



CATALOGUE
2024

Accreditation

MT Laboratories GmbH is a testing laboratory accredited by the Deutsche Akkreditierungsstelle (DAkkS) accredited testing laboratory.



Our accreditation underlines our commitment to the highest quality standards and compliance with international standards in materials testing. Selected testing procedures are accredited for you by the DAkkS within the scope of our test number D-PL-18478-01-00.

While not all of our testing services or standards are included in the scope of this accreditation, you can trust that we consistently uphold the highest level of precision and care across all of our testing services.

You can find out which test methods are currently accredited in the flexible scope at any time on our homepage. A complete list of accredited tests, as well as our accreditation certificate, is available for download in German and English and can be accessed via the QR code printed here.

If you have any further questions about our accreditation or the test procedures, our team will be happy to help you at any time. We can also send you the relevant documents in PDF format on request.



mt-labs.de/EN/downloads



Foreword

We are pleased to present you our current service catalogue. MT was founded in 2011 and has since developed into a reliable partner in the steel industry. The requirements and special features of this industry are a shared passion of the three siblings who run our company.

This catalogue is intended to serve as an informative reference work and provide you with a comprehensive overview of our services, most of which are also provided with detailed price information. In addition to our day-to-day testing business, which we carry out in Duisburg, we also have the capacity in Meerbusch to manage large projects and provide additional logistical services.

Our entire team looks forward to hearing from you and actively supporting you with your challenges.

Dominik Spahn
Owner and Managing Director

We are happy to help!

MT Laboratories GmbH

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Valid from: 22.10.2024

Date of publication: 10/2024

Version: E-04.1

Important to know



We are a testing laboratory accredited by the DAkkS. The certification document can be obtained in German and English at mt-labs.de/downloads as a PDF file. Printed copies of the document are available upon request.



Destructive testing: Please provide sufficient sample material for the corresponding tests. Our modern sample processing ensures a particularly gentle material handling. Feel free to contact us to calculate a suitable sample volume for the chosen tests. Our staff will be happy to assist. Please also consult our information on page 25.



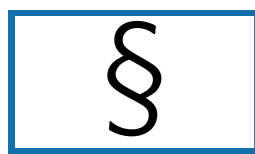
Non Destructive Testing: We provide our extensive skills also in this field of expertise. The price calculation for Non Destructive tests often depends on several factors. We gladly and immediately submit an offer for larger quantities. You can rely on our project management service (for further information see page 51) for your projects.



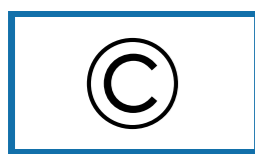
Would you like us to deal with an express order? Our „Overnight Express“ (24h processing time) was designed precisely to this end (more on this on page 52).



It is worth noting that we offer numerous Non Destructive, On Site tests. Depending on the testing volume, this approach can lead to major time and money savings. Please calculate our travel expenses according to transportation costs (page 44). For external testing, test conditions for the respective test must be observed On Site. Feel free to contact our personnel if you have any questions regarding this matter. In each case, we take the current corresponding UVV (Accident Insurance Regulation) as given.



This product catalogue, as well as any offers and orders we might respectively issue and accept are based on our general terms and conditions. These are available under mt-labs.de/impressum or upon request in paper or PDF format via our contact information. To avoid misunderstandings, we kindly ask for a written order. All prices listed in the product catalogue are non-binding and don't include VAT. This catalogue overrides and supersedes any existing price lists. We shall assume no liability for content errors or inaccuracies.



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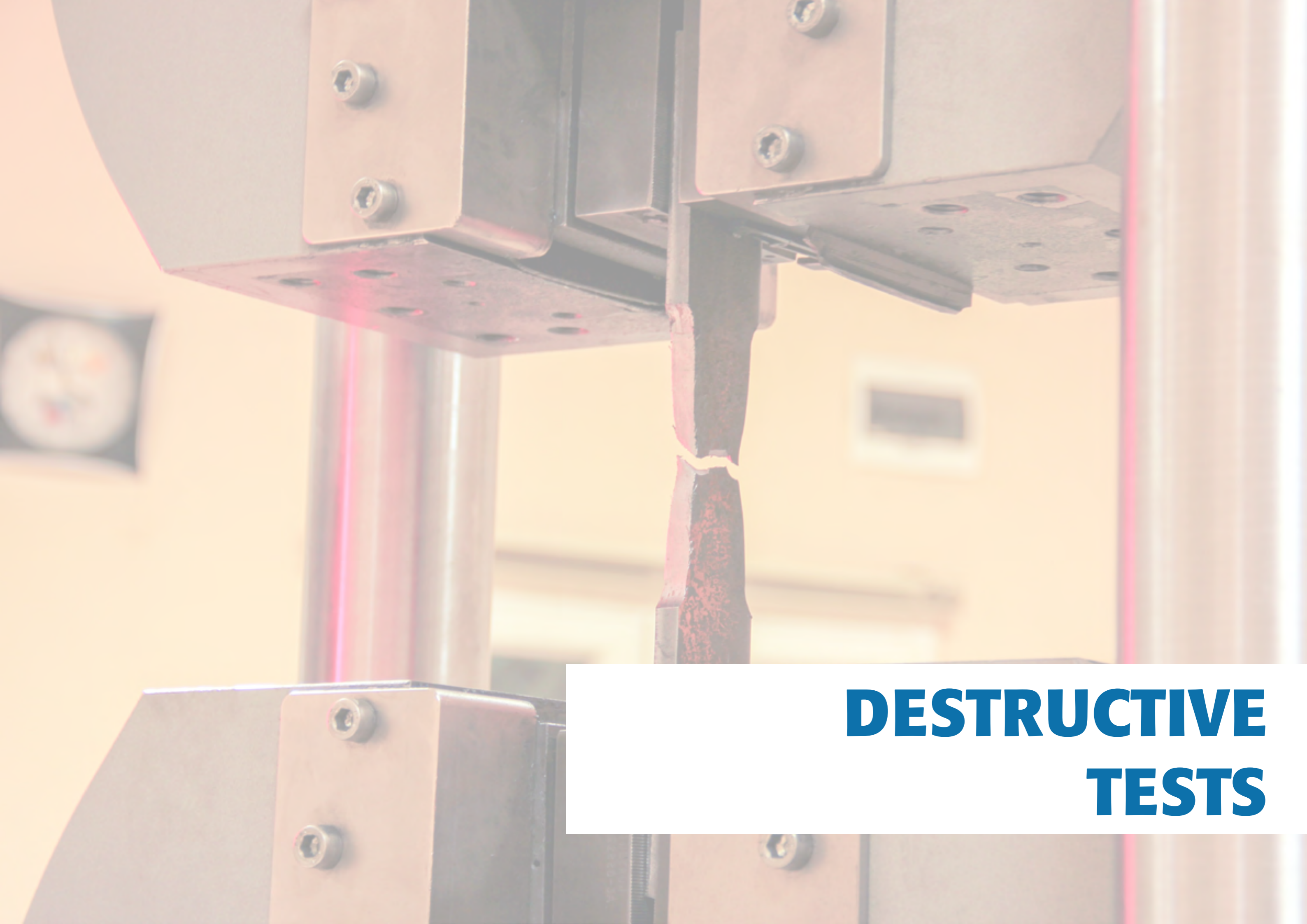
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DESTRUCTIVE TESTS

Tensile test

Tensile tests are used to determine the tensile strength, yield strength, elongation, reduction of area and e-modulus. We perform flat tensile and round tensile tests by means of a servo-hydraulic universal testing units. The sample preparation process is faster compared to conventional methods thanks to the use of waterjet cutting processes and automated turning (CNC).

- Tension force 2 x 600KN, 1 x 100KN
- Temperatures from -60 ° C to 800 ° C, on request up to 1.050 ° C
- Digital connectivity

Flat and round tensile tests on plates, pipes and fittings

Thickness	Flat tensile test at room temperature	Round tensile test at room temperature	Hot tensile test
0 mm - 9,99 mm	74,40 €	on request	137,90 €
10 mm - 19,99 mm	79,80 €	95,60 €	126,00 €
20 mm - 29,99 mm	85,80 €	108,60 €	137,90 €
30 mm - 39,99 mm	98,30 €	116,20 €	157,50 €
40 mm - 49,99 mm	116,20 €	147,20 €	189,00 €
50 mm - 59,99 mm	140,10 €	186,80 €	228,10 €
60 mm - 69,99 mm	154,20 €	205,30 €	246,60 €
> 70 mm	on request	on request	on request

Round tensile tests on bars

Outside diameter	Round tensile test at room temperature		Hot tensile test	
	longitudinal direction	transverse direction	longitudinal direction	transverse direction
< 50 mm	108,60 €	-	145,00 €	-
50 mm - 159,99 mm	136,80 €	-	182,50 €	-
> 160 mm	on request	108,60 €	on request	145,00 €

Round tensile tests on flanges

Thickness of Flange	Round tensile test at room temperature	Hot tensile test
10 mm - 19,99 mm	95,60 €	132,50 €
20 mm - 29,99 mm	108,60 €	145,00 €
30 mm - 39,99 mm	116,20 €	165,60 €
40 mm - 49,99 mm	147,20 €	198,20 €
50 mm - 59,99 mm	186,80 €	239,50 €
60 mm - 69,99 mm	205,30 €	259,10 €
> 70 mm	on request	on request

Additional tensile tests

tensile tests	
Tensile test in thickness direction Z35 15-20 mm WT, RT, per Set	239,50 €
Tensile test in thickness direction Z35 > 20 mm WT, RT, per Set	171,10 €
Pull-out test from welding plate, RT	189,50 €
Tensile test on the whole pipe, RT	98,80 €
Extension of tensile test with welding ends*	plus 21,70 €
Cold tensile test < RT	on request

* standard specimen length, depending on thickness and test standard, short & special specimens by arrangement



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 6892-1 Procedure A and B	ASTM A370 / ASTM E8
DIN EN ISO 6892-2 Procedure A and B	ASTM E21
DIN EN ISO 4136	Customer specification
Customer specification	



Only black on white count!

A first step into the future.

As usual, we document all tests (whether successful or not) on the corresponding reports. Upon request, we can make them available on paper or as a PDF document. Would you like to receive the generated reports via email automatically, immediately when prepared?

Do you require an even faster process?

If so, we recommend MT Connected Testing, which is described in detail on page 53.

Hardness testing

Hardness is the mechanical resistance of a sample to the penetration of another, harder specimen. Material testing relies on various traditional test methods including Brinell, Vickers or Rockwell. In this case, an specimen having a certain geometric shape is pressed with a defined force at a right angle to the planar and sufficiently smooth surface of the test piece. The projected surface, or the depth of the resulting impression is subsequently measured. The testing process selected depends, among other things, on the expected hardness and the nature of the sample.

- Brinell: HBW 2,5/187,5; HBW 2,5/62,5; HBW 5/750; HBW 10/1000; HBW 5/3000; HBW 10/3000
- Vickers: HV 30 / HV 10 / HV 5
- Rockwell: HRC
- Microhardness testing on request

Hardness testing with sample preparation

Thickness	3 Pits	9 Pits	13 Pits	33 Pits
0 mm - 9,99 mm	34,20 €	45,60 €	57,00 €	102,60 €
10 mm - 19,99 mm	40,20 €	51,60 €	63,00 €	108,60 €
20 mm - 29,99 mm	45,60 €	57,00 €	68,40 €	114,00 €
30 mm - 39,99 mm	51,60 €	63,00 €	74,40 €	120,00 €
40 mm - 49,99 mm	57,00 €	68,40 €	79,80 €	125,40 €
50 mm - 59,99 mm	63,00 €	74,40 €	85,80 €	131,40 €
60 mm - 69,99 mm	71,70 €	83,10 €	94,50 €	140,10 €
> 70 mm	on request	on request	on request	on request



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 6506-1 (Brinell)	ASTM E 10 (Brinell)
DIN EN ISO 6508-1 (Rockwell C)	ASTM E 384 (Vickers)
DIN EN 6507-1 (Vickers)	ASTM E 18 (Rockwell C)
Customer specification	Customer specification

Hardness testing on components

Many test pieces cannot be tested with conventional, stationary hardness testers due to their size and weight. We address this problem by means of a mobile testing device, which is designed for hardness testing on components.

