



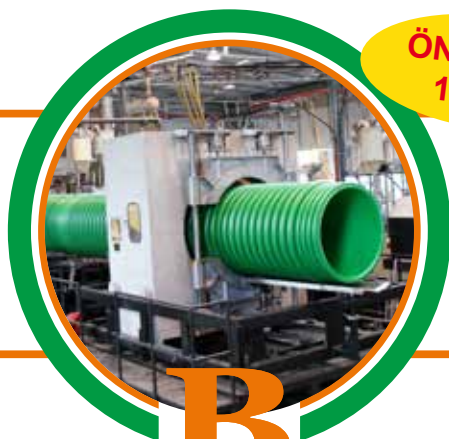
# Gross Price List



You will receive your discount on request!

## BAUERNFEIND

! for those, who want quality !



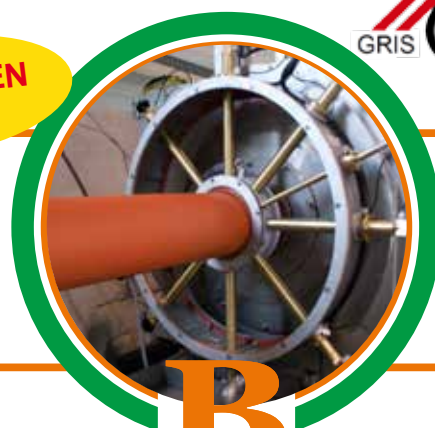
ÖNORM EN  
13476-3

**PP-MEGA-Pipe**  
**PP-MEGA-Drain**

**B**  
Ihr Produzent

ÖNORM EN  
1852-1

**PP-GLATT-Pipe**  
**PP-GLATT-Drain**



**B**  
Ihr Produzent

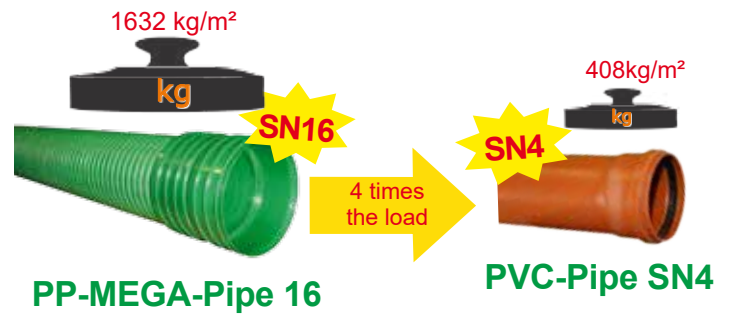


**As an Austrian pipe producer and specialist from the basic material to production to pipe-laying, we offer you our best advice and the best service!**

# Advantages of polypropylene (PP)

## ✓ high ring stiffness

PVC pipes are preferably used in the private sector in SN4 (408 kg/m<sup>2</sup>). Our PP-MEGA-Pipes and PP-GLATT-Pipes are available in SN8 (816 kg/m<sup>2</sup>), SN12 (1224 kg/m<sup>2</sup>) and SN16 (1632 kg/m<sup>2</sup>) and are more resistant to higher loads and less overfilling.



## ✓ lower weight

The low weight compared to conventional PVC-, concrete or iron pipes is of great advantage for easy handling, transport and laying. A PP-MEGA-Pipe DN 400 can still be carried by hand. A PVC sewer pipe, on the other hand, requires mechanical assistance.



PP-MEGA-Pipe DN 250

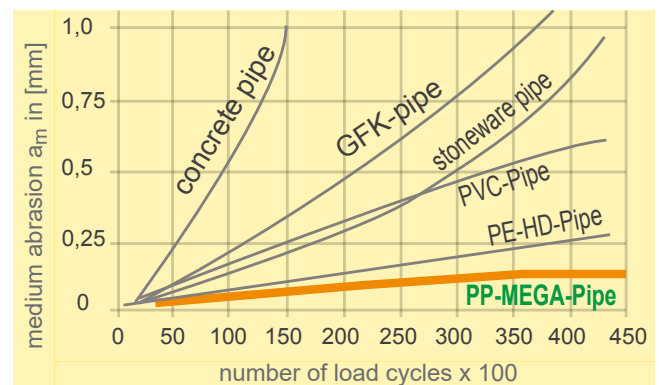
### Weight comparison:

DN 400	concrete rebate pipe	PVC sewer pipe SN4	PP-MEGA-Pipe
standard length	1 m bar	5 m bar	6 m bar
weight	approx. 180 kg	approx. 94 kg	approx. 49 kg

## ✓ abrasion resistance

Polypropylene has the lowest abrasion of all pipe materials. This is a great advantage for water containing debris and results in a significant extension of the life span.

