

AZ GRUPPE

LEADING SOLUTIONS TO
FINAL RESOLUTION



Corrugated Pipes and Corrugated Hoses





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The Company

Safely Transporting Substances



Company Profile

Transporting substances safely is the main goal of the AZ Group. Our company offers diverse and customized solutions in the fields of piping systems, fixtures and safety techniques for the transfer of gases and other substances. Over 30 years of experience in this field and an effective team of engineers and highly qualified co-workers in Production guarantees our results.

Company History

Founded in 1979 as AZ Industriebedarf (Industrial Needs) GmbH, the company grew quickly into an enterprise- the AZ Group- that has been providing its customers with solutions for their piping needs

ever since. Today, these customized solutions are a major focus of the AZ program. In the past years, the enterprise has grown from a small German company serving local needs to a group venture, serving customers across Europe.

Quality

The emphasis that the AZ Group places on high quality is reflected by the fact that our manufacturing sites are DIN ISO certified. At the same time, we are aware that quality must be produced and is not a result of a certification process. We place high value on having well-trained workers from the beginning of the construction process up to the product production itself. In order to achieve this goal, we rely on continual advancement training of our staff.



Products leaving our house have been checked by technicians and engineers who have many years of experience in the field of pipeline systems for sensitive gases and other substances.

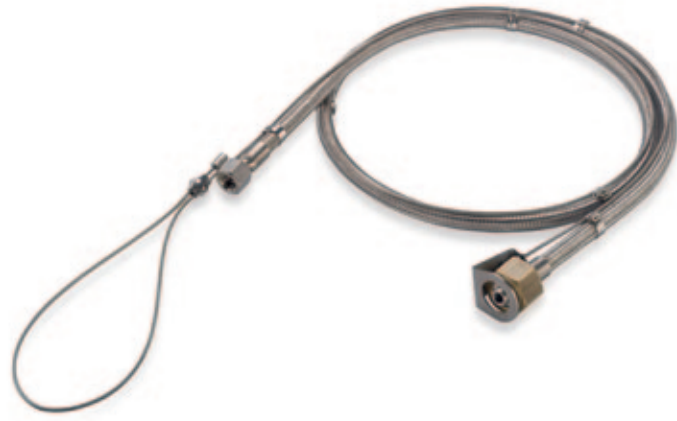
Turning customer wishes into a finished product

We see ourselves not just as a supplier of metal hoses and corrugated steel pipes, but as a company that offers our customer complete solutions for their needs in pipeline technology. Most of our products are custom-made to meet individual customer requirements. Our trained team is ready to go to great lengths to search for unusual solutions to solve unusual challenges.

Together, our customer and our technical solutions department can find individualized solutions for fulfilling most requirements. When the customer allows, we like to view the piping system on location. Here, we are happy to offer suggestions to optimize the connecting elements in the system, or also to make suggestions using solutions from other fields (for example, from our AZ Elastomer Program).

Gases

- Natural gas filling stations
- High- and low pressure systems
- Medical gases
- Technical gases
- Natural gases and other fuel gases



Operational Areas



Renewable Energy

- Solar thermal plants
- Heat Storage systems
- Heat pumps

Chemistry

- piped trace heating systems
- pigging

Industrial devices

- Catering technology
- Air conditioning systems
- Gas appliances

All our products are part of a modern, well-designed logistics scheme, allowing each product to be customized according to individual desires and to be delivered, securely packed, directly to the end customer. Our product sales engineers are happy to inform you of the various possibilities on location.



AZ Industrietechnik Olbernhau



Vehicle construction

- Fuel hoses
- Air hoses
- Coolant hoses
- Lubricant hoses

Building services

- portable water hoses
- hot water hoses
- gas installations

lower the ridge and the thicker the material, the stiffer the pipe, the hose or the compensator will be. In contrast, when thinner material is used for the pipe and the ridge is higher, the pipe will be more flexible.

By means of a special thermal process (annealing), we are able to achieve further positive changes in the material

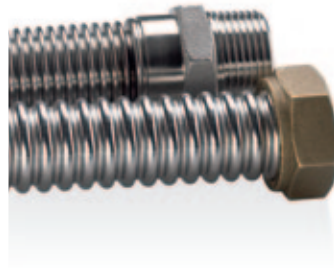
Corrugated Pipes vs. Corrugated Hoses

Definitions

Corrugated pipes and corrugated hoses are constructed using similar methods. First, a thin-walled pipe is constructed (either welded lengthwise or, more seldom, seamlessly). A geometrical corrugation is then applied to the surface of the pipe in a continual process.

▼ **A corrugated pipe** is a product that is able to be bent multiple times and is remains in the resulting form.

▼ **A corrugated hose** is a product that is elastic and continually flexible within its physical parameters.



Corrugated pipes and corrugated hoses can be differentiated mainly by:

- The height of the corrugation ridge (dependent on the geometry of the corrugation)
- The distance between corrugation ridges
- Manufacturing process
- Structural conditions
- Material strength

The stiffness of the pipe is dependent on the ridge height and the material thickness; the

properties of our corrugated pipes and thereby, surpass by far the norm requirements.

Depending on the use, we can offer various corrugation forms and types of material. For example, our products are used in heat exchangers, for solar or gas installations, for potable water systems and for applications demanding a high corrosion resistance.

Our products have been certified using the relevant industrial norms. Under certain circumstances, additional accreditations can be arranged when desired by the customer.

Further information regarding corrugated pipes and hoses can be found in the index on: www.az-gruppe.de

Corrugated pipes can be bent multiple times ...



... can be bent manually ...



The cats[®]-System is designed for indoor and outdoor installations of systems for transferring gaseous and liquid substances. It is a simple, affordable alternative for connecting boilers, solar and air conditioning systems, thermal pumps, potable and grey water systems, etc.

The cats[®]-System is suited for new installations as well as for repairs or complete overhauls of established systems. Our corrugated pipes are produced using high quality materials and are DVGW certified in Germany for use in gas installations (from AISI 304 and 316L) as well as potable water systems (from AISI 316L).

