

Pipe Joints and Elements for High Density  
Polyethylene (HDPE) Pressure PipelinesTypes 1 and 2  
Pipe Bends for Butt-welding  
Dimensions**DIN**  
**16 963**  
Part 3Rohrverbindungen und Rohrleitungsteile für Druckrohrleitungen aus Polyethylen hoher Dichte (HDPE), Typ 1 und 2;  
aus Rohr geformte Rohrbogen für Stumpfschweissung, Masse**1 Scope**

This Standard applies to pipe bends of high density polyethylene (HDPE), type 1 and type 2, which are formed from pipe in accordance with DIN 8074 Part 1 or Part 2 and which are butt-welded with a heating element in accordance with DIN 1910 Part 3 or DVS 2207 to pipes of HDPE type 1 and type 2 in accordance with DIN 8074 Part 1 or Part 2. The pipe bends must conform to the requirements of DIN 16963 Part 5 or Part 25 \*).

For technical reasons the pipe bends may only be welded to pipes of the same series in accordance with DIN 8074 Part 1 or Part 2. Deviation from this requirement is allowed if the wall thicknesses are equal in the welding zone.

*Note:* Instead of the designation "Hard polyethylene (hard PE)", this Standard uses the designation "High density polyethylene (HDPE)" in accordance with DIN 7728 Part 1, April 1978 edition.

The previously used short designation "Hard polyethylene (hard PE)" may, however, continue to be used during the transitional period (e.g. the service life of the stamping tools for marking pipes and pipe elements).

**2 Other relevant Standards**

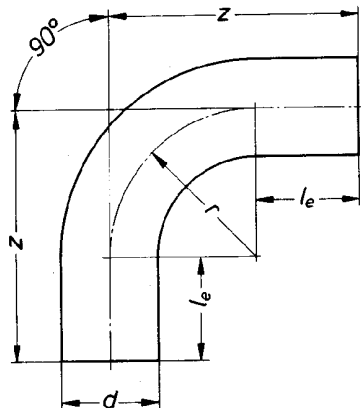
- DIN 1910 Part 3 Welding; welding of plastics, methods  
DIN 8074 Part 1 Hard polyethylene (hard PE) pipes; type 1, dimensions  
DIN 8074 Part 2 High density polyethylene (HDPE) pipes; type 2, dimensions  
DIN 16963 Part 5 Pipe joints and elements of hard polyethylene (hard PE) for pressure pipelines; type 1, general quality requirements, testing  
DIN 16963 Part 25 (at present still in draft form) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; type 2, general quality requirements, testing

**3 Dimensions, design**

The pipe bends do not have to conform to the illustration; only the specified dimensions must be adhered to. The permissible deviation from the 90° angle of bend is  $\pm 2^\circ$ .

**Pipe bend B2**

90° bend



Designation of a B2 pipe bend with a 90° angle and external pipe diameter  $d = 400$  mm of pipe series 3 and type 1:

Bend DIN 16963 – B2 – 90 – 400 – 3 – 1

$d$	$l_e$ min.	$r^1)$	$z^2)$ min.
110	150	165	315
125		188	338
140		210	360
160		240	390
180		270	420
200		300	450
225		338	488
250	250	375	625
280		420	670
315	300	473	773
355		533	833
400		600	900
450		675	975

1)  $r = 1,5 d$ 2)  $z = r + l_e$ 

\*) At present still in draft form

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*Further Standards and documents*

DIN 7728 Part 1	Plastics; symbols for homopolymers, copolymers and polymer compounds
DIN 8075 Part 1	Hard polyethylene (hard PE) pipes; type 1, general quality requirements, testing
DIN 8075 Part 2	High density polyethylene (HDPE) pipes; type 2, general quality requirements, testing
DIN 16963 Part 1	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, pipe bends of segmental construction for butt-welding, dimensions
DIN 16963 Part 2	(at present still in draft form) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, tee pieces and branch connections of segmental construction with necked ends for butt-welding, dimensions
DIN 16963 Part 4	(at present still in draft form) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, bushes, flanges and seals for butt-welding, dimensions
DIN 16963 Part 6	(at present still in draft form) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded fittings for butt-welding, dimensions
DIN 16963 Part 7	(Preliminary Standard) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded fittings for resistance-welding, dimensions
DIN 16963 Part 8	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded elbows for socket-welding, dimensions
DIN 16963 Part 9	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded tee pieces for socket-welding, dimensions
DIN 16963 Part 10	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded sockets and caps for socket-welding, dimensions
DIN 16963 Part 11	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, bushes, flanges and seals for socket-welding, dimensions
DIN 16963 Part 12	(Preliminary Standard) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded reducing sockets for joining resistance-welded fittings, dimensions
DIN 16963 Part 13	Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, turned and pressed reducing sockets for butt-welding, dimensions
DIN 16963 Part 14	(at present still in draft form) Pipe joints and elements of high density polyethylene (HDPE) for pressure pipelines; types 1 and 2, injection moulded reducing sockets and nipples for socket-welding, dimensions
DVS 2207	Welding thermoplastic plastics, hard PE (hard polyethylene) pipes and elements for gas and water pipelines <sup>3)</sup>

<sup>3)</sup> Obtainable from Deutscher Verlag für Schweißtechnik GmbH (German Publishing House for Welding), Postfach 2725, 4000 Düsseldorf