Equipment: GE Inspection Technologies MIC 10 / Pin Brinell

Measurement	MIC 10	Pin Brinell
per measuring point	7,60 €	22,20 €
Minimum number of measuring points	8 Pcs.	5 Pcs.

Prices per measuring point with 3 pits (MIC 10) or 1 pits (Pin Brinell)

This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN 50159-1	Customer specification
Customer specification	



Packaging and picking

MT is also the best option for packaging according to customer specifications. Thus, the range of possible services includes not only the actual packaging in the required packing units, the attachment of tilt indicators, or the use of drying agents, but also the use of the prescribed treated wood. Further information is available on page 47.

We also meet all requirements concerning the proper cleaning or rinsing of your product with deionised water or the measurement of superficial chlorides, as well as the conductivity measurement of the cleaning medium.



Impact test

We perform notch impact tests to determine material resistance. Here, we can temper the material from -196° C to +100° C. This test can be performed on all metallic materials. Our pendulum impact testers meet all applicable ISO and NIST standards.

- 450 Joule impact tester ISO and NIST standard
- Temperature range -196°C to +100°C
- Digital connectivity

Charpy notch impact test on pipes, fittings and plates

Thickness	+100°C to +25°C	Room temperature	+15°C to -60°C	-61°C to -196°C
0 mm - 4,99 mm	on request	109,70 €	123,30 €	203,10 €
5 mm - 9,99 mm	on request	91,20 €	102,60 €	170,00 €
10 mm - 19,99 mm	on request	97,20 €	108,60 €	175,40 €
20 mm - 29,99 mm	on request	114,00 €	125,40 €	188,50 €
30 mm - 39,99 mm	on request	125,40 €	136,80 €	201,00 €
40 mm - 49,99 mm	on request	142,80 €	154,20 €	225,90 €
50 mm - 59,99 mm	on request	165,60 €	177,00 €	250,90 €
60 mm - 69,99 mm	on request	188,50 €	199,90 €	275,90 €
> 70 mm	on request	on request	on request	on request

Charpy notch impact test on bars

Outside diameter	Room temperature		+15°C to -60°C		-61°C to -196°C	
	longitudinal	transverse	longitudinal	transverse	longitudinal	transverse
15 mm - 49,99 mm*	114,00 €	-	125,40 €	-	171,10 €	-
50 mm - 159,99 mm	142,80 €	-	154,20 €	-	199,90 €	-
> 160 mm	on request	114,00 €	on request	125,40 €	on request	171,10 €

Charpy notch impact test on flanges

Thickness of Flange	+100°C to +25°C	Room temperature	+15°C to -60°C	-61°C to -196°C
10 mm - 19,99 mm	on request	97,20 €	108,60 €	175,40 €
20 mm - 29,99 mm	on request	114,00 €	125,40 €	188,50 €
30 mm - 39,99 mm	on request	125,40 €	136,80 €	201,00 €
40 mm - 49,99 mm	on request	142,80 €	154,20 €	225,90 €
50 mm - 59,99 mm	on request	165,60 €	177,00 €	250,90 €
60 mm - 69,99 mm	on request	188,50 €	199,90 €	275,90 €
> 70 mm	on request	on request	on request	on request

Additional impact test

DVMK Test	
DVMK test set excl. production	205,30 €
DVMK test set incl. production	on request

* Depending on the sample direction. For OD <50mm 3 times sample length necessary.



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 148-1	ASTM A370
Customer specification	ASTM E23
	Customer specification

Drop weight tear test (DWTT)

DWTT	
DWTT test incl. production at RT	on request
DWTT test excl. production at RT	on request
DWTT test incl. production > RT	on request
DWTT test excl. production > RT	on request

Quality is measurable



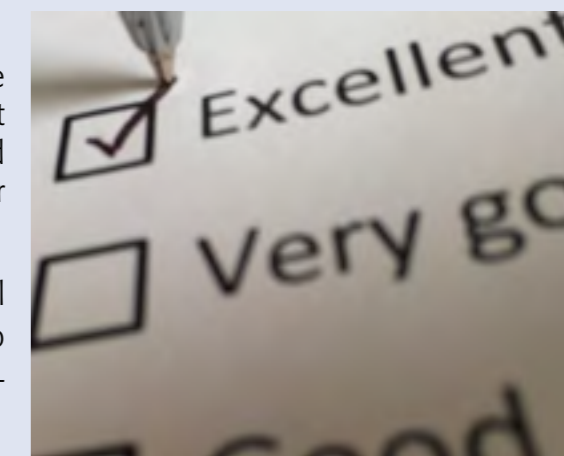
You can spend too much time talking about quality or simply stick to the facts. Short, concise, and to the point. Because quality is a visible, palpable, and measurable reality.

Our quality commitment:

Punctuality: We shall gladly calculate the required testing period for your order. We shall meet the confirmed testing duration provided uniform testing requirements exist.

Price protection: Our offers remain valid for an extended period. Offers, especially those connected to future projects, are issued with at least a 6-month validity. Accordingly, confirmed project prices remain calculable without further unpredictable surcharges.

Transparency: You are always welcome. Feel free to visit us before placing your order to ascertain our seriousness and accuracy concerning our duties.



Technological tests

Technological tests can be performed quickly and with simple means. They provide information on the processing behaviour of the material (formability).

The following standardised test methods are applied:

Technological bend test

In this case, the material is bent up to its forming capacity (sample marking on the tension side), or the sample is bent to a prescribed angle, whereby no cracks should appear. This test is particularly used for weld quality testing.

Thickness	Folding test	Side bending test
0 mm - 9,99 mm	45,60 €	-
10 mm - 19,99 mm	51,60 €	51,60 €
20 mm - 29,99 mm	51,60 €	51,60 €
30 mm - 39,99 mm	51,60 €	51,60 €
40 mm - 49,99 mm	57,00 €	57,00 €
50 mm - 59,99 mm	68,40 €	68,40 €
60 mm - 69,99 mm	74,40 €	74,40 €
> 70 mm	on request	on request



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 7438 (BM)	ASTM A370
DIN EN ISO 5173 (WM)	



Standard delivery times

Thanks to our unique combination of modern equipment and constantly enhanced software, which was specially designed for us and our customers, we regularly deliver individual testing orders within 4-5 working days. This means that MT will deliver testing results in less than one week after sample delivery or collection (provided that all technical questions were clarified).

Would you be interested in an even faster turnaround for your order? If so, we recommend MT Connected Testing, which is described in detail on page 43.

Ring tests

Ring flattening test:

This test consists of compressing a pipe ring between two plane-parallel plates set at a certain distance (H-level). As you do so, no cracks should appear on either the inner or outer surface.

Ring expansion test:

This test consists widening pipe samples placed on a mandrel up to fracture. The ring expansion test reveals defects on the pipe inner and outer surfaces. Therefore, the appearance of cracks helps assess material formability and quality aspects.

Ring widening test:

Ring widening tests serve to assess pipe deformability by placing the samples on a mandrel and expanding them to a predetermined value without the formation of cracks.

Ring tensile test:

In a ring tensile test, sample pipes are pushed via two tension bolts and then stretched transversely to the pipe axis up to fracture. This process serves to evaluate formability, as well as to detect outer and inner defects of a macroscopic nature.

Pipe diameter	Ring flattening test	Ring expansion test	Ring widening test	Ring tensile test
0 mm - 99 mm	28,70 €	40,20 €	40,20 €	-
99 mm - 159 mm	40,20 €	51,60 €	51,60 €	63,00 €
160 mm - 299 mm	57,00 €	-	-	79,80 €
300 mm - 500 mm	108,60 €	-	-	131,40 €
500 mm - 600 mm	147,20 €	-	-	170,00 €
600 mm - 813 mm	on request	-	-	-

The price includes the sawing off of the specimen from the product or test piece.



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 8492 (Ring flattening test)	ASTM A 999
DIN EN ISO 8493 (Ring widening test)	
DIN EN ISO 8494 (Ring flanging test)	
DIN EN ISO 8495 (Ring expansion test)	
DIN EN ISO 8496 (Ring tensile test)	



Measurement of billing-related wall thickness

In our wall thickness calculations, we rely decisively on the actual wall thickness from which the sample was prepared. This applies in particular to flanges, as samples are usually taken from the flange face. The actual wall thickness is determined during incoming control of the test object.

We can gladly assist with related calculations if required.

Fracture test

The test is used to determine the type, size and distribution of internal irregularities such as inclusions, lack of fusion, cracks and / or other welding defects.

Thickness	Fracture test
0 mm - 9,99 mm	51,60 €
10 mm - 19,99 mm	51,60 €
20 mm - 29,99 mm	57,00 €
30 mm - 39,99 mm	57,00 €
40 mm - 49,99 mm	63,00 €
50 mm - 59,99 mm	74,40 €
60 mm - 69,99 mm	79,80 €
> 70 mm	on request

This test is currently offered under the DIN EN 1320 standard.

Weld bend test

Thickness	Weld bend test
0 mm - 9,99 mm	- €
10 mm - 19,99 mm	- €
20 mm - 29,99 mm	- €
30 mm - 39,99 mm	159,70 €
40 mm - 49,99 mm	159,70 €
50 mm - 59,99 mm	216,70 €
60 mm - 69,99 mm	262,30 €
> 70 mm	on request

This test is currently offered under the SEP 1390 standard.



Sample preparation with minimal material

Unlike traditional techniques, the use of machines and leading technologies allow sample preparation from small parts. Accordingly, you will need to provide low sample quantities, especially for small-sized products.

We shall gladly assist you with the calculation of required quantities.



Chemical analysis

For spectral analysis, we can provide two different devices. Our stationary laboratory equipment and our mobile equipment to measure „C“ (carbon) and „N2“ (nitrogen). Both the BELEC Lab 3000s and Spectro CCD come equipped with UV probes.

Our devices are equipped with all necessary basic modules to determine various materials:

Fe-base - Ni-base

On request are also possible: Al-base - Cu-base - Ti-base

Spectral analysis

Chemical analysis	
Full spectral analysis Fe - base	126,00 €
Full spectral analysis Ni - base	126,00 €
Mobile spectral analysis (max. 5 elements)	72,50 €

Standard Elements Full Analysis Spectral																			
Fe - base	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Co	Cu	Nb	Ti	V	W	Fe	N	B	Sn
Ni - base	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Co	Cu	Nb	Ti	V	W	Fe			

Special elements

Determination of special elements	
Analysis per element (except TA)*	108,60 €
Analysis Element TA*	228,10 €
Combustion analysis	on request
Determination X/J Factor*	17,30 €
Determination of PreN / PreW / CEV*	17,30 €
Wet chemical analysis	on request

Determination of special elements												
Elements	Bi	Se	Sb	Te	Zr	As	Ca	Pb	Ce	Mg	Ta	Cd

* Full spectral analysis obligatory

Identification / Mix-up check (PMI)

Mix-up check (PMI)	
Per measurement	8,00 €
Minimum number of measurements	6 Pcs.



Metallographic analysis

Macroscopic examination

Macroscopic analysis provides a representation of the weld seam with layer structure, possible flaws, and welding defects.

During base material analysis, macrosections are used to represent the lines of action of the force, as well as segregation areas.