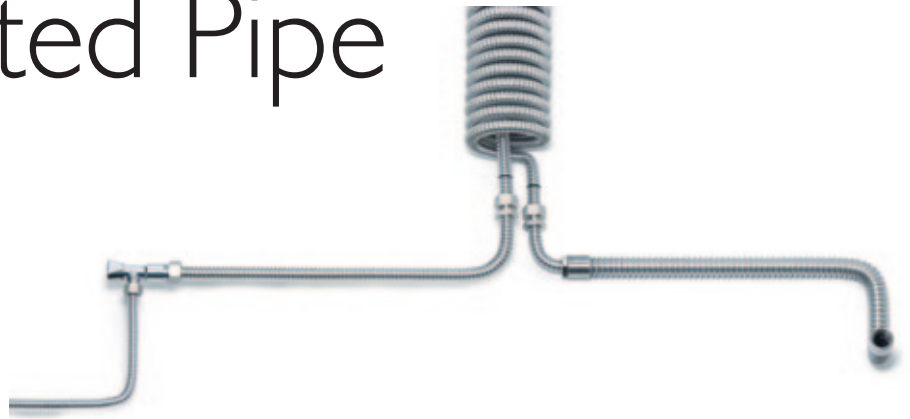
In addition, our products have attained further international certifications.

The parallel corrugation allows the pipe to be easily and quickly bent by hand, without requiring any tools. The smallest possible bend radius without causing a cross-section constriction on tube is equal to 1.20 till 1.70 of the outer diameter. Professional workmanship and the use of fitted fixtures ensure a secure connection.

AZ cats[®] – Corrugated Pipe System

The material characteristics of the steel being used in our products offer the potential for various applications. We can employ these characteristics to produce ready-to-connect devices in different areas. For instance, our corrugated pipes are particularly suitable for the production of heat exchangers (stratified storage tanks) for use in heat storage and refrigeration systems. They fulfil the demands for use in potable water or industrial water systems and have a 50% higher thermal efficiency than ordinary straight pipes. Due to its corrugated construction, a turbulent flow is produced in the pipe allowing for the maximum

transfer of energy- as long as the ratio between the cross-section and the flow rate is optimized. The combination of the turbulent flow with the flexibility of the corrugated pipe prevents or at least minimizes the build up of lime scale. The application variability possible with our steel pipe systems allows for an optimal fitting of the heat exchanger to the needs of your system.



Our Corrugated Pipes ...

can be found on the following pages.

Corrugated hoses ...

can be found on pages 12 through 17.

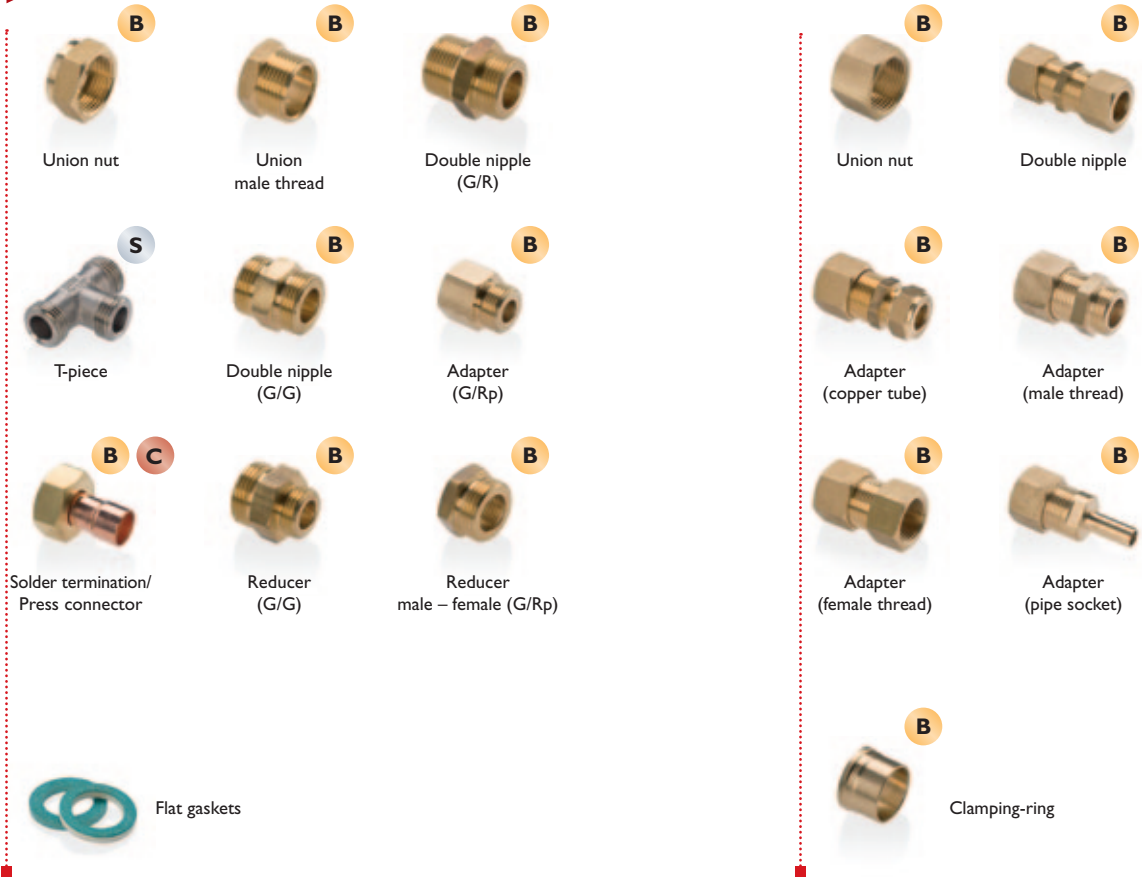
... and remain rigid.



Corrugated hoses are flexible and elastic.



