Technical data

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Technical data overview

Тур	Ø (mm)	Width (mm)	Pressure (PN)	Pressure (WP)
ST M	21 - 172	45 - 110	16	21 to 70
UNI-Grip	188 - 745	138 -146	2.5 to 16	6 to 25
THE ALL	39 -172	60 - 110	10	16
	175 - 640	140 - 146	2.5 to 10	6 to 16
UNI-Plastgrip				
The second	39 -172	60 - 110	10	16
	175 - 640	140 - 146	2.5 to 10	6 to 16
UNI-Combigrip				
See Market	21 -172	45 - 110	16	25
UNI-Flex	188 - 2090	140 - 206 280 - 420	2,5 to 16	6 to 25
1 million				
	36 -172	60 - 110	16	25
UNI-Rep	188 - 745	140 - 206 280 - 420	6 to 16	10 to 25
	l			

Wider range	OD (mm)	Number of couplers	Material quality	
UNI-Coupling	21 - 47,5	7	standard W5	to 5 mm thickness
	47,5 - 172	15	standard W5	to 5 mm thickness

Connecting	Metal - Metal	Plastic - Plastic	Metal - Plastic	Restrained / Flexible
UNI-Grip	х			restrained
UNI-Plastgrip		X		restrained
UNI-Combigrip			x	restrained
UNI-Flex	x	x	x	flexible
UNI-Rep	X	X	X	flexible

Sealing material	EPDM > 21 - 172 mm	EPDM > 180 mm	NBR	Silicone or Viton
Temperature range	-30 °C - +125 °C	-30 °C - +80 °C	-20 °C - +80 °C	on request
Medium	drinking water, wastewater, compressed air, alcohol and solids	drinking water, wastewater, compressed air, alcohol and solids	water, gas, oil, fuel, and other hydrocarbons	on request

Quality	Housing	Lock bars	Bolts	Anchoring
W5	1.4571 / 316 Ti	1.4571 / 316 Ti	A4 – 80 / 316 Ti	1.4310 / 301

Installation Conditions







Fitting Instructions UNI-Grip, UNI-Plastgrip, UNI-Combigrip, Uni-Flex











Fitting Instructions UNI-Rep

















Fitting Instructions Insert

Economy Insert

- Suitable for PE, PVC, PP and PB plastic pipes
- Stainless steel 1.4310 (W2) quality
- Insert without range
- Other dimensions on request
- Use insert stiffeners for installation on PE, PVC, PP or PB pipes



Insert with wedge

- Suitable for PE, PVC, PP and PB plastic pipes
- Stainless steel 1.4310 (W2) quality
- Insert with range
- Other dimensions on request
- Use insert stiffeners for installation on PE, PVC, PP or PB pipes











Fitting Instructions UNI-Fire

















Accessories

Strip inserts

Strip inserts protect the sealing sleeve against mechanical or chemical damage in the pipe end area.

Strip inserts are required for:

- External pressure (e.g. underwater pipeline)
- Vacuum \geq 0.5 bar A pressure (e.g. suction line)
- Swelling of the rubber caused by contact with chemicals

Subsequent installation of strip inserts for all types of couplings is possible. Strip insert are made of 316 Ti (1.4571) quality steel and capable of handling high temperature, vacuum and external pressure.

Fitting plier / fitting belt

For convenient assembly of UNI-Rep couplings we recommend using a fitting plier. The plier uses the bores in the housing to close the coupling which enables you to manually tighten the bolts. For bigger diameters (>300 mm) use a fitting belt.

Torque wrench

Always assemble UNI-Couplings with a torque wrench. The correct torque is indicated on the housing of each UNI-Coupling. In using a torque wrench you ensure that the UNI-Coupling is not overstressed.

