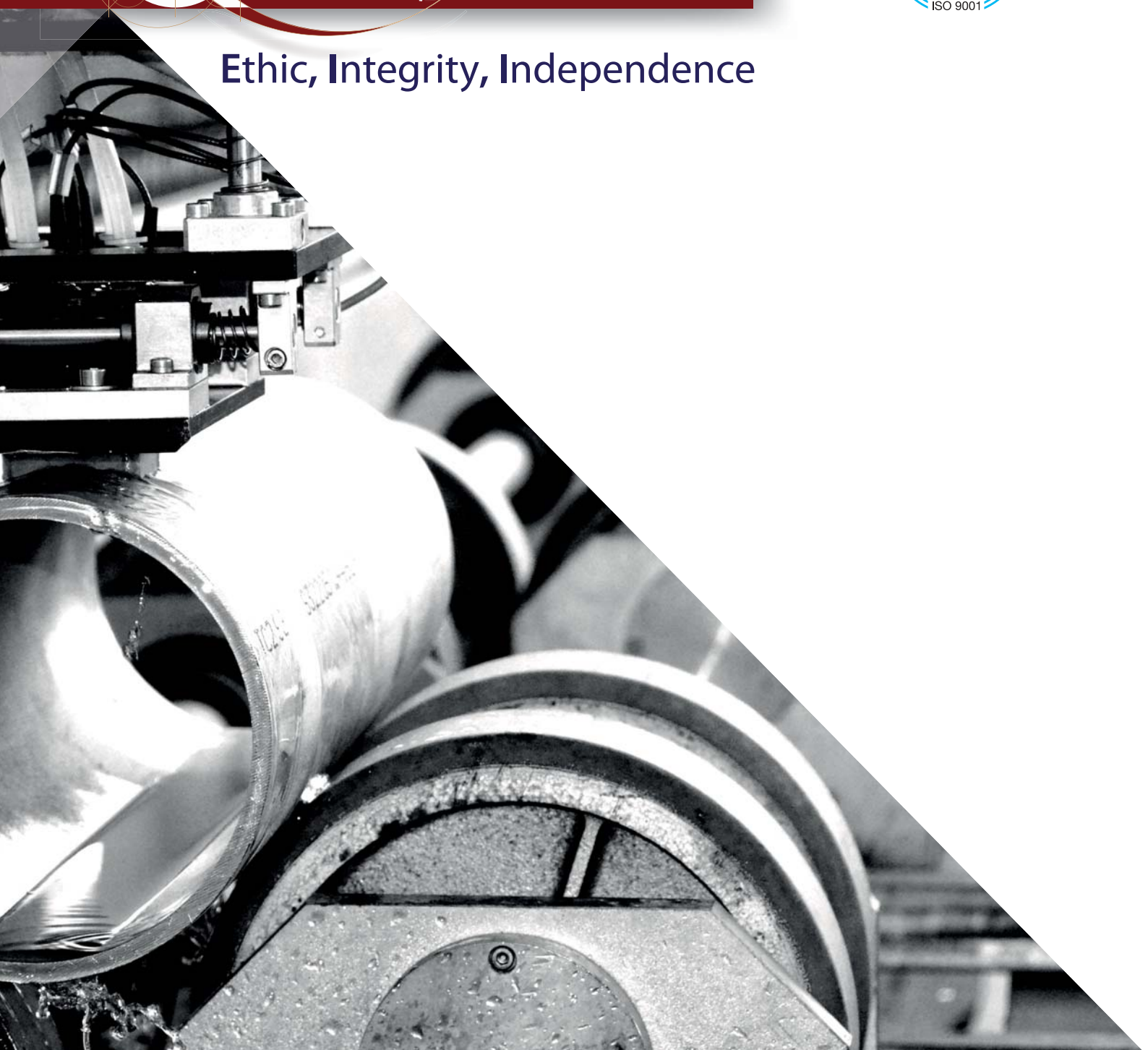
Qualytube

Ethic, Integrity, Independence

QUALITY SYSTEM CERTIFICATION
DNV·GL
ISO 9001



Qualytube

Ethic, Integrity, Independence

Qualytube

Ethic, Integrity, Independence

Company Profile

Qualytube is an independent company specialized in inspection and testing on industrial products. Our experience is focused on the oil & gas Market.