Thickness	Preparation & testing incl. 1 image	additional images
0 mm - 9,99 mm	53,70 €	4,30 €
10 mm - 19,99 mm	57,00 €	4,30 €
20 mm - 29,99 mm	63,00 €	4,30 €
30 mm - 39,99 mm	71,70 €	4,30 €
40 mm - 49,99 mm	84,20 €	4,30 €
50 mm - 59,99 mm	101,50 €	4,30 €
60 mm - 69,99 mm	122,20 €	4,30 €
> 70 mm	on request	4,30 €



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 17639	Customer specification
Customer specification	



Sample retention periods

We store each tested material for at least 3 months in our collection areas. Thus, you can still access your original samples to carry out further orders or inspections without additional expense on your part.

Please note that we might incur significant costs to provide separate or extended sample storage, or upon sample return. Therefore, we shall charge a fee of €8.50 per sample.



Microscopic analysis

Microsection etching is used to reveal individual structure components. The microstructure provides information on heat treatment and possible material defects.

Thickness	Microsection preparation	microstructure analysis			
		1 Image	2-3 Image	4-6 Image	5-9 Image
Plates, Pipes und accessories					
0 mm - 9,99 mm	67,30 € +	19,50 €	28,70 €	37,40 €	46,70 €
10 mm - 19,99 mm	71,70 € +	19,50 €	28,70 €	37,40 €	46,70 €
20 mm - 29,99 mm	77,60 € +	19,50 €	28,70 €	37,40 €	46,70 €
30 mm - 39,99 mm	86,90 € +	19,50 €	28,70 €	37,40 €	46,70 €
40 mm - 49,99 mm	99,40 € +	19,50 €	28,70 €	37,40 €	46,70 €
50 mm - 59,99 mm	115,10 € +	19,50 €	28,70 €	37,40 €	46,70 €
60 mm - 69,99 mm	135,80 € +	19,50 €	28,70 €	37,40 €	46,70 €
≥ 70 mm	on request				
Bars					
OD < 50mm Longitudinal	77,60 € +	19,50 €	28,70 €	37,40 €	46,70 €
OD ≥ 50mm Longitudinal	115,10 € +	19,50 €	28,70 €	37,40 €	46,70 €
Transversal	77,60 € +	19,50 €	28,70 €	37,40 €	46,70 €

The price results from the preparation of the microsection plus the microstructure analysis according to the number of images.



This tests are currently offered in line with the following standards:

DIN/EN/ISO	Other	ASME/ASTM
DIN 50600	VD-TÜV Werkstoffblätter	Customer specification
DIN EN ISO 17639		
Customer specification		



Customer specification

All MT's employees in its various departments, laboratory management, as well as the entire management, boast long-standing experience in dealing with a variety of specifications and customer requirements. Over the years, we have successfully reviewed specifications from all industrial sectors including oil, gas, refineries and nuclear technology, as well as renewable energy at last. Thus, our experience extends well beyond actual product specifications, but also concerns other relevant requirements in cleaning, packaging, storage and transport.

Particle size determination

The particle size is affected by solidification, forming and heat treatment processes. For particle size analysis, samples are prepared for each material according to the standard, and a suitable evaluation method selected.

The following methods are available for particle size determination: Line cutting process, surface counting process, and comparison with standardised image panels.

Particle size determinat	
1 image on microsection *	21,70 €
additional image	4,30 €



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASTM
DIN EN ISO 643	ASTM E112

Purity determination

Purity determination serves to assess the content of non-metallic inclusions in the form of sulphides and oxides. To this end, samples are ground, polished, counted in accordance with the relevant standards, and then assessed.

Purity determination	
6 measurements on 6 microsections*	114,00 €



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN 10247	ASTM E45
ISO 4967	

* plus preparation of the microsection, if not already done for other test. Price table see page 19

Ferrite determination

Metallographic ferrite determination in accordance with ASTM E 562 on duplex materials:

In this test, a predetermined measurement grid with e.g., 16 grid points, is set atop a micrograph. Ferrite elements at or on the intersections are counted and characterised in percentage terms.

Mobile testing with the feritscope:

Non-destructive testing includes the measurement of ferrite content in austenitic and duplex steels. This process serves to detect the magnetisable portion of the structure. Mobile instrumentation (Feritscope FMP30) also allows for external measurements.

Ferrite determination	
Determination Ferrite ASTM E562 1 Measurement / 30 image Evaluations*	68,40 €
Determination Ferrite ASTM E562 3 Measurements / 90 Image Evaluations*	205,30 €
Determination Ferrite ASTM E562 9 Measurements / 270 Image Evaluations*	616,00 €
Determination of delta ferrite according to Delong / Schaeffler / NB2433.1 / AVS 63**	28,70 €
Determination of delta-ferrite AVS63 weld-on spots*	114,00 €
Mobile testing with the Feritscope	28,70 €



* plus preparation of the microsection, if not already done for other test. Price table see page 19

** Full analysis obligatory, price see page 17

Etching sample ASTM A262 Pract. A

This test is used for rapid verification of resistance to intergranular corrosion; in this case, the sample is etched with oxalic acid, compared under a microscope with standardized diagrams, and finally evaluated.

Etching sample ASTM A262 Pract. A	
Package price	136,80 €



Heat treatment

Implementation of simulated annealing for manufacturing processes and heat treatments such as normal, solution, and hardness annealing, as well as tempering.

Temperature range: 20° C to 1.300° C

Heat treatment	
per hour	34,20 €
Long-term HT > 60h	on request

Corrosion test

Intergranular corrosion

This test measures the resistance of stainless steels to intergranular corrosion. Here, the sample is inserted and heated in a test medium. Depending on the method, the sample is bent on a mandrel after boiling, and then inspected for cracking, its corrosion rate determined.

Intergranular corrosion	
ASTM A 262 Pract. B	279,00 €
ASTM A 262 Pract. C	620,00 €
ASTM A 262 Pract. E	136,80 €
ASTM G 28 Pract. A	279,00 €
DIN EN 3651-1	620,00 €
DIN EN 3651-2 Pract. A T1	136,80 €
DIN EN 3651-2 Pract. A T2	136,80 €
DIN EN 3651-2 Pract. B T1/ T2	159,50 €
DIN EN 3651-2 Pract. C T1 / T2	279,00 €
DIN EN ISO 9400 Pract. D	on request



Pitting corrosion test

To determine the resistance to pitting, the sample surface is tested and the overall sample weighed. The sample is placed in a test solution, and tested according to the standard / customer specification at pre-determined temperature for the test time. The weight loss is subsequently determined and the removal rate calculated.

Pitting corrosion test	
ASTM G 48 Prac. A (24h)	136,80 €
ASTM G 48 Prac. A (48h)	166,70 €
ASTM G 48 Prac. A (72h)	197,10 €
ASTM A 923 Prac. C (24h)	136,80 €
ASTM A 923 Prac. C (48h)	166,70 €
ASTM A 923 Prac. C (72h)	197,10 €



Transport

Our fleet comprises various vehicle types to accommodate our customers' needs. We are fully equipped to transport up to 3 tons in weight and up to 8.00 meters in length. We are available to collect the material at your premises or your supplier's on your behalf. Alternatively or in addition thereto, we can return the tested material to you or your customers.

Special corrosion test

SCC-/ SSC-Test

Corrosion tests on samples under tension in defined media at a given pressure. Testing principles e.g.: NACE TM 0177 A + B

SCC-/ SSC-Test	
Package price	on request

Other special corrosion tests

We can provide a broad range of corrosion tests tailored to your specific requirements.

Other special corrosion tests	
Package price	on request



Determination of ingredients in liquids

In extensive specifications, it is often required to determine the residual levels of chloride in cleaning agents. Our laboratory equipment allows the exact determination of chloride content in the measuring range from 1 to 100 mg/l. In addition, we can determine the content of 26 additional substances ranging from aluminium (0.01 to 0.5 mg/l) to tin (0.01 to 1.0 mg/l). Please refer to one of our specialists for further information.



Restamping / Marking

Further to order picking of various delivery volumes, we shall gladly carry out all associated work in our company and by our own personnel, if you so desire. Thus, engraving or hard stamping of additional labelling or restamping (provided the restamping authorisation is granted) belong to our daily routine.



Certification

Within just a few months, we achieved the DAkkS accreditation for all our basic tests. Already in the following year, the automatic ultrasonic test was accepted into the certified portfolio. Further test types will successively follow. You can find and directly download detailed information on all currently accredited tests on the DAkkS page (www.dakks.de). The current accreditation certificate is available on our homepage for download. (www.mt.labs.de/downloads)

Special tests

CTOD test

This test concerns the characteristics due to material mechanics fracture criteria and characterisation of the critical states leading to fracture, depending on types of stress and material behaviour.

Testing principles including: ASTM E1290 / BS 7448 Part 1 + 2

CTOD test	
Package price	on request

Component roughness

Our roughness measuring device Hommel W10 Etamic performs measurements on components and pipes with complex geometries.

Component roughness	
Per measurement	17,30 €
Minimum number of measurements	5 Pcs.

This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASME/ASTM
DIN EN ISO 4287	ASME B46
DIN EN ISO 13565-1/ - 2	
DIN EN ISO 12085	

Preparation and evaluation of welder, work and process tests

Depending on application, various tests are necessary for the acceptance of welding, work and process tests. We can gladly send you a package offer for your specific test needs.

VP-AP-SP	
Package price	on request

Other tests

For all other tests that are not mentioned in this catalogue, we will be interested to check the possibilities for you. Through close cooperation with partner laboratories, we can offer numerous specialised tests. Our network is to your advantage.

Upon request, we also offer test coordination with laboratories worldwide. If a test cannot be performed in our laboratories for logistic reasons, we will coordinate your test with appropriate partner laboratories.

Specimen preparation and documentation

Specimen production	
Specimen preparation in general	included
Sawing off sample material from pipe up to 99 mm OD	13,50 €
Sawing off sample material from pipe up to 299 mm OD	27,70 €
Sawing off sample material from pipe up to 508 mm OD	45,00 €
Sawing off sample material from pipe up to 811 mm OD	74,40 €
Sawing off sample material from bars up to 100 mm OD	27,10 €
Sawing off sample material from bars up to 300 mm OD	55,90 €
Sawing off sample material from bars up to 500 mm OD	93,40 €
Sawing off sample material from bars up to 800 mm OD	on request
Additional effort for concentric reductions < 1.5"	17,30 €
Additional effort for bends < 1,5"	21,70 €
Cutting off sample material from sheets ≤ 30 mm thick	115,00 €
Cutting off sample material from sheets > 30 mm ≤ 50 mm thick	250,00 €
Cutting of sample material on sheet metal > 50mm thick and other components	on request
3 months storage of sample material	included
extended storage of sample material, per month	on request
Removal of CLAD Coatings	on request
Separate return of sample material to the customer, excl. transport	9,70 €

Documentation	
Documentation German / English	included
Access to / Use of existing procedures	included
Project-specific modification of procedures	on request
Create and manage ITPs	on request
Creation of a graphical progression curve for each cycle	34,50 €
Documentation other languages	on request
Digital invoicing	included
Paper-based invoicing	3,20 €
Digital transmission of order data (interface-based), per order	credit: 20,60 €



Surcharges for material types and other surcharges

MT deliberately avoids unpredictable surcharges for „handling“. Furthermore, we consider that any testing process we undertake should be accompanied by the corresponding free documentation. No separate booking required.

We rely on a clear, simple, and fair pricing structure. This is precisely why we waived commercial charges for special material grades.

If you have any questions, please do not hesitate to contact us in order to explain our corporate philosophy in more detail.



**NON-DESTRUCTIVE
TESTS**

Non-Destructive Tests

On the following pages you will find for instance prices for first components, meters and measurements which are valid for each batch, order or, if desired, customer position. If the outside diameter to be tested is not listed in the tables, the next larger outside diameter shall be used. The largest outside diameter of the component applies. The prices refer to customary quantities. We will be pleased to submit you a special offer for special projects.

