probenzustand - State of delivery of specimen - Traitement de l'éprouvette - Stato delle provette:			Tensile test Normalized and Tempered								Impact test						
Probe-Nr. Test No. N° d'éprouvette No di prova	Probenabmessung Dim. of specimen Dim. de l'éprouvette Dim. della provetta		Probenentnahme Specimen Prélevement Prelevamento			Prüf-temperatur Test temperature Température d'essai Temperatura di °C	Streck-/Dehngrenze Yield point Limite d'élasticité Limite di elasticità MPa	Zugfestigkeit Tensile strength Résistance à la traction MPa	Bruchdehnung Elongation Allongement %	Bruchschmürung Reduction of area Striction/Strizione %	1 = (J) Schlagarbeit - Energy of impact - Energie de rupture - Energia di rottura Kerbschlagzähigkeit - Impact strength 2 = (J/cm <sup>2</sup> ) 3 = (%) Résilience - Resilienza Krist. Bruchanteil - Cryst. proportion Partie cristalline - Proporzione cristallina 4 = (mm·10 <sup>-2</sup> ) Breitung - Expansion Enlargissement - Espansione 5 = (%) Härte (Einheiten) - Hardness Dureté - Durezza 6 =	Werte - Values - Valeurs					Remark
	Schmelze - Nr. Heat No. N° Coulée Colata No	Dicke Thickness Epaisseur Spessore mm	Breite, Ø Width, Ø Largeur, Ø Largh, Ø mm	Ort - Location - Lieu - Zona	Richtung - Direction - Sensio							Lage - Position Posizione	1	2	3	Σ/3	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
<b>Requirements</b>				L L T		RT 500 RT	≥280 ≥180	480-630	≥22						≥27		
06-22-004		Ø5 10*10*55		L L T		RT 500 RT	345 260	495 421	32.0 15.0	67	1	142	150	137	143		

L: longitudinal T: transverse

### 2. Chemical composition: %

Test No.	C	Mn	Si Max.	P Max.	S Max.	Cr	Mo	Ni Max.	Al <sub>tot</sub> Max.	Cu Max.
Chemical Requirements (product analysis)	0.08-0.14	0.30-0.70	0.50	0.025	0.020	2.00-2.50	0.90-1.10	0.30	0.040	0.30
Test Result										
06-22-004	0.10	0.50	0.25	0.010	0.012	2.41	0.95	0.10	0.008	0.13

### 3. Other test:

- 1) Visual examination and dimensional check: without objection.
- 2) UT test: without objection to EN10246.
- 3) Material identification (PMI) test: without objection.
- 4) Marking check: without objection.
- 5) Microstructure photos, see attached picture.

### 4. Other enclosures:

Material certificate 3.1: HC20160625001, dated on 2016-06-25

### Hersteller/Manufacturer

TÜV SÜD Industrie Service GmbH

Werkssachverständige / Authorized representative

Beijing  
(Ort - Location - Lieu - Localita)

Mr. Ping ZHANG

June 25, 2016

(Datum - Date - Data)



Blatt 2 von 2

**Ergebnis der Prüfungen  
Test Results  
Résultats des Essais**

Blatt 3 von 3

**Ergebnis der Prüfungen  
Test Results  
Résultats des Essais**

**5. microstructure photos, x500**

Prüf-Nr. - Inspection No.: **230420**

Certificat No. :

Teil - Part:

Anlage - Annex: **1**

Blatt-Nr. - Page No.: **1/1**

Prüf-Nr. - Inspection No.: **230419**

Certificat No. :

Teil - Part:

Anlage - Annex: **2**

Blatt-Nr. - Page No.: **2/2**



**Hersteller/Manufacturer**

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