Our activities are organized in different divisions:

- **Inspection Services Division (ISD)** providing second party inspections for the Oil & Gas market through our qualified inspectors;
- **Quality Assurance & Control Management Division (QMD)** providing consultancy on Quality Management, Project Management, Document Control and supplier auditing and qualification;
- **Non-destructive Testing Division (NTD)** providing automatic Ultrasonic Test on pipes at our premises and manual UT, PT and MT on pipes, fittings, flanges and valves both in our premises and at customer's site. This Division is also operating external inspection and testing service as UT, PT/MT and PMI verification.

Founded in 2013 with the aim of non-destructive testing of seamless pipes by experts on the Oil & Gas Market, our company has grown enlarging the offered services as described in the following paragraphs.

The company is managed by our ISO 9712 Level 3 qualified Technical Director, and operates a Quality Management System certified as in accordance to ISO 9001 by DNV-GL.

Qualytube

Ethic, Integrity, Independence

Our Services –
Inspection Services Division (ISD)

This **Qualy**tube Division is providing second party inspections, mainly for the Oil & Gas market, through our skilled and qualified inspectors.

Inspections

Our Inspectors have at least 10years of experience in material conformity inspections and/or Quality Control on pipes, fittings, flanges and valves.
In order to have a sufficient knowledge on the testing methods used to inspect the materials, our inspectors are qualified, as minimum, in accordance to ISO 9712 level 2 for non-destructive tests in different methods, with a minimum of one volumetric method (UT or RT).

Our Technical Director, who is leading our technical committee for the review and approval of all inspection reports and release notes, is qualified in accordance to ISO 9712 level 3. This giving to our customer the additional efforts of a reliable review and conformity assessment on supplier's NDT procedures.

Expediting

The **ISD** Division is also responsible for the expediting activity, which is followed both by our specialized expeditor and by our qualified inspectors as part of their daily activities at suppliers' premises.

The **ISD** Division is also working strictly in co-operation with the **QMD** Division for the activities of supplier monitoring, auditing and qualification on behalf of our customers.

Qualytube

Ethic, Integrity, Independence

Our Services – Quality Assurance & Control Management Division (**QMD**);

This **Qualy**tube Division is providing a full-range offer of services in the Quality and Project Management.

The experience done in the Quality Assurance, Quality Control and Project Management in different companies, providing materials and services in the Oil & Gas market, is giving us the competence to offer different services as:

- Quality Assurance: we can issue, manage, maintain and lead to certification complete Quality, Environmental, health and Safety systems. In addition, Qualytube can assign its skilled personnel to embedded units at customers' premises, to manage and coordinate the Quality activities, for dedicated projects or for the standard management.

- Quality Control: in addition to material verification of compliance to the order requirements, the document Quality control is becoming a fundamental part of each order and project. The document controlling is performed by **Qualy**tube at all order stages, including the supplier's document reviewing, comment and approval. We can follow the project developing from the order placement to the release for shipment, managing all the order stages and leading the kick-off and pre-inspection meetings. As far as per the Quality Assurance service, we can perform this activity both from our offices or in embedded units at customer's premises.

- NDT Procedures issuing and control: we can issue, manage, maintain and review NDT procedures through our technical committee, headed by our ISO 9712 level 3 Technical Director.

- Suppliers monitoring, auditing and qualification: The **QMD** Division is also working strictly in co-operation with the **ISD** Division for the activities of supplier monitoring, auditing and qualification on behalf of our customers. The constant presence of our inspectors in the different manufacturing places, in fact, is ensuring the continuous updating of suppliers' qualification status, which is not limited to an initial, and document focused only, audit.