Ultrasonic Test (UT)

Ultrasonic testing is a non-destructive testing method whereby components of sound-conductive materials are checked for internal defects by means of ultrasonic waves. It serves both to inspect weld seams, castings, semi-finished products, rolled products, and forged products, as well as to measure the residual wall thicknesses of pipes and pressure vessels. This test method is based on the travel-time measurement of sound waves between transmitter and receiver. By evaluating various travel times, auditors can determine not only defect types but also their position in most cases. This is so because different defects such as inclusions, cracks, voids and separation points, feature different reflection behaviour for sound waves, thus causing characteristic signal images. Ultrasonic testing can be carried out under water (diving technology). In the case of automated testing, ultrasonic testing offers high test speed along with high test frequency, which in turn results in an efficient and cost-effective test performance.

Manual ultrasonic test

The availability of advanced, portable ultrasonic defect detectors, along with a wide range of probes, allows performing almost any kind of manual ultrasonic testing at short notice. Our professionals are equipped to meet your needs.

Manual ultrasonic test	
Price per working hour	93,40 €

Billing per quarter of an hour



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASTM	ASME	Other
DIN EN 10160	ASTM A577	ASME-SA 388	SEP 1915
DIN EN 10228-3	ASTM A745	ASME Code sect. V, Article 4	AD 2000 - Merkblatt HP5/3
DIN EN 10228-4	ASTM E114		Customer specification
DIN EN 10308	ASTM E127		
DIN EN 12680-1	ASTM E164		
DIN EN ISO 1166	ASTM E213		
DIN EN ISO 16809	ASTM E273		
DIN EN ISO 17640	ASTM E587		
DIN EN ISO 23279	ASTM E797		

Automatic ultrasonic test from pipes and round steels

- Pipes and round steels of a single length from 4.0 to 14.0 meters
- Dimensions from 6 to 508 mm
- Maximum piece weight: 5.000 kg

Diameter	Longitudinal	Transversal	Lamination	Thickness	Min. qty
up to 39,9 mm	4,80 €	4,80 €	5,50 €	4,80 €	18 m
40,0 mm - 59,9 mm	4,80 €	4,80 €	5,50 €	4,80 €	18 m
60,0 mm - 99,9 mm	4,80 €	4,80 €	5,50 €	4,80 €	18 m
100,0 mm - 139,9 mm	6,10 €	6,10 €	7,60 €	6,10 €	12 m
140,0 mm - 159,9 mm	8,50 €	8,50 €	11,10 €	8,50 €	12 m
160,0 mm - 249,9 mm	12,20 €	12,20 €	15,20 €	12,20 €	12 m
250,0 mm - 349,9 mm	19,50 €	19,50 €	22,30 €	19,50 €	6 m
350,0 mm - 449,9 mm	27,30 €	27,30 €	31,70 €	27,30 €	6 m
450,0 mm - 508,0 mm	40,50 €	40,50 €	42,60 €	40,50 €	6 m

Price per running meter of pipe; Min. Qty: Minimum quantity per item

This tests are currently offered in line with the following standards:

DIN/EN/ISO	DIN/EN/ISO	DIN/EN/ISO	ASME/ASTM
DIN EN ISO 10893-10 (Long. test / trans. test)	DIN EN 10246-6 (Transversal test)	DIN EN 10246-16 (Lamination)	ASTM E213
DIN EN ISO 10893-8 (Lamination)	DIN EN 10246-7 (Longitudinal test)	Customer specification	ASME Code sect. V, Article 4
DIN EN ISO 10893-11 (weld seam test)	DIN EN 10246-8 (weld seam test)		Customer specification
DIN EN ISO 10893-12 (Thickness)	DIN EN 10246-14 (Lamination)		
DIN EN ISO 10893-9			



Testable surfaces for ultrasonic testing

Ultrasonic testing of metallic surfaces becomes challenging due to coatings or severe scaling, as these can interrupt sound waves. This reduces penetration depth and weakens reflected signals, making defect detection more difficult. The thickness of the coating also plays an important role: thicker coatings reduce the penetration depth of the sound waves more significantly, further impairing the testability of the underlying metal.

To ensure a compliant test, we may need to grind or blasting the surface of your test specimens. We would be happy to discuss this with you if needed.

Ultrasonic testing of fittings

Prices per test method (longitudinal, transversal, laminar imperfections), 100% body

Outside diameter mm	Outside diameter inch	Outside diameter DN	Per Pieces	Minimum quantity
21,3	1/2"	15	8,20 €	7 Pieces
26,7	3/4"	20	8,20 €	7 Pieces
33,4	1 "	25	8,80 €	6 Pieces
42,2	1 1/4"	32	8,80 €	6 Pieces
48,3	1 1/2"	40	8,80 €	6 Pieces
60,3	2"	50	9,10 €	6 Pieces
73,0	2 1/2"	65	9,50 €	6 Pieces
88,9	3"	80	10,10 €	6 Pieces
101,6	3 1/2"	(90)	12,30 €	5 Pieces
114,3	4"	100	15,70 €	4 Pieces
141,3	5"	125	20,20 €	4 Pieces
168,3	6"	150	21,80 €	4 Pieces
219,1	8"	200	26,20 €	3 Pieces
273,1	10"	250	33,10 €	3 Pieces
323,9	12"	300	38,70 €	3 Pieces
355,6	14"	350	43,30 €	3 Pieces
406,4	16"	400	52,40 €	3 Pieces
457	18"	450	62,70 €	3 Pieces
508	20"	500	77,50 €	2 Pieces
559	22"	(550)	82,10 €	2 Pieces
610	24"	600	90,70 €	2 Pieces
660	26"	650	107,20 €	2 Pieces

Ultrasonic testing of flanges

Per Piece	Minimum quantity
on request	on request



Phased-Array Technology

Phased-Array Technology is increasingly used for non-destructive testing with ultrasound, since it provides amongst others higher test reliability and test speeds, improving test results over conventional testing with fixed-angle probes. The principle is based on having several ultra-sound elements in a Phased-Array probe send out sound beams with a delay between them, whereby each element is at a different angle. The number of ultrasonic elements and their angle allows testing large specimen areas with a single probe position. In turn, this offers high speed testing. On the other hand, the large number of signals produces nearly a real image representation, which allows improved test result compared to standard ultrasonic testing. The preparation of test standards and guidelines for the application of Phased-Array technology is still in full progress.

Ultrasonic wall thickness measurement

Outside diameter	Per measurement	Minimum quantity
Fix price	2,10 €	21 Measurements

Ultrasonic testing of pipe ends for laminations

The prices per pipe. The maximum length to be tested results from the outside diameter.

Outside diameter mm	Outside diameter inch	Outside diameter DN	Per Pipe	Minimum quantity
21,3	1/2"	15	6,10 €	8 Pieces
26,7	3/4"	20	6,10 €	8 Pieces
33,4	1 "	25	6,60 €	8 Pieces
42,2	1 1/4"	32	6,60 €	8 Pieces
48,3	1 1/2"	40	6,60 €	8 Pieces
60,3	2"	50	6,80 €	8 Pieces
73,0	2 1/2"	65	7,10 €	7 Pieces
88,9	3"	80	7,60 €	7 Pieces
101,6	3 1/2"	(90)	9,30 €	6 Pieces
114,3	4"	100	11,80 €	5 Pieces
141,3	5"	125	15,10 €	5 Pieces
168,3	6"	150	16,20 €	4 Pieces
219,1	8"	200	19,60 €	4 Pieces
273,1	10"	250	24,70 €	4 Pieces
323,9	12"	300	29,10 €	3 Pieces
355,6	14"	350	32,40 €	3 Pieces
406,4	16"	400	39,30 €	3 Pieces
457	18"	450	47,00 €	2 Pieces
508	20"	500	58,20 €	2 Pieces
559	22"	(550)	61,60 €	2 Pieces
610	24"	600	68,00 €	2 Pieces
660	26"	650	80,40 €	2 Pieces

Preparation of reference blocks for ultrasonic testing

For ultrasonic testing, special costs may be incurred for the production of reference blocks. This is particularly the case when extremely rare dimensions / requirements are involved. We are at your disposal to check in advance whether the reference block is already available in our stock. In any case you will of course be informed before test blocks are made.

Preparation of reference blocks for ultrasonic testing		
Reference block for automatic ultrasonic testing	Length: 500 mm	850,00 €

Magnetic particle test (MT)

Magnetic particle testing is a non-destructive testing method for detecting near-surface material separations in ferromagnetic materials. MT offers magnetic particle testing as so-called black / white testing, which employs two testing devices. White for the underground, black for the magnetic powder. Alternatively, we offer fluorescent testing under UV light. Unlike the dye penetrant testing, existing defects do not have to be open to the surface. Testing works as follows: The workpiece is magnetised and applied a testing agent, which contains magnetic powder as an essential component (usually with water or oil as a carrier medium). The flux leakage arising from the workpiece magnetisation at defective spots makes magnetisable particles adhere to the existing testing agent.

This results in the formation of magnetic powder caterpillars, which can be visually recognised. The contrast between underground and testing agent provides a visible display.

For austenitic steels, however, we must resort to dye penetration testing, as these are non-magnetic materials.

The test suitability of the test pieces with regard to the surface condition (scale/coating) must be guaranteed.

Magnetic particle test

Magnetic particle test	
Price per working hour	93,40 €

Billing per quarter of an hour

This tests are currently offered in line with the following standards:

DIN/EN/ISO	DIN/EN/ISO	ASTM/ASME	Other
DIN EN ISO 17638	DIN EN 10228-1	ASME Code sect. V Art. 7	AD 2000 Merkblatt HP5/3
DIN EN ISO 17635	DIN EN 10246-12	ASME Code sect. V Art. 25	Customer specification
DIN EN ISO 5817	DIN EN 10246-18	ASME Code sect. III	
DIN EN 10893-5	DIN EN 1369	ASME Code sect. VIII Div.1, Appendix 6	
DIN EN ISO 9934-1		SE 709	
		ASTM E709	



Magnetic particle testing on pipes

Diameter	Admissibility class M3/M4	Admissibility class M2	Admissibility class M1
up to 29,9 mm	5,40 €	5,90 €	6,50 €
30,0 mm - 59,9 mm	6,10 €	6,70 €	7,30 €
60,0 mm - 99,9 mm	12,20 €	13,40 €	14,60 €
100,0 mm - 139,9 mm	15,10 €	16,50 €	18,00 €
140,0 mm - 159,9 mm	17,80 €	19,50 €	21,20 €
160,0 mm - 249,9 mm	27,30 €	30,00 €	32,80 €
250,0 mm - 349,9 mm	41,00 €	45,10 €	49,30 €
350,0 mm - 449,9 mm	47,90 €	52,60 €	57,40 €
450,0 mm - 549,9 mm	68,40 €	75,20 €	82,10 €
550,0 mm - 649,9 mm	75,20 €	82,50 €	90,10 €
> 650,0 mm	on request	on request	on request