Connections



cats®

Flat-sealing, detachable

The sealant surfaces for flat-sealed connections are created using the compression device on the cats®-corrugated pipe. This is done simply by compressing the last three ridges to a flat sealant surface (compression band). Therefore, additional retainer rings (3/3 rings) are not necessary.



cats®-C-Clip

Soft-sealing, detachable, no need for tools

Flat gaskets, designed specifically for the cats®-system's geometrical corrugation, are used for soft-sealed connections. The use of retainer rings assures axial stability. These connections do not require any compression device.

cats®-Compression-Ring

Metallic-sealing, no need for tools

For metallic-sealing, the corrugated cats®-pipe is attached to a factory pre-mounted cats®-compression-ring connecting screw. This connection does not require a compression device. It is not necessary to use additional retainer rings (3/3 rings) or soft-seals.

- S** Stainless steel
- C** Copper
- B** Brass
- M** Malleable iron



Solid Connections

Non detachable

cats®-screw joints

M	Page 2				Male thread		Female thread			
		Compression ring	Clamping ring	C-clip	G	R	G	Rp	Solder termination	Socket
Page 1		S	K	C	A	Y	I	Z	L	B
Compression ring	S	MSS	MSK	MSC	MSA	MSY	MSI	MSZ	MSL	MSB
Clamping ring	K	–	MKK	MKC	MKA	MKY	MKI	MKZ	MKL	MKB
C-clip	C	–	–	MCC	MCA	MCY	MCI	MCZ	MCL	MCB

Parts for cats®-screw joints

K	Page 2				Male thread		Female thread			
		Compression ring	Clamping ring	C-clip	G	R	G	R	Solder termination	Socket
Page 1		S	K	C	A	Y	I	Z	L	B
Compression ring	S	KSS	KSK	KSC	KSA	KSY	KSI	KSZ	KSL	KSB
Clamping ring	K	–	KKK	KKC	KKA	KKY	KKI	KKZ	KKL	KKB
C-clip	C	–	–	KCC	KCA	KCY	KCI	KCZ	KCL	KCB
Male thread-G	A	–	–	–	KAA	KAY	KAI	KAZ	KAL	KAB
Male thread-R	Y	–	–	–	–	KYY	KYI	KYZ	KYL	KYB
Female thread-G	I	–	–	–	–	–	KII	KIZ	KIL	KIB
Female thread-R	Z	–	–	–	–	–	–	KZZ	KZL	KZB
Solder termination	L	–	–	–	–	–	–	–	–	KLB

Pressure loss

for different temperatures according to DIN EN ISO 10380:2003 for corrugated pipes, Piping systems – corrugated metal hoses and hose connections.

Corrugated pipes WR16 of 1.4404 (X2CrNiMo17-12) / AISI 316L

DN	Nominal pressure after reduction												
Reduction factors*	1	0.9	0.73	0.67	0.61	0.58	0.53	0.51	0.5	0.49	0.47	0.47	0.45**
Temperatures in °C	20	50	100	150	200	250	300	350	400	450	500	550	600
DN 8/12/16/20/25	16	14.4	11.7	10.7	9.8	9.3	8.5	8.2	8.0	7.8	7.5	7.5	7.2
DN 32/40/50	5	4.5	3.7	3.4	3.1	2.9	2.7	2.6	2.5	2.5	2.4	2.4	2.3

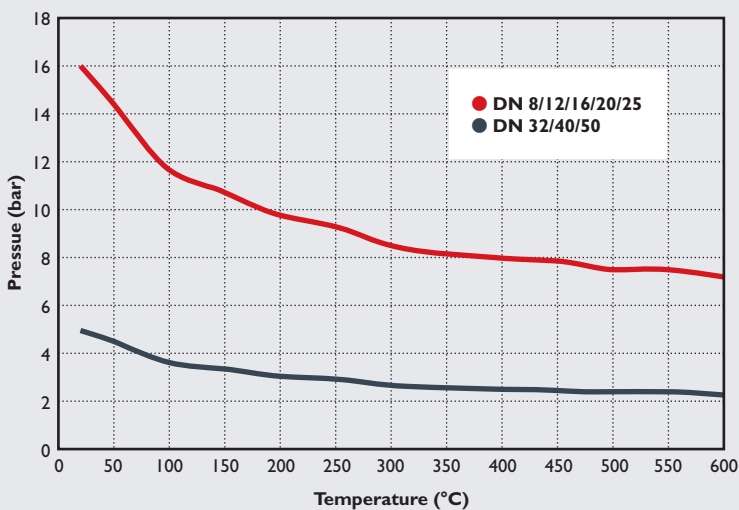
Corrugated pipes WR04 of 1.4301 (X5CrNi18-10) / AISI 304

DN	Nominal pressure after reduction												
Reduction factors*	1	0.9	0.73	0.66	0.6	0.55	0.51	0.49	0.5	0.46	0.46	0.46	0.44**
Temperatures in °C	20	50	100	150	200	250	300	350	400	450	500	550	600
DN 8/12/16/20/25	16	14.4	11.7	10.7	9.6	8.8	8.2	7.8	7.7	7.4	7.4	7.4	7.0
DN 32/40/50	5	4.5	3.7	3.3	3.0	2.8	2.6	2.5	2.4	2.3	2.3	2.3	2.2

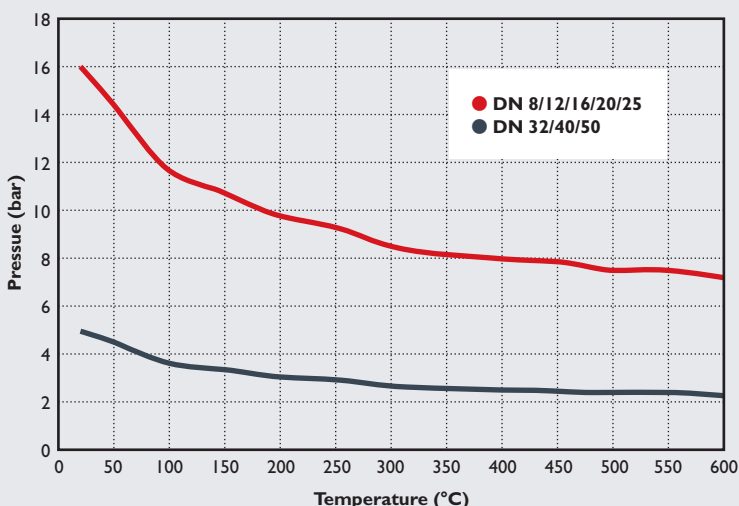
* according to DIN EN ISO 10380:2003 Tabelle A.2.