Strip insert



Fitting plier



Torque wrench



Dimensions

and minimal wall thickness at nominal pressure PN

				Minimum Pip	Minimum Pipe wall thickness		
Pij	pe Ø	Nom	inal Ø	Stainless steel tube	CuNi10Fe (DIN) CuNi10Mn1Fe (ISO)		
Metric (mm)	Ins (inch)	Metric (dn)	Ins (nom)	UNI-Grip (mm)	UNI-Grip (mm)		
26.9	1.050	20	3/4	1.5	1.5		
30.0	1.180	25	1.2	1.5	1.5		
33.7	1.325	25	1	1.5	2.0		
38.0	1.495	32	1.5	1.5	2.0		
42.4	1.670	32	1 1/4	1.5	2.0		
44.5	1.750	40	1.75	1.5	2.0		
48.3	1.900	40	1 1/2	1.5	2.0		
54.0	2.125	50	2.125	1.5	2.0		
57.0	2.245	50	2.25	1.5	2.0		
60.3	2.375	50	2	1.5	2.0		
66.6	2.625	65	2 1/2	2.0	2.0		
70.0	2.756	65	2 1/2	2.0	2.0		
73.0	2.875	65	2 1/2	2.0	2.0		
76.1	(3.000)	65		2.0	2.0		
79.5	3.125	65	3	2.0	2.0		
84.0	3.305	80	3.3	2.0	2.0		
88.9	3.500	80	3	2.0	2.0		
100.6	3.960	80	(3)	2.0	2.3		
101.6	(4.000)	90	(3 1/2)	2.0	2.3		
104.0	4.095	100	4.1	2.0	2.3		
104.8	4.125	100	(4)	2.0	2.3		
108.0	4.250	100	4 1/4	2.0	2.3		
114.3	4.500	100	4	2.0	2.3		
127.0	5.000	100	4 1/2	2.6	3.0		
129.0	5.080	125	5	2.6	3.0		
130.2	5.125	125	(5)	2.6	3.0		
131.0				3.0			
133.0	5.235	125	5 1/4	2.6	3.0		
139.7	(5.500)	125	(5 1/2)	2.6	3.0		
141.3	5.565	125	5	2.6	3.0		
154.0	6.065	150	6.1	2.6	3.0		
155.0				2,5			
159.0	6.260	150	6 1/4	2.6	3.0		
168.3	6.625	150	6	2.6	3.5		
193.7	7.625	200	7.6	3.0	3.5		
206.0				3.0			
219.1	8.625	200	8	3.0	3.5		
244.5	9.625	225	9	on request	4.5		
256.0				on request			
267.0	10.510	250	10.5	on request	4.5		
273.0	10.750	250	10	on request	5.0		
306.0		_		on request			
323.9	12.750	300	12	on request	5.5		
355.6	14.000	350	14	on request	6.0		
406.4	16.000	400	16	on request	8.0		
457.2	18.000	450	18	on request	9.0		
508.0	20.000	500	20	on request	10.0		
558.8	22.000	550	22	on request	10.0		
609.6	24.000	600	24	on request	12.0		

Thinner walls are possible at lower pressures; please contact your local dealer. [®] Standard pipe dimension for stainless steel (outer diameter related to the wall thickness)

Installation time and dimension comparison, metric/inch

The installation time includes:

- Marking of half the coupling width on both pipe ends •
- Fitting the coupling over pipe ends and correct alignment •
- Tightening the bolts with a torque wrench

Pipe Ø		Nom	Nominal Ø		
Metric (mm)	lps (inch)	Metric (dn)	lps (nom)	(min)	
26,9	1.050	20	3/4	2	
30	1.180	25	1.2	2	
33,7	1.325	25	1	2	
38	1.495	32	1.5	2	
42,4	1.670	32	1 1/4	2	
44,5	1.750	40	1.75	2	
48,3	1.900	40	1 1/2	2	
54	2.125	50	2.125	3	
57	2.245	50	2.25	3	
60,3	2.375	50	2	3	
66,6	2.625	65	2 1/2	4	
73	2.875	65	2 1/2	4	
76,1	(3.000)	65	3	4	
79,5	3.125	65	3	4	
84	3.305	80	3.3	4	
88,9	3.500	80	3	4	
100,6	3.960	80	(3)	5	
101,6	(4.000)	90	(3 1/2)	5	
104	4.095	100	4.1	5	
104,8	4.125	100	(4)	5	
108	4.250	100	4 1/4	5	
114,3	4.500	100	4	5	
127	5.000	100	4 1/2	6	
129	5.080	125	5	6	
130,2	5.125	125	(5)	6	
133	5.235	125	5 1/4	6	
139,7	(5.500)	125	(5 1/2)	6	
141,3	5.565	125	5	6	
154	6.065	150	6.1	7	
159	6.260	150	6 1/4	7	
168,3	6.625	150	6	7	
219,1	8.625	200	8	9	
244,5	9.625	225	9	10	
267	10.510	250	10.5	10	
273	10.750	250	10	10	
323,9	12.750	300	12	12	
355,6	14.000	350	14	12	
406,4	16.000	400	16	12	
457,2	18.000	450	18	12	
508	20.000	500	20	12	
558,8	22.000	550	22	12	
609,6	24.000	600	24	12	

Angular deflection

UNI-Couplings cover angular deflection of pipes up to 2° (4°) in any direction.



The 2° angular deflection corresponds to 35 mm per meter of pipe length.

The installation is very easy and there is no need for costly pipe alignment.

It is possible to fit the pipe with angular deflection and to use the joint for dynamic angular movement under working conditions after installing the pipe system.

Example: Ground settling



Note: Pipe end gap C max must always be kept.

Axial misalignment

UNI-Couplings generally allow misalignment of the pipe axis. However, we recommend avoiding misalignment wherever possible or absorbing it either with an angularity of max 2° or by using an intermediate piece. Since "zero misalignment" is hard to realize, a minimal misalignment is tolerated. The following rule serves to explain the limits of what is tolerable, with the aim of keeping axial misalignment as small as possible.

'For fixed pipe ends, a misalignment of up to 1% (max. 3 mm) of corresponding pipe OD can be tolerated without any restrictions. It does not affect the correct fitting of the UNI-Coupling'.