Prices per running pipe meter, outside full-body
Minimum order 6 Meter

Magnetic particle test at pipe ends

Outside diameter mm	Outside diameter inch	Outside diameter DN	Per Pipe	Minimum quantity
21,3	1/2"	15	5,80 €	5 Pieces
26,7	3/4"	20	5,90 €	6 Pieces
33,4	1 "	25	5,90 €	6 Pieces
42,2	1 1/4"	32	6,30 €	6 Pieces
48,3	1 1/2"	40	6,40 €	6 Pieces
60,3	2"	50	6,90 €	5 Pieces
73,0	2 1/2"	65	7,70 €	5 Pieces
88,9	3"	80	8,20 €	5 Pieces
101,6	3 1/2"	(90)	8,60 €	5 Pieces
114,3	4"	100	9,10 €	5 Pieces
141,3	5"	125	11,40 €	4 Pieces
168,3	6"	150	13,20 €	4 Pieces
219,1	8"	200	16,40 €	4 Pieces
273,1	10"	250	22,80 €	3 Pieces
323,9	12"	300	28,20 €	3 Pieces
355,6	14"	350	31,00 €	3 Pieces
406,4	16"	400	35,60 €	3 Pieces
457	18"	450	41,00 €	2 Pieces
508	20"	500	53,30 €	2 Pieces
559	22"	(550)	56,60 €	2 Pieces
610	24"	600	72,10 €	2 Pieces
660	26"	650	83,90 €	2 Pieces

First pipe per position and batch, outside max 1xOD length

Magnetic particle testing of fittings and flanges, outside full-body

Outside diameter mm	Outside diameter inch	Outside diameter DN	Per Piece	Minimum quantity
21,3	1/2"	15	7,10 €	6 Pieces
26,7	3/4"	20	7,20 €	6 Pieces
33,4	1 "	25	7,20 €	6 Pieces
42,2	1 1/4"	32	7,70 €	6 Pieces
48,3	1 1/2"	40	8,00 €	6 Pieces
60,3	2"	50	8,60 €	5 Pieces
73,0	2 1/2"	65	9,60 €	5 Pieces
88,9	3"	80	10,30 €	5 Pieces
101,6	3 1/2"	(90)	10,80 €	5 Pieces
114,3	4"	100	11,40 €	5 Pieces
141,3	5"	125	14,20 €	4 Pieces
168,3	6"	150	16,50 €	4 Pieces
219,1	8"	200	20,50 €	4 Pieces
273,1	10"	250	28,50 €	3 Pieces
323,9	12"	300	35,40 €	3 Pieces
355,6	14"	350	38,70 €	3 Pieces
406,4	16"	400	44,50 €	2 Pieces
457	18"	450	51,30 €	2 Pieces
508	20"	500	66,80 €	2 Pieces
559	22"	(550)	70,70 €	2 Pieces
610	24"	600	90,10 €	2 Pieces
660	26"	650	104,90 €	2 Pieces

First component per position and batch, outside full-body

Demagnetising

Furthermore, we offer a component demagnetisation option as required.

Demagnetise	
Price per working hour	66,80 €

Billing per quarter of an hour

Dye penetrant testing (PT)

Penetrant testing is used in metallic and non-metallic workpieces to find imperfections that are open to the surface.

After application of the penetrant agent, which is done in the laboratories of MT by dipping or spraying, the agent enters any surface defects of the workpiece by capillary action. After thoroughly washing the penetrant agent off the test surface using water or detergent, a developer layer is applied to suction the testing agent held in material separations and cavities, making it thus visible. We may use fluorescent testing agents to increase the test sensitivity.

Testing agents used at MT laboratories feature both characteristics: fluorescent and red/white. Magnetic particle inspection is usually applied to „non-austenitic“ steels.

The test suitability of the test pieces with regard to the surface condition (scale/coating) must be guaranteed.

Dye penetrant testing	
Price per working hour	93,40 €

Billing per quarter of an hour



This tests are currently offered in line with the following standards:

DIN/EN/ISO	DIN/EN/ISO	ASME/ASTM	Other
DIN EN ISO 10893-4	DIN EN 10228-2	ASTM E165	AD 2000 - Merkblatt HP5/3
DIN EN ISO 23277	DIN EN 1371-1	ASTM E1471-92 RT	Customer specification
DIN EN ISO 17635	DIN EN 1371-2	ASME Code sect. V Art.6	
DIN EN ISO 3452-1	DIN EN 10246-11	ASME Code sect. III	



The individual connection

Please contact our auditors and officers should you have any further questions or concerns. Feel free to reach out to our highly experienced project management for assistance for multiple cross-functional, and particularly extensive test orders. More information on page 51.

Dye penetrant testing of fittings and flanges

Outside diameter mm	Outside diameter inch	Outside diameter DN	Per Piece	Minimum quantity
21,3	1/2"	15	8,20 €	5 Pieces
26,7	3/4"	20	8,50 €	5 Pieces
33,4	1 "	25	8,80 €	5 Pieces
42,2	1 1/4"	32	9,00 €	5 Pieces
48,3	1 1/2"	40	9,40 €	5 Pieces
60,3	2"	50	11,10 €	5 Pieces
73,0	2 1/2"	65	12,80 €	4 Pieces
88,9	3"	80	18,20 €	4 Pieces
101,6	3 1/2"	(90)	22,70 €	3 Pieces
114,3	4"	100	28,20 €	3 Pieces
141,3	5"	125	32,50 €	3 Pieces
168,3	6"	150	38,30 €	3 Pieces
219,1	8"	200	42,60 €	2 Pieces
273,1	10"	250	48,80 €	2 Pieces
323,9	12"	300	57,60 €	2 Pieces
355,6	14"	350	63,90 €	2 Pieces
406,4	16"	400	72,70 €	2 Pieces
457	18"	450	80,20 €	2 Pieces
508	20"	500	90,30 €	2 Pieces
559	22"	(550)	99,00 €	2 Pieces
610	24"	600	117,90 €	2 Pieces
660	26"	650	144,20 €	2 Pieces

First component per position and batch, outside full-body

Dye penetrant testing on pipes

Outside diameter mm	Outside diameter Inch	The first meter	Additional meter
Fix price	Fix price	on request	on request

Dye penetrant testing on pipe ends

Outside diameter mm	Outside diameter Inch	First pipe	Additional pipe
Fix price	Fix price	on request	on request

Visual inspection (VT)

The visual inspection is an optical or visual control of a product for surface defects and other deviations. It is carried out as either a general or detailed examination. While the general inspection proceeds without testing equipment, detailed inspections resort to magnifying glasses, folding ruler, weld seam gauges, etc. MT offers a remote visual inspection by means of video endoscope. These tools allows the inspection of particularly critical areas, providing thus accurate and detailed test results.

Visual inspection	
Price per working hour	93,40 €

Billing per quarter of an hour



This tests are currently offered in line with the following standards:

DIN/EN/ISO	DIN/EN/ISO	ASTM/ASME	Other
DIN EN 12454	DIN EN ISO 17637	ASTM A802	AD 2000 - Merkblatt HP 5/1
DIN EN ISO 17635	DIN EN ISO 5817	ASTM A997	AD 2000 - Merkblatt HP 5/3

Ovality measurement

Roundness is determined through several measurements of the outer diameter. Product roundness or ovality percentage can be determined by means of a predefined formula.

ovality measurement	
Pipes up to outside diameter 200 mm	16,50 €
Pipes up to outside diameter 355mm	22,20 €
Pipes up to outside diameter > 355 mm	on request

Prices per measuring point



On-site testing

Would you like our service at your customer's location? It is appropriate to perform our testing procedures directly at your premises? MT provides all portable methods for external testing.

Rest assured that on-site testing involves no special charges apart our from travel costs. Please see page 44 for travel expenses calculation. For this purpose, we calculate all distances from the nearest Branch.

Eddy current test (ET)

Eddy current testing is a method for testing electrically conductive components for material defects, material properties and dimensions. At times, it can be a cost-effective alternative to hydrostatic testing depending on specifications. Among other things, it is used for coating thickness measurement and sorting testing of different materials. Magnetic fields are applied to the specimen to generate so-called eddy currents. Imperfections and changes in material properties affect the production and development of eddy currents. Differences between the reference condition and the specimen can be detected by measurement and represented via characteristic signal images.

Eddy current testing on pipes

Diameter	per meter
Various	on request

Eddy current testing of fittings

Diameter	per Item
Various	on request

Eddy current testing of welds

Piece	per Item
Fix price	on request

This tests are currently offered in line with the following standards:

DIN/EN/ISO	DIN/EN/ISO	ASTM/ASME	SEP
DIN EN 10246-1	DIN 54141-1	ASTM E 426	SEP 1914
DIN EN 10246-2	DIN 54141-3	ASTM E 571	SEP 1917
DIN EN 10246-3		ASTM E 1033	SEP 1925



Radiographic test (RT)*

Radiographic testing is suitable for detecting subsurface defects, whereby surface defects can also be detected. In this particular testing type, MT irradiates the specimen with high-energy electromagnetic radiation, which is usually produced via X-rays. Inhomogeneities, defects or differing material thicknesses lead to different attenuations of the penetrating radiation, which are collected as differences in blackness on a film set behind the specimen. In turn, these blackness differences yield an analysable image.

- Automatic testing system for longitudinally welded pipes
- Eresco 65MF4, max. power 300kV 3mA, focal spot 2,1x2,5mm
- Film sizes: 10x12cm, 10x16cm, 10x24cm, 10x48cm (further on request)
- Bunker size: 7 meters

Type	Thickness	Filmprice	Minimum quantity
Pipe (each 40 cm 1 film)	up to 19,9 mm	13,50 €	60 Films
Pipe (each 40 cm 1 film)	20,0 to 39,9 mm	16,20 €	45 Films
Pipe (each 40 cm 1 film)	40,0 to 50,0 mm	22,10 €	45 Films
Longitudinal / weld seams on fittings	up to 9,9 mm	on request	on request
Longitudinal / weld seams on fittings	10,0 to 19,9 mm	on request	on request
Longitudinal / weld seams on fittings	20,0 to 50,0 mm	on request	on request
Circular welds (pipe)	up to 12,5 mm	on request	on request
butt welds (plate)	up to 50,0 mm	on request	on request
nozzle welds < DN 300	up to 14,9 mm	on request	on request
nozzle welds > DN 300	up to 50,00 mm	on request	on request
castings	up to 50,00 mm	on request	on request

*only available at Meerbusch branch



This tests are currently offered in line with the following standards:

DIN/EN/ISO	Other	ASTM/ASME
DIN EN 12681	AD 2000 - Merkblatt x/3	ASME Code sect. V Art.2
DIN EN ISO 17635	Customer specification	ASME Code sect. III
DIN EN 17636-1		ASME Code sect. VII
DIN EN ISO 10893-6		ASTM E94

Leak test (LT)

Leak test certification is one of the hottest topics on the market. Precisely because of our high standards, we have given intensive consideration to the topic, and offer a wide range of leak tests. For water pressure tests which are pending incorporation to our portfolio, we can offer eddy current testing - depending on the specification - as a substitute test. Please contact us for further assistance and details.

Water pressure test on pipes

Water pressure testing	
Pipes with plug-in plugs up to a diameter of 609.4 mm	on request
Pipes with weld-on tops	on request
Fittings / Isometrics	on request



Helium leak test

These processes use helium as a test gas. Very low leakage rates can be detected thanks to the extremely high sensitivity of helium leak testing. For the very same reason, this test can also be used for leak detection and localization. Helium test gas is a safe-to-use inert gas, which can be recovered and reused. Testing proceeds as follows: The inside of the specimen is evacuated with a vacuum pump, while its outside is sprayed with helium. Any helium penetrating through leaking spots is sucked by the high vacuum pump. An helium mass spectrometer, which is fit on the vacuum pump exhaust, detects any penetrating test gas. Alternatively, the specimen can be flooded with helium. In this case, helium leaks are detected by means of a sniffer probe.

Helium leak test	
Various parts	on request



This tests are currently offered in line with the following standards:

DIN/EN/ISO	ASTM/ASME
DIN EN ISO 17635	Customer specification
Customer specification	



Catalogue revisions

Would you like to be informed of the latest information from MT? We shall gladly add you to our distribution list. In doing so, you will always have the latest product catalogue in your hands. Just send us this form via scan, fax or mail.