After 400,000 cycles, the abrasion resistance of PP pipes is 30% better than that of PE pipes and more than double that of PVC pipes.



## ✓ fire behaviour

In case of fire, toxic chlorine gases are produced by the PVC pipe - if it comes into contact with water, acid is formed.

In the event of a fire with a PP pipe, the pipe burns residue-free, without releasing toxic gases.



## ✓ weldability

**PP-Pipes are welded - PVC-Pipes are bonded**

Welding technology provides more freedom in design for the individual production of custom-made products. It is thus possible to make straight or inclined swages in manholes. Also welding on PP plates is possible. All these possibilities are not given with the PVC pipe by gluing.

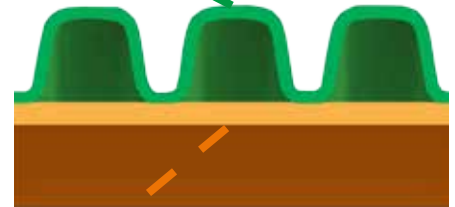


# Advantages PP-MEGA-Pipe or Drain or Drain

## Outer layer:

The PP-MEGA-Pipe gets its high static load-bearing capacity due to the **innovative corrugation** (technical construction) of the outer layer. This is a big advantage in comparison to full wall pipes (PVC- and PP 3-layer-pipes), where a lot of material has to be used to reach the load-bearing capacity of the pipes only with wall thickness.

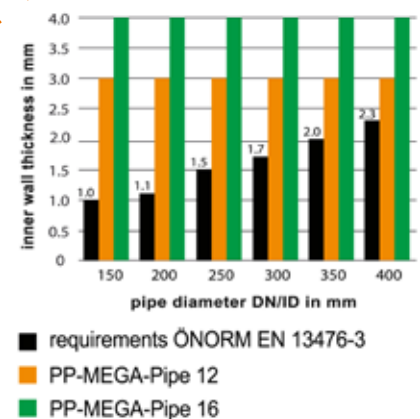
This results in low weight of the corrugated pipes, which is a great advantage compared to solid wall pipes.



## Inner layer:

The ÖNORM EN 13476-3 specifies a **minimum inner wall thickness**, whereby for the smaller diameters of the PP-MEGA-pipe SN12 and SN16 we achieve a **thicker inner wall (3 or 4 mm)**<sup>1</sup> than the norm requires.

The **strengthened inner wall** provides the great advantage that the **durability increases**. Due to the **thicker wearing layer**, the pipe can withstand stronger loads caused by boulders, gravel, sand, etc. for longer. Furthermore cleaning by high pressure flusher (150 bar) or chain spinning can be done without any problems.



## Cleaning:

- chain spinning cleaning
- high pressure cleaning with 150 bar

tested according to the ÖVBB guidelines "Tunnelentwässerung" (tunnel drainage) see page 6



High pressure cleaning in progress

## Quality differences in drains

### ÖNORM EN 13476-3



#### Pipe material:

The biggest difference between the two standards is, that according to ÖNORM EN 13476-3 the raw material has to be produced specially for pipes.



#### Wall thickness:

At ÖNORM EN 13476-3 the minimum wall thickness is specified.



### DIN 4262-1



#### Pipe material:

At DIN 4262-1 the raw material of the pipes can be made of recycled milk bottles, water bottles, window profiles, electric switches or something like that.



#### Wall thickness:

At DIN 4262-1 the minimum wall thickness is not specified, therefore the pipes will be mostly produced as thin as possible.



<sup>1</sup>The PP-MEGA-Pipe SN16 DN/ID 100 mm has an inner wall thickness of 1 mm.