** supposed value

WR16



WR04



Correction factors for fitted connections

Temperature threshold values for fitted connections

The operating pressures given in the technical data table should be seen as a guideline due to the diverse possibilities for use. A room temperature of 20°C is the assumed standard. The max. allowed pressure should be reduced by higher temperatures.

Brass: suitable for use without restrictions up to 50°C

Steel: suitable for use without restrictions up to 120°C

Stainless steel: suitable for use without restrictions up to 300°C

Malleable iron: suitable for use without restrictions up to 120°C

By higher temperatures, the decrease in the yield limit of the material must be considered.

Technical Features

DN	Diameter		Bending radius	Operating pressure at 20 °C	Weight ± 10%	Corrugated pipe		Surface	Volume
	Outer (mm)	Inner (mm)	Static (mm)	(bar)	(kg/m)	Wall Thickness (mm)	Pitch of the wave (mm)	(m ² /m)	(l/m)
8	8.1	11.7	16	16	0.10	0.26	4.2	0.05023	0.068
12	12.0	15.6	25	16	0.14	0.30	5.0	0.06065	0.137
16	15.7	20.1	25	16	0.18	0.30	5.5	0.07923	0.235
18	17.8	21.6	30	16	0.20	0.30	5.0	0.08455	0.272
20	19.7	25.0	30	16	0.23	0.30	6.4	0.10425	0.366
23	23.0	27.9	45	16	0.25	0.30	6.5	0.11145	0.477
25	26.5	32.8	45	16	0.32	0.30	7.1	0.14350	0.655
32	33.0	41.0	60	5	0.48	0.35	7.6	0.18738	1.005
40	40.0	47.7	80	5	0.57	0.35	8.8	0.20967	1.422
50	51.0	61.0	100	5	0.84	0.40	9.4	0.28747	2.339

The allowed working pressures are in function of the respective norm and guideline..

Connections for direct assembly

without using adaptations

DN	cats® flat sealing		C-clip
	Unit nut type CPM with G-female thread	Union male thread type CPA with G-male thread	Union male thread type CPU with R-male thread
8	G 3/8"	G 3/8" AG	R 3/8"
12	G 1/2"	G 1/2" AG	R 1/2"
16	G 3/4"	G 3/4" AG	R 3/4"
18	G 3/4"	–	–
20	G 1"	G 1" AG	R 1"
23	G 1"	–	–
25	G 1 1/4"	G 1 1/4" AG	R 1 1/4"
32	–	–	–
40	–	–	–
50	–	–	–

Further diameters and thread combinations by request.

AZ Corrugated Hose Systems

The AZ corrugated hose systems are designed primarily for the transport of gaseous and liquid substances.

This system represents a simple and affordable alternative for connecting boilers, solar and air conditioning systems, thermal pumps, potable and grey water systems, etc. onto the supply network and for mounting within other units.

Our corrugated hoses are made of high quality materials and are certified for gas by the DVGW, depending on the model. Not only have we attained German certification, we also have other international certificates.

Aside from standard connections, we are able to propose other possibilities according to the technical requirements of our customers or based on the suggestions of our own technical engineers working in cooperation with our customers.

When producing our ready-to-connect systems, we utilize the material characteristics of the different stainless steels available in order to offer various possibilities for industrial use.

Our corrugated hoses are employed especially as gas safety hoses according to DIN 3383 and DIN 3384 and are suitable for use in heat exchangers (stratified storage tanks) in the fields of thermal energy storage and cooling technology.

The hoses can be planned to withstand varying pressure levels according to use when transferring gases and other substances. By using braiding around the

hose, pressures of up to 250 bar can be reached, depending upon the nominal diameter. Our firm offers other options including colour-coding and the application of a protective plastic coating using our own machinery.

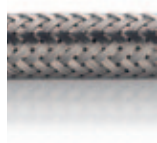
The variable possibilities for using our stainless steel conductive systems allows for an optimal fit, fulfilling the requirements for your specific application.





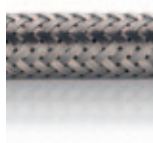
WS110

Hose without braiding



WS120

Hose with one braiding



WS130

Hose with two braidings



WS170

Hose without braiding but with double-interlocked agraff protection



WS180

Hose with braiding and double-interlocked agraff protection

Gas and Water Applications for Motion Compensation



WS210

Hose with a wide ridging profile



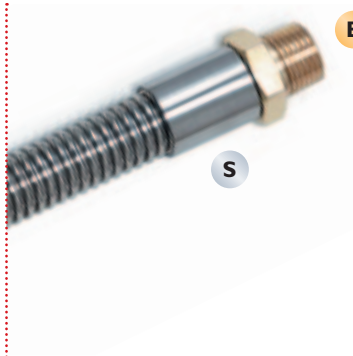
WS310

Hose with thicker wall

Solar Applications
Not suitable for motion compensation or gas

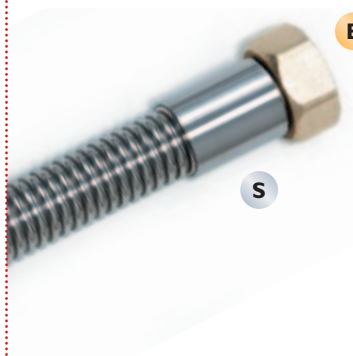
Heat Exchanger Applications
Not suitable for motion compensation or gas

Connections



B Fixed male thread
R, G, NPT

S



B Nipple with union nut flat
sealed or conical fitting

S

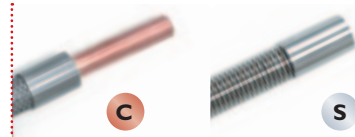
Standard versions

Applications

- All-gas according to DVGW-worksheet G 260/1/2
- Potable and industrial water
- Compressed air
- Other fluid and gaseous substances- according to AISI 316L resistance standards

Torsion-free connection

The turnable connection is sealed with a FKM-O-ring gasket. A special band in the turnable connecting piece, which expands by temperatures over 250°C (i.e. in case of fire), together with the o-ring gasket ensure that a reliable seal is kept. For example, the torsion-free connection is suitable for attaching to gas heaters.