Company:

First name:

Surname:

Position:

Street address:

Mail:

Phone:

I agree with the EDP-based storage of my data and would like to be regularly informed about product catalogue revisions, as well as receive information about MT Laboratories GmbH.

Place and Date:

Signature:





Services

Transport & Shipping

Regardless of your sample size, shipping is a time-consuming issue, especially if a return transport after a non-destructive testing is necessary. We shall gladly take over and arrange transportation on your behalf. Alternatively, we can also collect samples at your premises with our own vehicles as required. To this end, we offer 2 vehicle classes.

Cars up to 500 KG payload capacity	
Arrival / Departure and loading costs per hour	66,80 €
Price per kilometer driven	0,60 €
Waiting time per hour	66,80 €

Truck up to 3000 KG payload capacity	
Arrival / Departure and loading costs per hour	66,80 €
Price per kilometer driven	1,20 €
Waiting time per hour	66,80 €

For loads under 30 kg which cannot exceed 1.5 meters in length, we can offer the following shipping rates within Germany. For worldwide shipping, please refer to our shipping specialists for current rates.

Max. weight in kg	Standard 48h	Express 24h	Express Plus 9AM delivery
1,0 kg	21,80 €	54,80 €	180,00 €
2,0 kg	21,80 €	56,30 €	180,90 €
3,0 kg	21,80 €	57,20 €	181,50 €
4,0 kg	21,80 €	58,20 €	182,40 €
5,0 kg	24,40 €	59,30 €	183,20 €
6,0 kg	24,40 €	60,40 €	184,30 €
7,0 kg	24,40 €	61,40 €	185,40 €
8,0 kg	27,20 €	62,50 €	186,40 €
9,0 kg	27,20 €	63,40 €	187,00 €
10,0 kg	27,20 €	64,40 €	188,00 €
12,0 kg	33,20 €	72,50 €	194,90 €
14,0 kg	33,20 €	80,60 €	201,70 €
16,0 kg	38,40 €	88,90 €	208,80 €
18,0 kg	38,40 €	97,00 €	215,70 €
20,0 kg	38,40 €	105,10 €	222,80 €
22,0 kg	43,40 €	112,10 €	232,60 €
24,0 kg	45,90 €	111,60 €	241,80 €
26,0 kg	48,30 €	124,70 €	250,60 €
28,0 kg	50,80 €	131,20 €	259,80 €
30,0 kg	53,00 €	137,50 €	269,10 €

Sample pick-up „PICK IT!“

**We'll pick up your samples.
All over Germany.
Free of charge.**

As a supplementary service to our destructive material testing, we are pleased to offer you shipping the samples to us. Order our „PICK IT!“ service simply by telephone or e-mail, on the following working day our logistics partner will pick up the package from your site free of charge.

Packages up to max. **30 kg** weight or belt dimension, to your order of **destructive** material testing, inside **Germany**, the **next working day**.

Order „PICK IT!“ under:

+49 2132 979 21 99

or

pick-it@mt-labs.de

by indicating your customer number

What to do?

Just let us know how many and when you want us to pick up specimens, and pack your samples in a package. Our logistics partner will collect the samples from you.

We will be happy to register you for this service in our system. We ask for a short information under contact data above.

Please understand that this service is only valid for our destructive tests. The packages will be picked up by our cooperation partner UPS. Please make the samples available for collection in securely packed cartons. Unfortunately, pallets and wooden boxes cannot be transported by the parcel service.

Warehousing / Loading activities

In a project phase, it may be necessary to store single or more pipes, flanges or fittings until final delivery, even after successful material testing. For this purpose we were able to create additional storage space for our customers.

But we are also at your disposal as a service provider outside of material testing projects and store your material for you.

Loading and unloading activities for items without material testing	
Unloading activities, per ton or per pallet	9,10 €
Loading operations, per ton or per pallet	14,80 €
7-day warehousing, per ton or per pallet	free of charge
Total: Settlement (both transactions) incl. 7-day storage	23,90 €

Warehousing of goods from the 8th day on	
Warehousing of pipes per ton / month	26,00 €
Warehousing of pallets per piece / month	17,30 €
Warehousing of boxes	on request
Warehousing of other goods	on request

Cleaning

We also meet all requirements concerning the proper cleaning or rinsing of your product with deionised water, or the measurement of superficial chlorides, and the conductivity measurement of the cleaning medium.

Cleaning	
Price per working hour	66,80 €
Material	on request

Sawing works

On request, we can cut your pipe pieces / bars at the desired fixed length. We shall gladly advise you on options regarding tolerances and dimensions. Please note that any necessary costs should be booked for bevelling the pipe ends separately. Please take deburring of pipes for granted.

Sawing works		
Pipes up to outside diameter 813 mm	housetolerance -0 mm/+10 mm	0,15 €
Bars up to outside diameter 600 mm	housetolerance -0 mm/+10 mm	0,25 €

Prices per mm outside diameter and saw cut. We reserve the option to charge additional costs for extra hard material.

Packing & Picking

MT is also the best option for packaging according to customer specifications. Thus, the range of possible services includes not only the actual packaging in the required packing units, the attachment of humidity indicators, or the use of desiccants, but also the use of the special pre-treated wood.

Packaging in wooden boxes (IPPC / HT)	
Stowing pipes in wooden boxes provided by the customer, per ton	53,60 €
Supply of wooden boxes incl. material stowing, Foil and Desiccants	on request
Printing of wooden boxes with hazardous material signs or pictograms, each sign	2,20 €
Printing of wooden boxes with customer logo after approval, per piece	3,50 €
Printing of wooden boxes with delivery or sender address incl. order number, each address	19,40 €
Printing of wooden boxes according to customer specifications	on request

Attaching shipping labels / shipping marks	
Attachment of shipping labels, per bundle, pallet or package up to 10 units, each unit	5,70 €
Attachment of shipping labels, per bundle, pallet or package from 10 units, each unit	on request
Creation, printing (weatherproof) of shipping labels, each unit	2,20 €

Picking / Packaging according to customer specifications	
Pipe bundling up to 7 meters excl. picking, per bundle	6,10 €
Pipe bundling over 7 meters excl. picking, per bundle	9,80 €
Picking of pipes to bundles, per hour on request	70,10 €
Picking of material to pallets, per hour on request	70,10 €
Foiling (LDPE film 20µ) of pallets, per pallet	12,20 €
Foiling (LDPE film 120µ) of pallets, per pallet	31,10 €
Foiling (LDPE film 20µ) of pipe bundles up to 7 meters, per bundle*	27,20 €
Foiling (LDPE film 120µ) of pipe bundles up to 7 meters, per bundle	58,30 €
Foiling (LDPE film 20µ) of pipe bundles larger than 7 meters, per bundle*	51,80 €
Foiling (LDPE film 120µ) of pipe bundles larger than 7 meters, per bundle	91,30 €

* Mandatory for stainless steel orders

Packing material	
Europool pallet according to DIN EN 13698 New, per piece	20,60 €
Europool pallet according to DIN EN 13698 used / as good as new, class B, per piece	9,60 €
One-way pallet in Euro quality 800 x 1200 mm	on request
One-way pallet 800 x 1200 mm	8,70 €
One-way pallet 800 x 600 mm	5,30 €
One-way pallet 800 x 400 mm	5,30 €
Pallet folding frame, 800 x 1200 x 200 mm, used / as good as new, per piece	11,70 €

Capping of pipes, fittings and flanges

Upon request, we provide caps to protect the beveled ends and the inside of the material. Our caps are made of high-quality PVC and meet the usual requirements.

Capping of pipes and fittings with PE-caps incl. mounting / material	
Outside diameter 21,3 mm	0,30 €
Outside diameter 26,9 mm	0,30 €
Outside diameter 33,7 mm	0,30 €
Outside diameter 42,4 mm	0,30 €
Outside diameter 48,3 mm	0,30 €
Outside diameter 60,3 mm	0,40 €
Outside diameter 76,1 mm	0,40 €
Outside diameter 88,9 mm	0,70 €
Outside diameter 114,3 mm	0,70 €
Outside diameter 139,7 mm	0,90 €
Outside diameter 168,3 mm	1,40 €
Outside diameter 219,1 mm	1,70 €
Outside diameter 273,0 mm	3,00 €
Outside diameter 323,9 mm	4,30 €
Outside diameter 355,6 mm	5,60 €
Outside diameter 406,4 mm	7,20 €
Outside diameter 457,2 mm*	9,90 €
Outside diameter 508,0 mm*	13,10 €
Outside diameter 558,8 mm*	17,60 €
Outside diameter 609,6 mm*	16,40 €
Outside diameter 660,4 mm*	24,30 €
Outside diameter 711,2 mm*	19,50 €
Outside diameter 762,0 mm*	39,60 €

Capping of flanges with PE-caps incl. mounting / material	
Per flange	on request

The attaching of PE caps that have been provided will be charged at the same rate, up to a maximum of 0.90 €.

Removal and reinstallation of attached PE caps will be charged at the same rate, maximum 0.90€.

Prices per cap.

*Limited storage. Please send your request in advance.

Grinding work

As an option, we can perform grinding work as needed and following the corresponding arrangement.

Grinding work	
Price per working hour	66,80 €

Beveling of pipe ends

To spare you some transport, we shall gladly take care of the welding bevelling of your pipes. Bevelling proceeds according to your requirements (with or without web) or under the designated standard.

Beveling of pipe ends in the forming 30° or 37,5°				
Outside diameter	Thickness bis 9,9 mm	Thickness 10,0 bis 19,9 mm	Thickness 20,0 bis 29,9 mm	Thickness 30,0 bis 34,9 mm
up to 29,9 mm	3,80 €	-	-	-
30,0 to 49,9 mm	6,30 €	8,30 €	-	-
50,0 to 99,9 mm	9,00 €	15,30 €	21,00 €	-
100,0 to 149,9 mm	11,60 €	19,20 €	35,60 €	-
150,0 to 199,9 mm	14,00 €	23,70 €	43,20 €	-
200,0 to 299,0 mm	20,10 €	32,80 €	59,40 €	88,70 €
300,00 to 449,9 mm	25,00 €	41,10 €	74,80 €	104,60 €
450,00 bis 599,9 mm	108,40 €	154,00 €	on request	on request
600,00 bis 699,9 mm	176,80 €	236,20 €	on request	on request
700,00 bis 711,2 mm	216,70 €	on request	on request	on request
> 711,2 mm	on request	on request	on request	on request
All prices plus one-time setup fee per dimension: 17,00 €				

Prices per pipe. We reserve the option to charge extra work for extra hard material (e.g. P91).

Other services	
Tapering of pipe ends	on request
Beveling of pipes with special shapes	on request
Machining certificate	25,00 €

Rolling grooves

Roll grooves as a joining technique for pipes have been in active use since the 1950s. In addition to its use in sprinkler systems, other industries have also become aware of this connection system. We will be pleased to apply the roll grooves to the fixed pieces supplied by you or sown by us. For cut grooves please contact us.

Roll grooves							
Wall thickness / Outside diameter	2,77 to 3,04 mm	3,05 to 3,40 mm	3,41 to 3,91 mm	3,92 to 5,49 mm	5,50 to 6,02 mm	6,02 to 6,55 mm	6,56 to 7,11 mm
up to 60,3 mm	-	-	-	-	-	-	-
60,3 mm	4,80 €	4,80 €	4,80 €	-	-	-	-
76,1 mm	-	5,40 €	5,40 €	5,40 €	-	-	-
88,9 mm	-	5,90 €	5,90 €	5,90 €	-	-	-
114,3 mm	-	6,50 €	6,50 €	6,50 €	7,00 €	-	-
139,7 mm	-	-	6,50 €	7,00 €	7,00 €	7,00 €	-
168,3 mm	-	-	7,60 €	7,60 €	8,10 €	8,10 €	8,10€
> 168,3mm	-	-	on request	on request	on request	on request	on request

Price per groove

Marking and engraving of components

As final step of our work we will mark your components according to your specification if required. Whether engraving, hard stamping, soft stamping with stamping ink or colour marking is up to you or your customer.