Qualytube

Ethic, Integrity, Independence

Our Services –
Non-destructive Testing Division (NTD)

This **Qualy**tube Division is providing a full-range offer of non-destructive testings on piping materials. Particularly, due the long-term experience on pipe supply chain, we developed an operate an automated ultrasonic test equipment, together with other testings, inspection and services on pipes, fittings, flanges and valves.

Automatic Ultrasonic Testing

Our automatic test machine Ultra-pro 1 is equipped by a 10-channel inspection instrument USIP-40 built by General Electric Inspection Technologies (formerly Krautkraemer) and its diagnostic software Ultra-proof.

Ultra-pro 1 can perform, in only one step, the scan of a pipe in 5 different scanning directions, allowing to detect longitudinal, transversal and double-thickness indications and defects.

In the meantime, we can detect the actual wall thickness in every point of the pipe.

Ultra-pro 1 allows **Qualy**tube to perform automatic UT full in accordance to most stringent specifications (ISO, ASTM, ASME, EN) and engineering procedures (e.g Shell and Total).

The size range is starting from ½" to 24" NPS

Dedicated procedures can be issued against customer requirements by our ISO 9712 Level 3 qualified Technical Director.

Qualytube

Ethic, Integrity, Independence

Magnetic and dye Penetrant Test

Qualytube is providing Magnetic and Penetrant test, required by customers mainly on pipes and fittings ends, using the products of world's leader Manufacturer Magnaflux.

Magnetic and Penetrant test are performed full in accordance to most stringent specifications (ISO, ASTM, ASME, EN) and engineering procedures.

Dedicated procedures can be issued against customer requirements by our ISO 9712 Level 3 qualified Technical Director.

Qualytube

Ethic, Integrity, Independence

External Inspection Service

Qualytube is offering the knowledge on pipes and fittings market of its level 2 and 3 qualified inspectors for inspections services at customers' or manufacturers premises as:

- visual, dimensional and final conformity inspections;
- documentation review;
- positive material identification (P.M.I.) – fluorescence method with Niton XL2;
- positive material identification (P.M.I.) – optical emission method with Spectrotest CCD, including the detection of Carbon, Sulphur and Phosphorous content in inert atmosphere using Argon gas;
- hardness test using GE Measurement & Control instrument MIC-10 trough UCI (Ultrasonic Contact Impedance);
- surface roughness control through Mitutoyo Surftest SJ-210.

Qualytube inspectors are specialized in the requirements of pipes and fittings and have experience on ASTM, ASME, API, ISO and EN standards, as far as of main contractors for petrochemical market as Total, Shell, Saudi Aramco, Chevron and all main Engineering Companies.

Qualytube

Ethic, Integrity, Independence

Finishing and re-conditioning

Qualytube is also equipped by and automatic shot-blasting machine capable perform the external re-conditioning of pipes up to 32” NPS.

This machine is helpful either to prepare the external surface for the automatic Ultrasonic Test, or to re-condition pipes having rusted or scaled surfaces.

After surface’s shot-blasting, at customer choice the reconditioning of pipes can proceed with re-marking and outside protection performed against documented procedures.

Qualytube is provided by a band saw in order to prepare test coupons for further testing in external testing laboratories, qualified and approved by **Qualy**tube and certified in a accordance to ISO 17025.