# PP-MEGA-Drain 8 and PP-MEGA-Pipe 8

polypropylene, outside corrugated - inside smooth

**SN8**

**ÖNORM EN 13476-3 certified**  
from DN/ID 150 mm

PP-MEGA-Pipe 8  
with socket

**ÖNORM EN 13476-3 certified pipe perforated**  
from DN/ID 150 mm

**SN8**

**DIN 4262-1 certified**

PP-MEGA-Drain 8  
with socket

Length: 6 m

DN/ID	pcs. per pallet	PP-MEGA-Drain 8 perforation			PP-MEGA-pipe 8
		(3/3)	2/3	1/3	
100 <sup>2</sup>	95	7,--	7,--	-	7,--
150	42	14,--	14,--	14,--	14,--
200	23	24,30	24,30	24,30	24,30
250	14	34,50	34,50	34,50	34,50
300	9	50,70	49,30	48,--	45,10
350	8	69,50	67,60	66,--	62,10
400	5	93,80	91,20	88,60	83,70
500	4	152,--	146,--	141,--	133,--
600	-	217,--	210,--	204,--	182,--
800	-	378,--	372,--	361,--	341,--
1000 <sup>1</sup>	-	563,--	548,--	532,--	501,--
1200 <sup>1</sup>	-	807,--	847,--	823,--	778,--

Prices €/ m, with socket and sealing

**On request available:**

- lengths from 0,3 to 16 m
- or without socket
- special perforations (see page 12)

**5 mm perforations**  
from DN/ID 150 mm



## Areas of application:



- road construction
- railway and tunnel constr.



- industrial construction
- rain-, mixed water channel



- slope drainage
- alpine- and forest road const.



- trench- and streaming pipe
- road passage



- house and stable building,
- manure pipelines, collection pipes






- temporary canalization



# PP-MEGA-Drain 12 and PP-MEGA-Pipe 12

polypropylene, outside corrugated - inside smooth

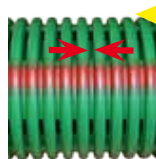
Length: 6 m

DN/ID	pcs. per pallet	PP-MEGA-Drain 12 perforation			PP-MEGA-Pipe 12
					
150	42	25,30	25,30	25,30	25,30
200	23	36,60	36,60	36,60	36,60
250	14	51,--	51,--	51,--	51,--
300	9	75,90	74,--	72,--	67,70
350	8	97,70	95,20	92,50	87,30
400	5	132,20	128,70	125,10	118,--
500	4	217,--	210,--	202,--	172,--
600	-	243,--	234,--	229,--	217,--
800	-	409,--	401,--	386,--	365,--
1000 <sup>1</sup>	-	661,--	641,--	625,--	589,--
1200 <sup>1</sup>	-	962,--	937,--	911,--	857,--

Prices €/ m, with socket and sealing

On request available:

- lengths from 0,3 to 16 m or without socket
- special perforations (see page 12)



5 mm perforation

ÖNORM EN 13476-3 certified

SN12



PP-MEGA-Pipe 12 with socket

ÖNORM EN 13476-3 certified pipe perforated

DIN 4262-1 certified

SN12

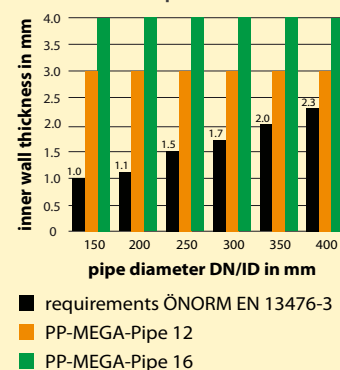


PP-MEGA-Drain 12 with socket

## Inner wall thickness comparison: DN 150 - 400 mm



inner wall thickness comparison







## Advantages of the reinforced inner wall of PP-MEGA-Rohr SN12 und SN16

- longer service life due to thicker wear layer - withstands heavy loads longer (gravel, sand, ...)
- tested for cleaning by means of chain spinning or high pressure cleaning
- higher stability even with less overfilling

# PP-MEGA-Drain 16 and PP-MEGA-Pipe 16

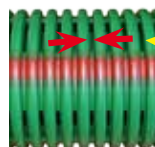
polypropylene, outside corrugated - inside smooth