Marking of pipes and fittings	
Marking of pipes incl. material, per color code and running meter	1,80 €
Marking of fittings AD ≤ 168,3 mm incl material, per color code and piece	1,60 €
Marking of fittings AD ≤ 406,4 mm incl material, per color code and piece	3,00 €
Optional: Tape of pipes/fittings for shaping marking	on request

Marking and engraving of pipes and fittings	
Engraving or marking, per line with max. 50 characters	
- Quantity: 1-10 pieces of constant text	2,80 €
- Quantity: 11-100 pieces of constant text	1,30 €
- Quantity: > 101 pieces constant text	1,10 €
Hard stamping	on request
Issue of re-stamping certificates, Fix price	22,20 €
Control of existing stamp images, per piece	0,80 €
Batch control, per piece	0,40 €
Printed continuous pipe marking, per meter	2,10 €
Stamping of flanges	on request

Minimum quantity marking per order 30,00 €

Other services

Corrosion protection	
Material (e.g. Tectyl, oil / wax paper, Ardrox 3965, ...)	on request
Services, per hour	66,80 €

Other services	
Other logistic services, per hour	66,80 €
Other technical services, per hour	93,40 €

Measuring equipment

Precise and reliable testing requires maximum precision and accuracy. Only by using the highest quality measuring equipment and devices can we ensure that all measurements and analyses are accurate down to the smallest detail. This is essential to guarantee reliable and trustworthy results.

Measuring equipment	
Measurement equipment fee, per order	17,60 €

Customer assistance

Please be welcome to our company along with your clients.

In our company, we have specific resources devoted to third-party order monitoring. This allows MT to conduct a targeted and efficient order and test monitoring.

Further to individual offices, we provide conference rooms for up to 14 people for order briefing, debriefing or approval, which are suitable for telephone and video conferencing.

Preparation & support of inspection companies / packaging inspections	
Assistance to inspection companies, per day / visit	88,00 €
Packaging checks incl. crane/forklift activities, support per hour	114,00 €
Assistance to inspection companies to an above-average extent	on request

Joint project management

For larger and unusual projects, we shall provide you with a individual personal contact from our company. Here, all information concerning destructive or non-destructive testing, as well as commercial ones can be compiled and discussed with you in detail. We consider the preliminary discussion on the optimal schedule and budget planning is self-evident and a free service.

Project management	
Price per working hour	free of charge

General Information / Comments

The incoming goods inspection for orders containing only services is limited to a rough quantity comparison with the delivery note provided by the customer. A comparison of the stamp fields / markings with the delivery note or the material certificate is only carried out on order.

Loading and unloading activities are not charged in connection with MT's testing services. Services shall be invoiced at hourly rates for each quarter of an hour commenced.

Invoices are issued for each project order. If projects have been notified for several months, partial invoices will be issued at the end of the month.

A re-commissioning of material Occurs if quantities of the package changes. The removal of sample material for material testing is not deemed to be repackaging.

The basis for the invoicing of quantities by ton is the theoretical weight.

Overnight Express (24h)

Did you know? In most cases, delivery dates are missed through no fault of your own company or your own department? When customers call every hour and check the current status?



Often, it affects quality points and material tests, because they are often based at the end of the supply chain. At that point, you can hardly change anything, samples accompany the production to delivery, and NDT tests can only be carried out on the finished component.

Transposing dramatic changes to your finishing processes in the last 14 days to abbreviate often followed by significant cost. We understand these problems and offer you our MT OVERNIGHT EXPRESS. We are well prepared and have invested in quality equipment and the latest technologies to meet to most stringent customer requirements.

If necessary, we can perform material testing overnight. Only for individual marked in this catalogue tests and in commercial quantities.

Overnight Express (24h)	
Surcharge fee	100%

Subsequent machining

Due to our relocation of specimen production to the larger production site in Krefeld, we are now able to offer you further services within the scope of materials testing. A machine park of more than 15 CNC turning and milling machines, a boring mill and two water jet systems gives us the possibility to offer you further processing in parallel in the process of material testing. In this way, you can combine orders in a maximally time-efficient way, as well as save transport and administration costs.

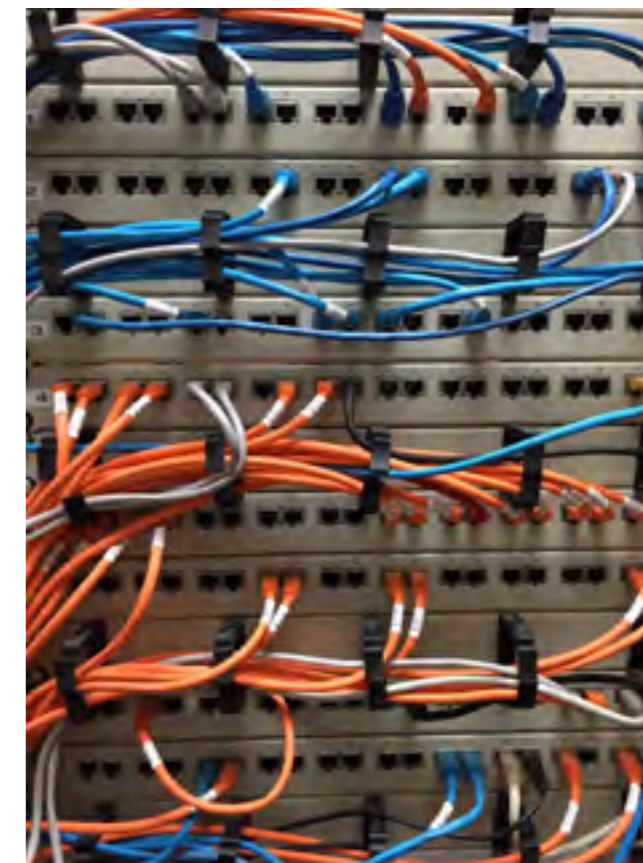


These include:

Machining CNC	
End machining by turning inside out	Price on request
Dividing and chamfering Elbows	Price on request
Turning grooves into flanges	Price on request
Sealing surface remodeling of flanges	Price on request
Threaded holes NPT / Metric	Price on request
Chamfering pipes > 711mm OD	Price on request

MT Connected Testing

Upon request, we offer you and your organisation an interface solution to lower the materials testing investment significantly in your company. Given how different process structures and organisations tend to be at most companies, MT will provide two different solutions:



I. Full Integrated Connected Testing (FICT)

This is an interface solution that applies both to ordering and the transmission result. All necessary data to be exchanged and synchronised between both companies are handled via data exchange between two independent systems. Thus, MT receives the released order directly from your system, and the necessary preparations for the testing can be taken immediately. At the same time, your system receives each partial result and status information for each order and test. This results in accelerated order processing, live information on the current order status, including results of individual tests of a potentially extensive testing package. In this case, having testing results available in your system constitutes a clear competitive advantage for your business.

Given that MT transfers digitally the values produced by our testing machines on your order to your documentation, the use of FICT avoids, for example, the transmission of erroneous results.

To this end, extensive planning discussions, as well as investments in your house software solution are essential. Benefits pay off!

We shall gladly advise you in a personal conversation.

II. Pre Organized Connected Testing (POCT)

This is an Internet portal solution. Enter your testing order online and follow the indications shown on the entry screens. After receiving the samples, track your order online and view its current status at any time. Moreover, you will receive a summarised progress status with all completed orders. On your part, you will only need an internet connection and a browser.

MT Connected Testing	
Full Integrated Connected Testing	on request
Pre Organized Connected Testing, one-time setup fee	on request



Information

About us

Certification

We are a testing laboratory accredited by the DAkkS. All tests identified in the price list with DAkkS are certified under test number D-PL-18478-01-00. The certification document can be obtained in German and English at mt-labs.de/downloads as a PDF file. Upon request, we shall gladly send you the print document.

Delivery / Collections

Please note the following data when placing shipping orders:

- Load Safety: Please instruct your forwarder to plan sufficient material (bars, wedges, belts, etc.) to secure the load volume to be collected. Because of our duty of care, we can- not allow an improperly secured truck to leave the dock. Load-securing means supplied by us must be invoiced separately.
- Truck-type: For crane loading, trucks require a roof tarp that opens completely.
- Extra cost:: Loading / unloading procedures exceeding significantly the usual overhead must be invoiced separately.
- Roadworthiness: Vehicles which are obviously no longer roadworthy, will be not loaded and rejected by us.

Branch Duisburg:

- Loading address: MT Laboratories GmbH, Bliersheimer Str. 27, 47229 Duisburg
- Truck Registration hours: Monday - Thursday 7:00 am - 13:00 pm
Friday 7:00 am - 11:30 pm

Maximum truck height: 4,50 meters

Branch Meerbusch:

- Loading address: MT Laboratories GmbH, Am Eisenbrand 24a, 40667 Meerbusch
- Truck Registration hours: By arrangement
- Maximum truck height: 3,95 meter*

* Standard trucks with air suspension can usually be lowered from 4.0 metres without any problems. The vehicles have to drive backwards into the yard.

load securing means	
Anti-slip mats, per piece	1,10 €
Loading wedges, per piece	0,70 €
Loading beam 100 x 50 mm, per piece	4,50 €
Lashing belt 4000 daN, per piece	24,40 €
Europool pallet according to DIN EN 13698 used / as good as new, class B, per piece	9,60 €

General terms and conditions of business

This catalogue as well as all offers and orders issued and accepted by us are based on our General Terms and Conditions. The German General Terms and Conditions are legally valid. We would be pleased to provide you with an informative translation.

Allgemeine Geschäftsbedingungen der MT Laboratories GmbH (nachstehend MT genannt)

I. Geltungsbereich

1. Unsere Allgemeinen Geschäftsbedingungen (AGB) gelten ausschließlich für unsere Leistungen an Unternehmer im Sinne des § 14 BGB und gelten auch für künftige Aufträge unserer Kunden.
2. Abweichende AGB des Auftraggebers erkennen wir nicht an, es sei denn, wir hätten ihrer Geltung ausdrücklich schriftlich zugestimmt.

II. Auftragserteilung

1. Unsere Angebote sind freibleibend und unverbindlich. Ein Vertrag kommt nur zustande, wenn wir den Auftrag des Auftraggebers schriftlich bestätigt haben oder der Kunde uns auf der Grundlage unserer aktuell gültigen Preisliste einen Auftrag erteilt. Änderungen oder Ergänzungen eines Vertrages bedürfen der Schriftform.
2. Mündliche Nebenabreden oder Zusicherungen unserer Mitarbeiter, die über den Inhalt des Vertrages hinausgehen, bedürfen zu ihrer Wirksamkeit der schriftlichen Bestätigung unserer Geschäftsleitung.

III. Leistungstermine – höhere Gewalt

1. Leistungstermine gelten nur als annähernd, soweit sie nicht schriftlich ausdrücklich als verbindlich bezeichnet worden sind. Vereinbarte Fristen beginnen nicht vor der Klarstellung aller Ausführungseinzelheiten seitens des Auftraggebers, insbesondere aller technischen Punkte sowie Erteilung aller für die Ausführung des Auftrags erforderlichen Auskünfte und Unterlagen. Ergeben sich bei Durchführung des Auftrags Änderungen oder Erweiterungen des ursprünglichen Auftragsumfangs, sind diese zwischen den Vertragsparteien zunächst schriftlich festzulegen.
2. Fälle höherer Gewalt oder sonstige Ereignisse, auf die wir keinen Einfluss haben und die unsere Leistungsverpflichtung wesentlich erschweren oder unmöglich machen, entbinden uns von den Verpflichtungen aus dem jeweiligen Auftrag, bei vorübergehenden Hindernissen jedoch nur für die Dauer der Behinderung und einer angemessenen Anlaufzeit.