Qualytube

Ethic, Integrity, Independence

List of offered Services

Testing Services

SERVICE	Applicable to	Instrument	Qualified operator
Automatic Ultrasonic Test	SMLS pipes ½ - 24”	GE USIP 40	ISO9712 level 2 or 3
Manual Ultrasonic Test	Pipes, Fittings and Flanges	GE USM GO	ISO9712 level 2 or 3
Dye Penetrant Test	All	Magnaflux products	ISO9712 level 2 or 3
Magnetic test	All	Magnaflux products	ISO9712 level 2 or 3
Positive Material Identification	All	Niton XL2 800	**Qualy**tube qualified operator
Product analysis	All	Spectotest CCD	**Qualy**tube qualified operator
Portable Hardness testing	All	GE MIC-10	**Qualy**tube qualified operator
Portable Ferrite determination	All	Fisher Feritoscope FMP30	**Qualy**tube qualified operator
Roughness test	All	Mitutoyo Surftest SJ-210	**Qualy**tube qualified operator
Visual and Dimensional	All	Mitutoyo complete set 0 - 1000mm	**Qualy**tube qualified operator

Inspection and Management Services

Service	Qualified function
Issuing, review and Revision of NDE procedures	**Qualy**tube ISO9712 level 3
Inspection and Expediting Service	**Qualy**tube inspectors ISO9712 level 2 or 3
QA/QC Advising	**Qualy**tube Technical Director **Qualy**tube QA/QC Manager
Project Management	**Qualy**tube Technical Director **Qualy**tube Project Mangers

Additional Services

Service	Applicable to
Shot-blasting and surface re-conditioning	Pipes from ½” to 24” NPS
marking, protection, colour coding and packing	Pipes and fittings from ½” to 24” NPS

Qualytube

Ethic, Integrity, Independence

Chemical Composition of Steel grades

Grade	Chemical Composition (maximum value, if not otherwise specified)															
	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Al	Nb	N	Ti	Zr	W
A106B UNS K03006	0.30	0.29-1.06	0.035	0.035	0.10 min.	0.40	0.15	0.40	0.40	0.08						
A333 6 UNS K03006	0.30	0.29-1.06	0.025	0.025	0.10 min.	0.30	0.12	0.40	0.40	0.08		0.02				
A335 P11 UNS K11597	0.05-0.15	0.30-0.60	0.025	0.025	0.50-1.00	1.00-1.50	0.44-0.65									
A335 P22 UNS K21590	0.05-0.15	0.30-0.60	0.025	0.025	0.50	1.90-2.60	0.87-1.13									
A335 P5 UNS K41545	0.15	0.30-0.60	0.025	0.025	0.50	4.00-6.00	0.45-0.65									
A335 P9 UNS S50400	0.15	0.30-0.60	0.025	0.025	0.25-1.00	8.00-10.0	0.90-1.10									
A335 P91 UNS K91560	0.08-0.12	0.30-0.60	0.020	0.010	0.20-0.50	8.00-9.50	0.85-1.05	0.40		0.18-0.25	0.02	0.06-010	0.030-0.070	0.01	0.01	
A312 TP304 UNS S30400	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-11.0								
A312 TP304L UNS S30403	0.035	2.00	0.045	0.030	1.00	18.0-20.0		8.0-13.0								
A312 TP304H UNS S30409	0.04-0.10	2.00	0.045	0.030	1.00	18.0-20.0		8.0-11.0								
A312 TP310S UNS S31008	0.08	2.00	0.045	0.030	1.00	24.0-26.0	0.75	19.0-22.0								
A312 TP310H UNS S31009	0.04-0.10	2.00	0.045	0.030	1.00	24.0-26.0		19.0-22.0								
A312 TP316 UNS S31600	0.08	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	11.0-14.0								
A312 TP316L UNS S31603	0.035	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-14.0								
A312 TP316H UNS S31609	0.04-0.10	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	11.0-14.0								
A312 TP321 UNS S32100	0.08	2.00	0.045	0.030	1.00	17.0-19.0		9.0-12.0								
A312 TP321H UNS S32109	0.04-0.10	2.00	0.045	0.030	1.00	17.0-19.0		9.0-12.0								
A312 TP347 UNS S34700	0.08	2.00	0.045	0.030	1.00	17.0-19.0		9.0-13.0				*A*				
A312 TP347H UNS S34709	0.04-0.10	2.00	0.045	0.030	1.00	17.0-19.0		9.0-13.0				*B*				
A790 S31803 UNS S31803	0.030	2.00	0.030	0.020	1.00	21.0-23.0	2.5-3.5	4.5-6.5					0.08-0.20			
A790 S32205 UNS S32205	0.030	2.00	0.030	0.020	1.00	22.0-23.0	3.0-3.5	4.5-6.5					0.14-0.20			
A790 S32550 UNS S32550	0.04	1.50	0.040	0.030	1.00	24.0-27.0	2.9-3.9	4.5-6.5	1.50-2.50				0.10-0.25			
A790 S32750 UNS S32750	0.030	1.20	0.035	0.020	0.80	24.0-26.0	3.0-5.0	6.0-8.0	0.5				0.24-0.32			
A790 S32760 UNS S32760	0.05	1.00	0.030	0.010	1.00	24.0-26.0	3.0-4.0	6.0-8.0	0.5-1.00				0.20-0.30			0.50-1.00