C

Soldered
copper socket



S

Welded stainless
steel socket



B

Soldered
brass flange
alternative:
torsion free



S

Welded
special thread



S

M

Stainless steel/
malleable cast
iron fitting,
3-piece
(gas hose)

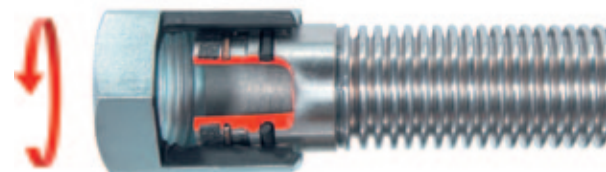
Special versions

S Stainless steel

C Copper

B Brass

M Malleable iron



Pressure Reductions

for different temperatures according to DIN EN ISO 10380:2003 for corrugated hoses without braiding.
Piping – corrugated metal hoses and metal hose piping system.

Corrugated hose WSI 110 of 1.4404 (X2CrNiMo17-12) / AISI 316L

DN	Nominal pressure after reduction													
	Reduction factors*	1	0.9	0.73	0.67	0.61	0.58	0.53	0.51	0.5	0.49	0.47	0.47	0.45**
Temperatures in °C	20	50	100	150	200	250	300	350	400	450	500	550	600	
DN 6	25	22.5	18.3	16.8	15.3	14.5	13.3	12.8	12.5	12.3	11.8	11.8	11.3	
DN 8	20	18.0	14.6	13.4	12.2	11.6	10.6	10.2	10.0	9.8	9.4	9.4	9.0	
DN 10/12	10	9.0	7.3	6.7	6.1	5.8	5.3	5.1	5.0	4.9	4.7	4.7	4.5	
DN 16	6	5.4	4.4	4.0	3.7	3.5	3.2	3.1	3.0	2.9	2.8	2.8	2.7	
DN 20	4	3.6	2.9	2.7	2.4	2.3	2.1	2.0	2.0	2.0	1.9	1.9	1.8	
DN 25/32/40	2.5	2.3	1.8	1.7	1.5	1.5	1.3	1.3	1.3	1.2	1.2	1.2	1.1	
DN 50	1.5	1.4	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	

Pressure Reductions

for different temperatures according to DIN EN ISO 10380:2003 for corrugated hoses with braiding.
Piping – corrugated metal hoses and metal hose piping system.

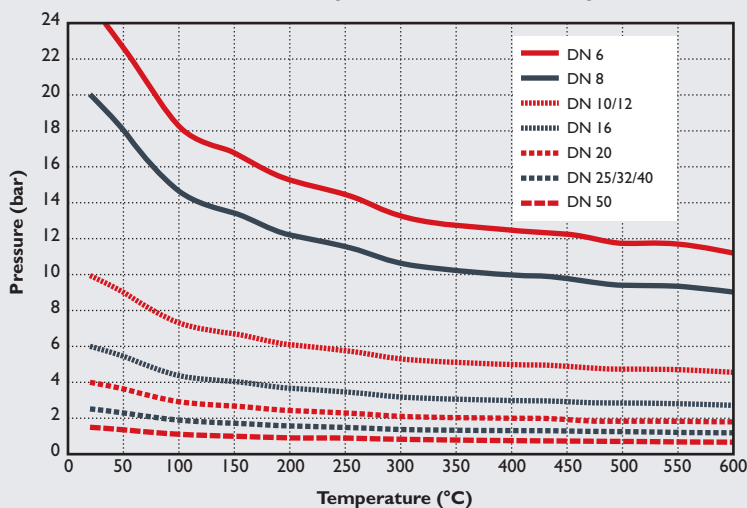
Corrugated hose WSI 120 of 1.4404 (X2CrNiMo17-12) / AISI 316L

DN	Nominal pressure after reduction													
	Reduction factors*	1	0.9	0.73	0.67	0.61	0.58	0.53	0.51	0.5	0.49	0.47	0.47	0.45**
Temperatures in °C	20	50	100	150	200	250	300	350	400	450	500	550	600	
DN 6	150	135.0	109.5	100.5	91.5	87.0	79.5	76.5	75.0	73.5	70.5	70.5	67.5	
DN 8/10	100	90.0	73.0	67.0	61.0	58.0	53.0	51.0	50.0	49.0	47.0	47.0	45.0	
DN 12/16	65	58.5	47.5	43.6	39.7	37.7	34.5	33.2	32.5	31.9	30.6	30.6	29.3	
DN 20	40	36.0	29.2	26.8	24.4	23.2	21.2	20.4	20.0	19.6	18.8	18.8	18.0	
DN 25	50	45.0	36.5	33.5	30.5	29.0	26.5	25.5	25.0	24.5	23.5	23.5	22.5	
DN 32/40/50	25	22.5	18.3	16.8	15.3	14.5	13.3	12.8	12.5	12.3	11.8	11.8	11.3	