IV. Gewährleistung

1. Soweit MT Leistungen erbringt, schuldet MT keinen bestimmten Erfolg, sondern nur ordnungsgemäße Dienstleistungen. MT verpflichtet sich dabei, ihre Leistungen neutral und unparteiisch sowie nach bestem Wissen und gemäß den anerkannten Regeln der Technik und unter Beachtung bestehender Vorschriften auszuführen.
2. Reklamationen sind unverzüglich nach ihrer Feststellung von dem Auftraggeber MT schriftlich anzuzeigen.
3. Sämtliche Gewährleistungsrechte sind ausgeschlossen, sofern diese nicht innerhalb eines Jahres nach Übergabe der Sache schriftlich geltend gemacht wurden.

V. Haftung

1. Für Schäden haftet MT nur, wenn MT, ihre gesetzlichen Vertreter oder ihre Erfüllungsgehilfen die Schäden vorsätzlich oder grob fahrlässig verursacht oder fahrlässig eine vertragswesentliche Pflicht verletzt haben. Bei einer fahrlässigen Verletzung vertragswesentlicher Pflichten ist die Ersatzpflicht von MT auf den vertragstypischen vorhersehbaren Schaden begrenzt. Eine Haftung für mittelbare und vertragstypische Folgeschäden ist ausgeschlos-

sen. Im Übrigen ist die Haftung der MT im Rahmen gesetzlich zulässiger Beschränkungen auf folgende Versicherungssummen begrenzt:
 Betriebshaftpflicht: 1 Mio. EUR für Sachschäden und 100.000 EUR für Vermögensschäden; Umwelthaftpflicht: 2 Mio. EUR für Sach- und Vermögensschäden; Umweltschäden: 2 Mio. EUR für Sanierungskosten.
 2. Soweit Schadenersatz- oder sonstige Ansprüche gegen MT ausgeschlossen sind, gilt dies auch für ihre gesetzlichen Vertreter und Mitarbeiter.

VI. Zahlungsbedingungen

1. Nach Auftragsdurchführung seitens MT ist das Dienstleistungs-entgelt sofort fällig und innerhalb von 14 Tagen ab Rechnungsdatum zahlbar, sofern nicht auf der Rechnung ein anderer Zahlungs-termin angegeben wird. Für die Berechnung der MT-Leistungen wird die jeweils gültige Mehrwertsteuer separat ausgewiesen und ist vom Auftraggeber zusätzlich zum Netto-Entgelt zu zahlen.
2. Berechnungsgrundlage für die Rechnungserstellung ist die Gebührenordnung der MT, die dem Auftraggeber vorliegt. Wenn und soweit im Einzelfall schriftlich ein Festpreis oder eine andere Bemessungsgrundlage vereinbart worden ist, ist diese Berechnungsgrundlage verbindlich. Etwaige Gebührenerhöhungen seitens MT sind dem Auftraggeber drei Monate im Voraus mitzuteilen und berechtigen den Auftraggeber unter Einhaltung einer Frist von einem Monat, den Vertrag zum Termin der Preiserhöhung zu kündigen.
3. Kommt der Auftraggeber in Zahlungsverzug, ist die Entgeltforderung der MT mit 8 Prozentpunkten über dem jeweiligen Basiszinssatz zu verzinsen. MT behält sich jedoch vor, einen höheren Verzugsschaden nachzuweisen und geltend zu machen.
4. Befindet sich der Auftraggeber im Zahlungsverzug oder werden MT Umstände bekannt, die zu erheblichen Zweifeln an der Zahlungsfähigkeit oder Kreditwürdigkeit des Auftraggebers Anlass geben, ist MTL berechtigt, noch ausstehende Leistungen nur gegen Vorauszahlung oder Sicherheitsleistung auszuführen und, falls die Vorauszahlung oder Sicherheit nicht binnen zwei Wochen geleistet wird, ohne erneute Fristsetzung vom Vertrag zurückzutreten oder Schadenersatz wegen Nichterfüllung zu verlangen.
5. MT kann Kostenvorschüsse verlangen oder Teilrechnungen entsprechend den bereits erbrachten Leistungen erstellen. Kommt der Auftraggeber mit der Begleichung von Teilrechnungen trotz Nachfristsetzung in Verzug, hat MTL das Recht, die weitere Ausführung des Auftrags zu verweigern, vom Vertrag zurückzutreten oder Schadenersatz zu verlangen.

VII. Schlussbestimmungen

1. Für alle Rechtsbeziehungen zwischen Auftraggeber und MT gilt das Recht der Bundesrepublik Deutschland.
2. Erfüllungsort für sämtliche Ansprüche aus dem Vertrag ist der Geschäftssitz der MT.
3. Gerichtsstand für alle Streitigkeiten aus dem Rechtsverhältnis mit dem Auftraggeber ist nach Wahl von MTL ihr Geschäftssitz oder der Sitz des Auftraggebers. Für Klagen des Auftraggebers ist ausschließlicher Gerichtsstand der Geschäftssitz von MT. Im Übrigen bleiben gesetzliche Regelungen über ausschließliche Zuständigkeiten unberührt.

Stand: 11/2023

Dimensions of Welded and Seamless Pipe Carbon, Alloy and Stainless Steel ANSI B36.10,B36.19 in millimetres

Nom. Size	OD mm	Sch 55	Sch 105	Sch 10	Sch 20	Sch 30	Sch 40S	STD	Sch 40	Sch 60	Sch 80S	XS	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XXS
1/8"	DN6	10,29	1,24				1,73	1,73	1,73		2,41	2,41						
1/4"	DN8	13,72	1,65				1,73	1,73	1,73		3,02	3,02						
3/8"	DN10	17,14	1,65	1,651			2,31	2,31	2,31		3,2	3,2						
1/2"	DN15	21,34	1,65	1,651			2,77	2,77	2,77		3,73	3,73					4,75	7,47
3/4"	DN20	26,67	1,65	2,11			2,87	2,87	2,87		3,91	3,91					5,54	7,82
1"	DN25	33,4	1,65	2,77			3,38	3,38	3,38		4,55	4,55					6,35	9,09
1,25"	DN32	42,16	1,65	2,77			3,56	3,56	3,56		4,85	4,85					6,35	9,7
1,5"	DN40	48,26	1,65	2,77			3,68	3,68	3,68		5,08	5,08					7,14	10,16
2"	DN50	60,32	1,65	2,77			3,91	3,91	3,91		5,54	5,54					8,71	11,07
2,5"	(DN65)	73,02	2,11	3,05			5,16	5,16	5,16		7,01	7,01					9,52	14,02
3"	DN80	88,9	2,11	3,05			5,49	5,49	5,49		7,62	7,62					11,13	15,24
3,5"	(DN90)	101,6	2,11	3,05			5,74	5,74	5,74		8,08	8,08						16,15
4"	DN100	114,3	2,11	3,05			6,02	6,02	6,02		8,56	8,56					13,49	17,12
5"	DN125	141,3	2,77	3,4			6,55	6,55	6,55		9,53	9,53			12,7		15,88	19,05
6"	DN150	168,28	2,77	3,4			7,11	7,11	7,11		10,97	10,97			14,27		18,24	21,95
8"	DN200	219,08	2,77	3,76			6,35	7,04	8,18	8,18	10,31	12,7	12,7	15,06	18,26	20,62	23,01	22,22
10"	DN250	273,05	3,4	4,19			6,35	7,8	9,27	9,27	12,7	12,7	12,7	15,06	18,26	21,44	25,4	25,4
12"	DN300	323,85	3,96	4,57			6,35	8,38	9,52	10,31	14,27	12,7	12,7	17,48	21,44	25,4	28,58	33,32
14"	DN350	355,6	3,96	4,78			6,35	9,52	11,13	15,06		12,7	12,7	19,05	23,83	27,79	31,75	35,71
16"	DN400	406,4	4,19	4,78			6,35	7,92	9,52	12,7	16,66	12,7	12,7	21,44	26,19	30,96	36,52	40,46
18"	DN450	457,2	4,19	4,78			6,35	7,92	11,12	15,06	19,05	12,7	12,7	23,82	29,36	34,92	39,67	45,24
20"	DN500	508	4,78	5,54			6,35	9,52	12,7	15,06	20,62	12,7	12,7	26,19	32,54	38,1	44,45	49,99
22"	(DN550)	558,8	4,78	5,54			6,35	9,52	12,7	15,87	22,22	12,7	12,7	28,58	34,92	41,28	47,62	53,98
24"	DN600	609,4	5,54	6,35			6,35	9,52	14,27	17,48	24,61	12,7	12,7	30,93	38,89	46,02	52,37	59,51
26"	(DN650)	660,4						9,52				12,7						
28"	DN700	711,2					7,92	12,7	15,88			12,7						
30"	(DN750)	762	6,35	7,92			7,92	12,7	15,88			12,7						
32"	DN800	812,8					7,92	12,7	15,88			12,7						
34"	(DN850)	863,6					7,92	12,7	15,88			12,7						
36"	DN900	914,4					7,92	12,7	15,88			12,7						
38"	(DN950)	965,2						9,52				12,7						
40"	DN1000	1016						9,52				12,7						
42"	(DN1050)	1066,8						9,52				12,7						

Thickness of flanges acc. to DIN (EN) and ANSI/ASME B16.5

Nom. Size	OD mm	PN6	PN10	PN16	PN25	PN40	CL150	CL300	CL600	CL900	CL1500	CL2500
3/8"	DN10	12		14		16						
1/2"	DN15	12		14		16	9,60	12,7	14,3	22,3	22,3	30,2
3/4"	DN20	14		16		18	11,2	14,3	15,9	25,4	25,4	31,8
1"	DN25	14		16		18	12,70	15,9	17,5	28,6	28,6	35,0
1,25"	DN32	14		16		18	14,3	17,5	20,7	28,6	28,6	38,1
1,5"	DN40	14		16		18	15,9	19,1	22,3	31,8	31,8	44,5
2"	DN50	14		18		20	17,5	20,7	25,4	38,1	38,1	50,9
2,5"	(DN65)	14		18		22	20,7	23,9	28,6	41,3	41,3	57,2
3"	DN80	16		20		24	22,3	27,0	31,8	47,7	47,7	66,7
3,5"	(DN90)	16		20		24	22,3	28,6	35,0			
4"	DN100	16		20		24	22,3	30,2	38,1	44,5	54,0	76,2
5"	DN125	18		22		26	22,3	33,4	44,5	50,8	73,1	92,1
6"	DN150	18		22		28	23,9	35,0	47,7	55,6	82,6	108,0
8"	DN200	20	24	24	30	34	27,0	39,7	55,6	63,5	92,1	127,0
10"	DN250	22	26	26	32	38	28,6	46,1	63,5	69,9	108,0	165,1
12"	DN300	22	26	28	34	42	30,2	49,3	66,7	79,4	123,9	184,2
14"	DN350	22	26	30	38	46	33,4	52,4	69,9	85,8	133,4	
16"	DN400	22	26	32	40	50	35,0	55,6	76,2	88,9	146,1	
18"	DN450	22	28	34	46	57	38,1	58,8	82,6	101,6	162,0	
20"	DN500	24	28	36	48	57	41,3	62,0	88,9	108,0	177,8	
24"	DN600	30	30	40	48	72	46,1	68,3	101,6	139,7	203,2	
26"	(DN650)	30		40								
28"	DN700	30	35	40	50							
30"	(DN750)	30										
32"	DN800	30	38	41	53							
34"	(DN850)	34	38									
36"	DN900	34	38	48	57							
40"	DN1000	38	44	59	63							