Where the pipeline guides are sufficiently spaced from the pipe end, the butt ends can be rectified by hand with low force, approx. 500N. The remaining axial misalignment after tightening the lock bolts is minimal. For such an application a larger misalignment prior to connecting can be permitted, keeping the following rule in mind: A misalignment of up to 1% in the fitted position has no negative influence on the function of UNI-Flex and UNI-Rep pipe couplings and is therefore tolerable up to pipe OD of 300 mm.

Under such conditions a slight sloping of the coupling on the pipe ends has to be expected.



Retrofitting pipe sections and fittings

Thanks to their large clearance and allowable fitting gap as well as the wide tolerance range, UNI-Couplings are predestined as an ideal construction element for retrofitting pipe sections and fittings during repair work or for changes in the pipeline direction.

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UNI-Coupling pipe couplings do not absorb bending or torsion forces. Pressure lines must be supported, anchored and guided.

Pipe section for existing or new pipelines



Fitting (T), position and direction of the branch are freely selectable



Valve with plain ends, rotatable to any position



Axial movement/change in length

Temperature changes in pipeline systems cause axial movement and tensile or pressure stress, which must be compensated by adequate countermeasures.



UNI-Coupling pipe couplings do not absorb bending or torsion forces. Pressure lines must be supported, anchored and guided. UNI-Flex and UNI-Rep pipe couplings are able to compensate axial movement of straight pipe sections, up to 20 mm depending on the size of coupling.

- compensation of axial movement
- no abrasion on the sealing sleeve
- escaping space for rubber expansion under temperature
- stress-free pipeline without additional means (see below)



Note: Pipe end gap C max. must always be kept.

Larger axial movements need compensation, such as traditional compensators

Anchor points and guides with axial movement

Clever fastening of pipe sections which are exposed to axial movement due to temperature influences can be divided into 'movement units' and joined very economically with UNI-Flex and UNI-Rep pipe couplings as compensators.



UNI-Coupling pipe couplings do not absorb bending or torsion forces. Pressure lines must be supported, anchored and guided.

The distance between 2 anchor points forms a movement unit.



The movement between the 2 anchor points may not exceed the permissible value given for one joint.



Depending on the value of axial movement, every second anchor point can be replaced with a guide.



Bending/torsion

Bending





UNI-Coupling pipe couplings do not absorb bending or torsion forces. Pressure lines must be supported, anchored and guided.

Torsion



Underground pipelines



UNI-Coupling pipe couplings do not absorb axial forces. Structural measures for buried pipelines are required in order to absorb axial forces (e.g. lean concrete abutment)



1 Sufficient back fill weight to prevent side thrust or buckling



4 OD reductions



The arrows indicate the counterforce of the abutment.

2 Tees (e. g. concrete thrust blocks)



5 Blank ends



3 Bends direction changes



6 Inclination changes



Freely installed pipelines



UNI-Coupling pipe couplings do not absorb axial forces.

Important: Pressure lines must be supported, anchored and guided. Depending on the installation situation, supports have to be changed to anchor points.

Guideline: One anchor point and at least one guide point per pipe section!

Structural measures for freely installed pipelines – example for a 9-meter pipe length



Application example



Installation of vertical pipelines

UNI-Grip pipe couplings are the ideal joints to keep plain-ended metal pipe sections in vertical installations perfectly tight and axially restrained.

In the extreme case of a vertical, free-hanging pump pressure mains, the forces arising for each coupling are calculated based on the following values:

- weight of pipe sections
- weight of couplings (joints)
- weight of pump
- weight of water column in pipes
- force factor resulting from internal pressure and possible pressure surges

UNI-Grip, UNI-Combigrip and UNI-Plastgrip pipe couplings deliver sufficient resistance against torsion, resulting from switching the pump on or off. (Please consult pump manufacturer for details.)

Application examples:

- drilling hole pump lines
- fresh water pump lines
- heat pumps
- shaft pipelines
- charge and discharge systems of silos, tanks and containers



Note: The application of UNI-Combigrip and UNI-Plastgrip couplings for installation of vertical pipelines is not recommended.



Electrical conductivity UNI-Flex/UNI-Rep



UNI-Flex and UNI-Rep pipe couplings do NOT provide electrical conductivity from pipe to pipe.

However, they should not be used as 'insulation'. Even under prescribed installation conditions, an electrical contact between the housing of the coupling or the strip insert and the pipe surface can occur. If electrical conductivity is required, it can be achieved by bridging over the coupling from pipe to pipe with an earth strap.

Should it be necessary to prevent electrical conductivity of the pipe joint, electrical insulation of the pipeline elements can be achieved by coupling-in a section of plastic pipe, measuring one meter in length.



Electrical conductivity UNI-Grip

UNI-Grip pipe couplings guarantee electrical conductivity for metal-to-metal piping by bridging over from pipe to pipe through the metallic anchoring mechanism.

Measurements have proven a sufficiently low electrical transition resistance of UNI-Grip pipe couplings.



Electrical conductivity is ensured thanks to the anchoring rings gripping into the pure metallic surface of the pipe.



Note: Because of the use of plastic pipes, there is no electrical conductivity with UNI-Combigrip and UNI-Plastgrip pipe couplings.