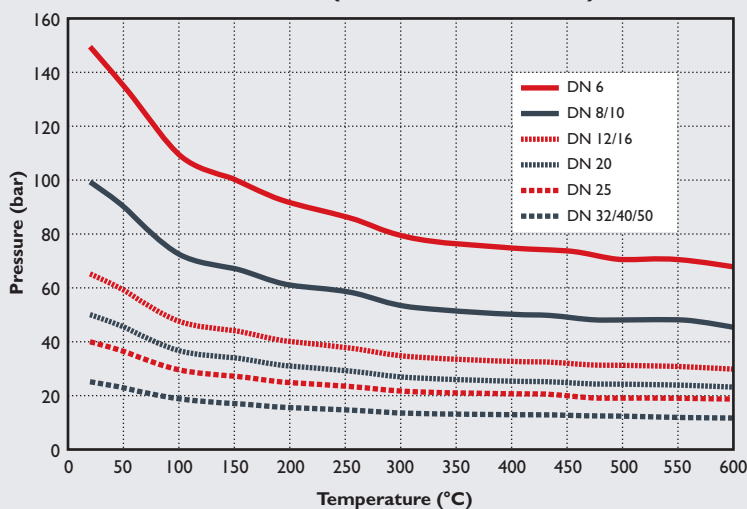
* according to DIN EN ISO 10380:2003 Tabelle A.2.

** supposed value

WS110 of I.4404 (X2CrNiMo17-12) / AISI 316L



WS120 of I.4404 (X2CrNiMo17-12) / AISI 316L



Correction Factors for Connecting Fixtures

Temperature threshold values for fitted connections

The operating pressures given in the technical data table should be seen as a guideline due to the diverse possibilities for use. A room temperature of 20 °C is the assumed standard. The max. allowed pressure should be reduced by higher temperatures.

Brass: suitable for use without restrictions up to 50 °C

Steel: suitable for use without restrictions up to 120 °C

Stainless steel: suitable for use without restrictions up to 300 °C

Malleable iron: suitable for use without restrictions up to 120 °C

By higher temperatures, the decrease in the yield limit of the material must be considered.

Technical Features

DN	Title	Diameter		Bending radius		Weight ±10% (kg/m)	Hose				Surface (m ² /m)	Volume (l/m)
		Inner (mm)	Outer (mm)	Static (mm)	Dynamic (mm)		Wall thick- ness (mm)	Pitch of the wave (mm)	Width of Pitch (mm)	Strength of Pitch (mm)		
6	WSI10	6.3	9.6	15	80	0.07	0.15	2.00 ± 0.05	0.80	1.20	0.063	0.048
	WSI20		10.8	25		0.15						
8	WSI10	8.2	12.2	16	125	0.09	0.15	2.20 ± 0.05	0.85	1.34	0.074	0.080
	WSI20		13.7	32		0.2						
10	WSI10	10.3	14.2	18	128	0.1	0.15	2.80 ± 0.07	1.10	1.50	0.087	0.115
	WSI20		15.7	38		0.22						
12	WSI10	12.1	16.7	20	136	0.12	0.15	3.10 ± 0.10	1.30	1.80	0.099	0.160
	WSI20		18.1	45		0.24						
16	WSI10	16.2	21.6	28	160	0.18	0.18	3.60 ± 0.10	1.50	2.10	0.125	0.274
	WSI20		23.2	58		0.38						
20	WSI10	20.3	26.8	32	168	0.25	0.18	3.70 ± 0.10	1.50	2.20	0.179	0.425
	WSI20		28.4	70		0.48						
25	WSI10	25.3	32.3	40	190	0.34	0.20	3.70 ± 0.10	1.60	2.10	0.215	0.633
	WSI20		34.4	45		0.75						
32	WSI10	34.3	41.1	50	255	0.43	0.22	3.60 ± 0.10	1.60	2.00	0.2816	1.109
	WSI20		43.2	105		0.88						
40	WSI10	40.2	49.8	60	295	0.71	0.25	5.00 ± 0.20	2.10	2.90	0.3040	1.530
	WSI20		52.2	130		1.4						
50	WSI10	50.3	60.4	70	320	0.9	0.25	5.00 ± 0.20	2.10	2.90	0.4360	2.376
	WSI20		62.7	160		1.65						

Further versions of our corrugated hoses are available in rolls: for example: WS200 (DN16, DN20) for hot water- and solar applications and WS300 (DN32, DN40, DN50) for heat exchanger applications.

DN	Gas applications EG-building products directive 89/106/EG			Potable water applications EG-building products directive 89/106/EG			Other substances EG-building products directive 89/106/EG			All Substances pressure devices EG-pressure equipment directive 97/23/EG		
	WSI10 WSI70	WSI20 WSI30 WSI80	WSI10 WSI70	WSI20 WSI30 WSI80	WSI10 WSI70	WSI20 WSI80	WSI30	WSI10 WSI70	WSI20 WSI80	WSI30		
6	1 bar	16 bar	10 bar	10 bar	6 bar	16 bar	16 bar	25 bar	150 bar	250 bar		
8								20 bar	100 bar	150 bar		
10								10 bar	65 bar			
12								6 bar	40 bar			
16								4 bar	50 bar			
20								2.5 bar	25 bar			
25												
32												
40												
50												

AZ Accessories

Corrugated Pipe and Hose Systems

Lubricants

In order to ensure correct functioning, it is necessary to lubricate connecting pieces and soft-seals; for example, our moulded rings should be lubricated to fit the requirements of the specific applications. For this purpose, we depend on standard, well-established and proven quality products:

- for potable water and heating installations- a DVGW certified lubricant,
- for solar-thermal installations- a heat resistant lubricant,
- for gas installations- a DVGW certified lubricant,
- for applications using oxygen- a specially suitable lubricant.

Furthermore, we work together with our customers to determine which lubricants are suitable for their specific applications.

Assembly systems

Easy-Click – mounting system for insulated corrugated pipes and hoses.



Easy-Loop – mounting system for insulated corrugated pipes and hoses.