Notes:

A- the Nb content shall be not less than 10 times the C content and not more than 1.00
B- the Nb content shall be not less than 8 times the C content and not more than 1.00

Qualytube

Ethic, Integrity, Independence

Mechanical Properties of Steel grades

Grade	Mechanical Properties (minimum value, if not otherwise specified)								
	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation 2 in. or 50 mm (%)*	Impact Test (Joules) on full specimens			Hardness		notes
				single	Av.	At °C	HBW	HRC	
A106B UNS K03006	415	240	22 (l) – 12 (t)						
A333 6 UNS K03006	415	240	30 (l) – 16 (t)	18	14	-45			
A335 P11 UNS K11597	415	205	30 (l) – 20 (t)						
A335 P22 UNS K21590	415	205	30 (l) – 20 (t)						
A335 P5 UNS K41545	415	205	30 (l) – 20 (t)						
A335 P9 UNS S50400	415	205	30 (l) – 20 (t)						
A335 P91 UNS K91560	585	415	20 (l)				190-250	91*-25*	91 HRB -25 HRC
A312 TP304 UNS S30400	515	205	35 (l) – 25 (t)						
A312 TP304L UNS S30403	485	170	35 (l) – 25 (t)						
A312 TP304H UNS S30409	515	205	35 (l) – 25 (t)						
A312 TP310S UNS S31008	515	205	35 (l) – 25 (t)						
A312 TP310H UNS S31009	515	205	35 (l) – 25 (t)						
A312 TP316 UNS S31600	515	205	35 (l) – 25 (t)						
A312 TP316L UNS S31603	485	170	35 (l) – 25 (t)						
A312 TP316H UNS S31609	515	205	35 (l) – 25 (t)						
A312 TP321 UNS S32100	485	170	35 (l) – 25 (t)						
A312 TP321H UNS S32109	480	170	35 (l) – 25 (t)						
A312 TP347 UNS S34700	515	205	35 (l) – 25 (t)						
A312 TP347H UNS S34709	515	205	35 (l) – 25 (t)						
A790 S31803 UNS S31803	620	450	25				290	30	
A790 S32205 UNS S32205	655	450	25				290	30	
A790 S32550 UNS S32550	760	550	15				297	31	
A790 S32750 UNS S32750	800	550	15				300	32	
A790 S32760 UNS S32760	750	550	25				300	- -	