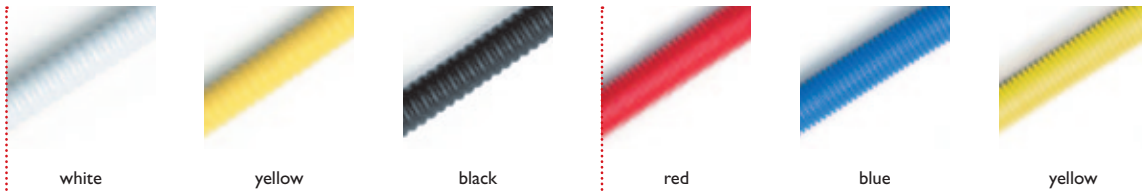


Pipe/Trace Heating Systems

A trace heating system functions by using corrugated piping wound around the pipe to heat a pipe. This type of heating is useful, for example, to protect water-bearing pipes in winter from frost or to maintain the temperature of warm water pipes.

Peck-Protection

Peck-Protection is a special protection for corrugated pipes against damage caused by birds and rodents. Protection against pecking is especially useful in coastal regions (where bird damage is common) and can ensure a longer material life. In addition, our peck-protection safeguards the pipes from the negative influences of harsh weather conditions and UV-radiation, as well.



Extruded
PVC-plastic coating

Extruded Protective Coatings

Coloured
PP protective sleeve

Fitted Protective Sleeves

Insulations

Closed cell insulation from Polyethylene Foam (PE)



Closed cell insulation from NBR rubber



Highly flexible, closed cell, insulation from synthetic rubber (EPDM)



Highly flexible, closed cell, insulation from synthetic rubber (EPDM) with protective wrapping



Polyester fleece (PES) with protective wrapping



Features

Colour	grey	black	black	black	black
Assembly	easy to insulate ultra flexible and elastic	easy to insulate ultra flexible and elastic	easy to insulate	easy to insulate	easy to insulate
Area of application	Pipelines for the plumbing and heating industries, processing heat from industrial and plant engineering projects	Insulation of outdoor refrigeration pipes	Connecting solar collectors, district heating systems, hot gas lines, dual temperature applications	Connecting solar collectors, district heating systems, hot gas lines, dual temperature applications	Connecting solar collectors

Standards

Fire behaviour	high flame resistance 4102-B1	high flame resistance 4102-B1	normal flame resistance	normal flame resistance	normal flame resistance
Weather- and UV-resistance		good	good	good	good
RoHs	compliant	compliant	compliant	compliant	compliant

Technical Features

Temperature Range	up to +105 °C	-40 °C up to +150 °C	-50 °C up to +150 °C (+175 °C)	-50 °C up to +150 °C (+175 °C)	up to +230 °C
Thermal Conductivity	at 40 °C: 0.040 W (m × K)	at 0 °C: 0.035 W (m × K), at 40 °C: 0.038 W (m × K)	at 0 °C: 0.038 W (m × K), at 40 °C: 0.042 W (m × K)	at 0 °C: 0.038 W (m × K), at 40 °C: 0.042 W (m × K)	at 40 °C = 0.040 W (m × K)

Applications

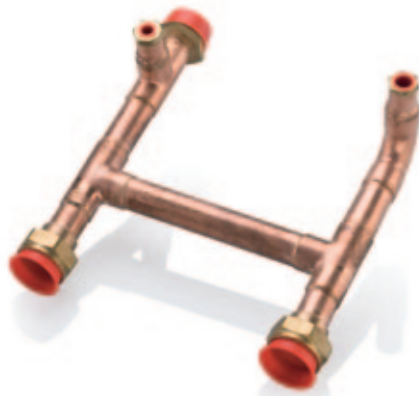
Accumulator and Heat Exchanger Systems

Our heat exchangers can be used for stratified storage with thermal accumulation and refrigeration systems and fulfil the requirements for use circulating potable and industrial water!

Our corrugated pipes and hoses have a thermal efficiency up to 50% higher than normal flat pipes. Due to the corrugated design, even low flow rates create a turbulent current in

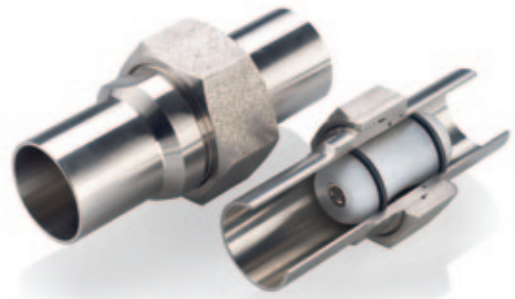


the line and therefore transfer a maximum amount of energy. A further positive aspect, the combination of the turbulent flow and the flexibility of the piping minimizes or even prevents the build up of lime scale in the storage system. The variability of possible uses of our stainless steel piping allows for an optimal fit of the heat exchanger with the needs of your system.



Additional products

- Fittings / Special fittings
- Hot water hoses
- Screw connections and ball valves for ink-feed systems and pig technology
- Special piping systems
- Soldering assemblies
- Respiratory safety applications
- Multiple channel hoses for medical and dental devices
- Ball valves for transporting hazardous materials with approvals (from GGV Sea, GGV inland navigation, GGV road, and GGV rails)
- Fittings for natural gas systems and other devices using gas



Locations

Plant Sites and Sales Offices

AZ Industrietechnik GmbH

Zum Schnee bach 1
61276 Weilrod
Germany
Tel.: +49 6083 9134-0
Fax: +49 6083 9134-29
E-Mail: info@az-gruppe.de

AZ Industrietechnik GmbH

Saigerhüttenstraße 6
09526 Olbernhau
Germany
Tel.: +49 37360 6602-30
Fax: +49 37360 6602-359
E-Mail: info@az-gruppe.de

AZ Gastechnik GmbH

Kleinneuschönbergerstr. 122
09526 Olbernhau
Germany
Tel.: +49 37360 6602-0
Fax: +49 37360 6602-444
E-Mail: info@az-gastechnik.de

Olbernhauer Metallbearbeitung GmbH

Hammergasse 5
09526 Olbernhau
Germany
Tel.: +49 37360 6602-600
Fax: +49 37360 6602-666
E-Mail: info@omb.de

AZ-Pokorny s.r.o.

Čermákovice 20
67173 Tulešice
Czech Republic
Tel.: +420 515 300 111
Fax: +420 515 300 110
E-Mail: info@az-pokorny.cz

AZ-Flowtech Limited

Unit 5, Queen Street Trading Estate,
Goldborne, Warrington WA3 3AF
Great Britain
Tel.: +44 7753 744155
Fax: +44 1925 79 0566
E-Mail: info@az-flowtech.com

AZ-Broquetas, S.L.

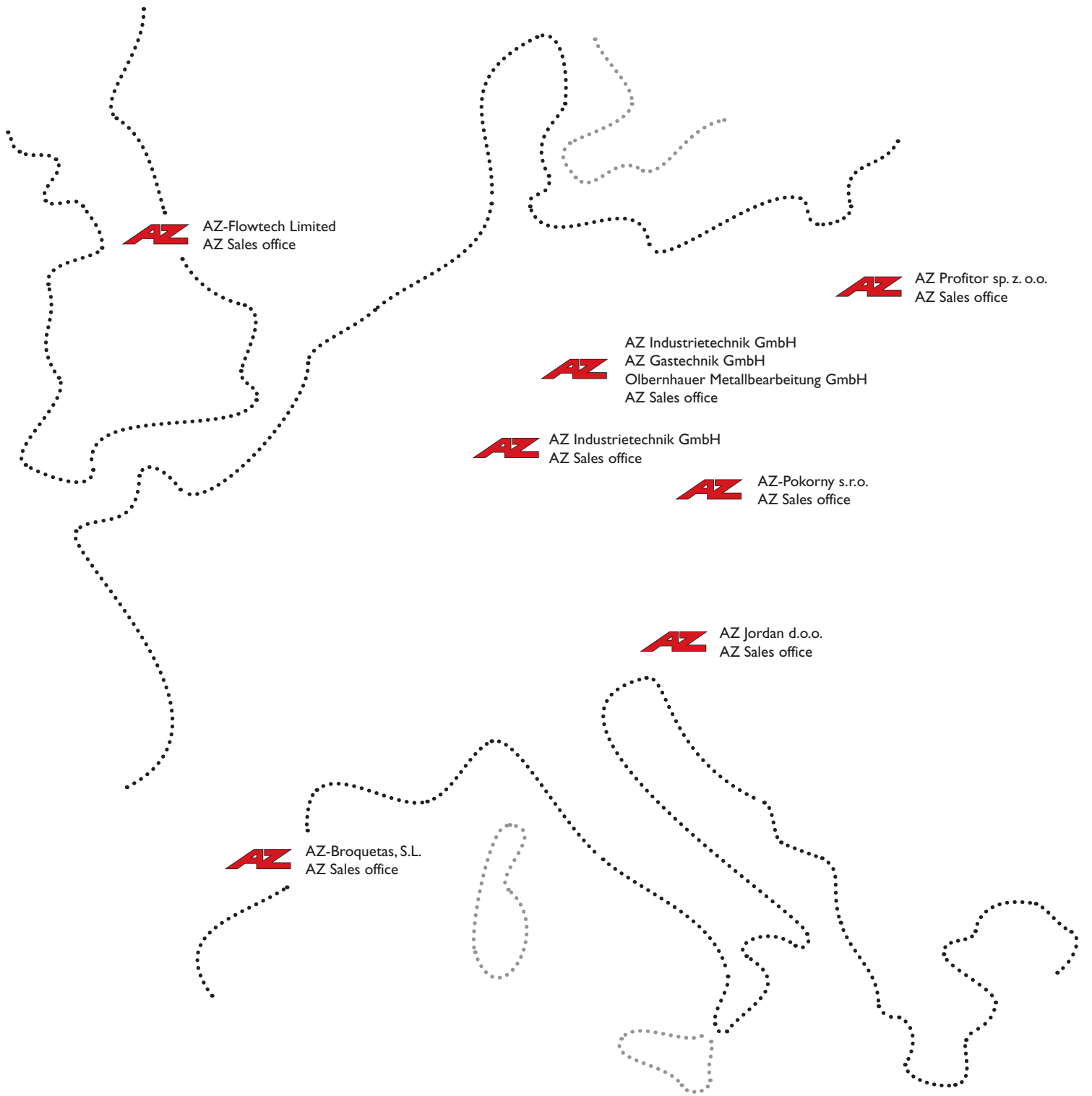
C/Murcia, 5 (Pol. Ind. Fonollar)
08830 Sant Boi de Llobregat
Barcelona, Spain
Tel.: +34 93 6401900
Fax: +34 93 6300938
E-Mail: info@az-broquetas.es

AZ Profitor sp. z o.o.

Pl. D browskiego 1
00-057 Warszawa
Poland
Tel.: +48 22 8141723
Fax: +48 22 8141205
E-Mail: info@az-profitor.pl

AZ Jordan d.o.o.

Nasipi 7
1420 Trbovlje
Slovenia
Tel.: +386 356 60531
Fax: +386 356 60571
E-Mail: branko.jordan@az-gruppe.eu



AZ AZ-Flowtech Limited
AZ Sales office

AZ AZ Profitor sp. z. o.o.
AZ Sales office

AZ AZ Industrietechnik GmbH
AZ Gastechnik GmbH
Olbernhauer Metallbearbeitung GmbH
AZ Sales office

AZ AZ Industrietechnik GmbH
AZ Sales office

AZ AZ-Pokorny s.r.o.
AZ Sales office

AZ AZ Jordan d.o.o.
AZ Sales office

AZ AZ-Broquetas, S.L.
AZ Sales office



LEADING SOLUTIONS TO
FINAL RESOLUTION

AZ Gruppe
AZ Industrietechnik GmbH
Zum Schnee bach 1
61276 Weilrod
Germany

Telefon: +49 6083 9134-0
Fax: +49 6083 9134-29
E-Mail: info@az-gruppe.de

www.az-gruppe.de