Note: * (l) = Longitudinal – (t) Transversal

Qualytube

Ethic, Integrity, Independence

Heat treatment of Steel grades

Grade	Heat Treatment with relevant temperature (minimum, unless otherwise specified)
A106B UNS K03006	Not required
A333 6 UNS K03006	Normalized (815°C min.) or Quenched (800 ± 15°C) and Tempered (565-605°C) or Double Normalized (900± 15°C, 790± 15°C) and Tempered, (565-605°C)
A335 P11 UNS K11597	Full or Isothermal Annealed (650°C) or Normalized and tempered (650°C)
A335 P22 UNS K21590	Full or Isothermal Annealed (675°C) or Normalized and tempered (675°C)
A335 P5 UNS K41545	Full or Isothermal Annealed (675°C) or Normalized and tempered (675°C)
A335 P9 UNS S50400	Full or Isothermal Annealed (675°C) or Normalized and tempered (675°C)
A335 P91 UNS K91560	Normalized (1040-1080°C) and tempered (730-800°C) or Quenched and Tempered *
A312 TP304 UNS S30400	Solution annealed (1040°C)
A312 TP304L UNS S30403	Solution annealed (1040°C)
A312 TP304H UNS S30409	Solution annealed (1040°C)
A312 TP310S UNS S31008	Solution annealed (1040°C)
A312 TP310H UNS S31009	Solution annealed (1040°C)
A312 TP316 UNS S31600	Solution annealed (1040°C)
A312 TP316L UNS S31603	Solution annealed (1040°C)
A312 TP316H UNS S31609	Solution annealed (1040°C)
A312 TP321 UNS S32100	Solution annealed (1040°C)
A312 TP321H UNS S32109	Cold finished: Solution annealed (1100°C) Hot finished: Solution annealed (1050°C)
A312 TP347 UNS S34700	Solution annealed (1040°C)
A312 TP347H UNS S34709	Cold finished: Solution annealed (1100°C) Hot finished: Solution annealed (1050°C)
A790 S31803 UNS S31803	Solution annealed (1020-1100°C)
A790 S32205 UNS S32205	Solution annealed (1020-1100°C)
A790 S32550 UNS S32550	Solution annealed (1040°C)
A790 S32750 UNS S32750	Solution annealed (1025-1125°C)
A790 S32760 UNS S32760	Solution annealed (1070-1140°C)

Note: * only when mutually agreed upon between the manufacturer and the purchaser

Qualytube

Ethic, Integrity, Independence

Dimensions of Piping materials in accordance to ASME

CARBON STEEL PIPES DIMENSIONS ACCORDING TO ASME 36.10																STAINLESS STEEL PIPES DIMENSIONS ACCORDING TO ASME B 36.19			
size			schedule										designation			schedule			
NPS	DN	O.D. mm	S10	S20	S30	S40	S60	S80	S100	S120	S140	S160	STD	XS	XXS	S5S	S10S	S40S	S80S
1/8	-	10,30	-	-	-	1,73	-	2,41	-	-	-	-	1,73	2,41	-	-	1,24	1,73	2,41
1/4	-	13,70	-	-	-	2,24	-	3,02	-	-	-	-	2,24	3,02	-	-	1,65	2,24	3,02
3/8	10	17,10	-	-	-	2,31	-	3,20	-	-	-	-	2,31	3,20	-	-	1,65	2,31	3,20
1/2	15	21,30	-	-	-	2,77	-	3,73	-	-	-	4,78	2,77	3,73	7,47	1,65	2,11	2,77	3,73
3/4	20	26,70	-	-	-	2,87	-	3,91	-	-	-	5,56	2,87	3,91	7,82	1,65	2,11	2,87	3,91
1	25	33,40	-	-	-	3,38	-	4,55	-	-	-	6,35	3,38	4,55	9,09	1,65	2,77	3,38	4,55
1 1/4	32	42,20	-	-	-	3,56	-	4,85	-	-	-	6,35	3,56	4,85	9,70	1,65	2,77	3,56	4,85
1 1/2	40	48,30	-	-	-	3,68	-	5,08	-	-	-	7,14	3,68	5,08	10,15	1,65	2,77	3,68	5,08
2	50	60,30	-	-	-	3,91	-	5,54	-	-	-	8,74	3,91	5,54	11,07	1,65	2,77	3,91	5,54
2 1/2	65	73,00	-	-	-	5,16	-	7,01	-	-	-	9,53	5,16	7,01	14,02	2,11	3,05	5,16	7,01
3	80	88,90	-	-	-	5,49	-	7,62	-	-	-	11,13	5,49	7,62	15,24	2,11	3,05	5,49	7,62
3 1/2	90	101,60	-	-	-	5,74	-	8,08	-	-	-	-	5,74	8,08	-	2,11	3,05	5,74	8,08
4	100	114,30	3,05	-	-	6,02	-	8,56	-	11,13	-	13,49	6,02	8,56	17,12	2,11	3,05	6,02	8,56
5	125	141,30	-	-	-	6,55	-	9,53	-	12,70	-	15,88	6,55	9,53	19,05	2,77	3,40	6,55	9,53
6	150	168,30	-	-	-	7,11	-	10,97	-	14,27	-	18,26	7,11	10,97	21,95	2,77	3,40	7,11	10,97
8	200	219,10	-	6,35	7,04	8,18	10,31	12,70	15,09	18,26	20,62	23,01	8,18	12,70	22,23	2,77	3,76	8,18	12,70
10	250	273,00	-	6,35	7,80	9,27	12,70	15,09	18,26	21,44	25,40	28,58	9,27	12,70	25,40	3,40	4,19	9,27	12,70
12	300	323,80	-	6,35	8,38	10,31	14,27	17,48	21,44	25,40	28,58	33,32	9,53	12,70	25,40	3,96	4,57	9,53	12,70
14	350	355,60	6,35	7,92	9,53	11,13	15,09	19,05	23,83	27,79	31,75	35,71	9,53	12,70	-	3,96	4,78	-	-
16	400	406,40	6,35	7,92	9,53	12,70	16,66	21,44	26,19	30,96	36,53	40,49	9,53	12,70	-	4,19	4,78	-	-
18	450	457,00	6,35	7,92	11,13	14,27	19,05	23,83	29,36	34,93	39,67	45,24	9,53	12,70	-	4,19	4,78	-	-
20	500	508,00	6,35	9,53	12,70	15,09	20,62	26,19	32,54	38,10	44,45	50,01	9,53	12,70	-	4,78	5,54	-	-
22	-	559,00	6,35	9,53	12,70	-	22,23	28,58	34,93	41,28	47,63	53,98	9,53	12,70	-	4,78	5,54	-	-
24	600	610,00	6,35	9,53	14,27	17,48	24,61	30,96	38,89	46,02	52,37	59,54	9,53	12,70	-	5,54	6,35	-	-
26	-	660,00	7,92	12,70	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
28	700	711,00	7,92	12,70	15,88	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
30	-	762,00	7,92	12,70	15,88	-	-	-	-	-	-	-	9,53	12,70	-	6,35	7,92	-	-
32	800	813,00	7,92	12,70	15,88	17,48	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
34	-	864,00	7,92	12,70	15,88	17,48	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
36	900	914,00	7,92	12,70	15,88	19,05	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
38	-	965,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
40	1000	1016,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
42	-	1067,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
44	1100	1118,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
46	-	1168,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
48	1200	1219,00	-	-	-	-	-	-	-	-	-	-	9,53	12,70	-	-	-	-	-
50	-	1270,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Qualytube

Ethic, Integrity, Independence

Qualytube

Ethic, Integrity, Independence

Contacts

Qualytube S.r.l.

Registered Office Via Pietro Palmieri 29, 10138 Torino, tel. +39 011 31 45 119
Operative Office Via Enrico Berlinguer, 4, 20060 Pozzo d'Adda (MI), tel. +39 02 92 01 85 29
Technical Director's mobile numbers: +39 389 696 93 34 - +39 335 57 88 004
VAT Code 10924260010 - **R.E.A.** number 1172791

info@qualytube.com
dario.pasqualini@qualytube.com

www.qualytube.com

How to reach us:

A4 highway, **Trezzo** exit, then follow indications to Pozzo d'Adda