Length: 6 m		PP-MEGA-Drain 16 perforation			PP-MEGA-Pipe 16
DN/ID	pcs. per pallet				
100 <sup>2</sup>	95	10,20	10,20	-	10,20
150	42	33,--	33,--	33,--	33,--
200	23	47,70	47,70	47,70	47,70
250	14	64,40	64,40	64,40	64,40
300	9	98,80	96,20	93,60	88,10
350	8	126,70	123,40	120,20	113,50
400	5	175,70	172,50	166,30	156,70
500	4	278,--	271,--	263,--	239,--
600	-	313,--	302,--	296,--	279,--
800	-	456,--	448,--	433,--	407,--
1000 <sup>1</sup>	-	833,--	809,--	788,--	744,--
1200 <sup>1</sup>	-	1.058,--	1.030,--	1.001,--	943,--

Prices €/ m, with socket and sealing

**On request available:**

- lengths from 0,3 to 16 m or without socket
- special perforations (see page 12)



**5 mm perforation**  
from DN/ID 150 mm

**ÖNORM EN 13476-3 certified**  
from DN/ID 150 mm

**SN16**



PP-MEGA-Pipe 16  
with socket

**ÖNORM EN 13476-3 certified pipe perforated**  
from DN/ID 150 mm

**DIN 4262-1 certified**

**SN16**



PP-MEGA-Drain 16  
with socket

**PP-MEGA-Pipe 16** and **PP-MEGA-Drain 16** (DN 150 - DN 800) are licensed according the directives DBS 918.064 of the ["Herstellerbezogenen Produktqualifikation" (**HPQ**) zur Entwässerung von Bahnanlagen der Deutschen Bahn (DB) AG] (german railway)

## Cleaning of pipes with strengthened inner wall SN12 and SN16

For heavily stressed drainage systems, particularly for sintering in tunnel construction, but also for drainage with strong silting, cleaning of the smooth inside and the slitting is an important factor for a well-functioning drainage system.

The PP-MEGA-Pipe and the PP-MEGA-Drain with **reinforced inner wall (SN12 and SN16)** with connection socket has been tested by the company MTA-Messtechnik, under the supervision of TGM Vienna, for the resistance of the **chain spinning rinsing and high pressure cleaning**. These two tests were carried out on the basis of the test parameters of the guidelines "Training and Maintenance of tunnel drainage systems".

### Chain spinning cleaning

It is carried out with the chain centrifuge and a steel link chain with a **test pressure of 120 bar**. The required test guidelines were positively evaluated by TGM.

### High pressure cleaning

The test was carried out at an increased pressure of 150 bar instead of the specified 120 bar. The required test guidelines were positively evaluated by TGM.



chain spinning in progress

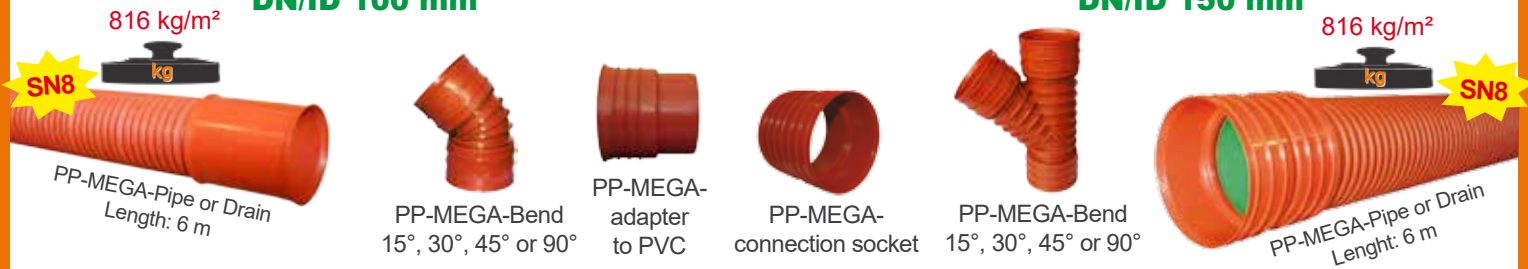
# PP-MEGA-System DN/ID 100 and 150

This system saves time, money and reduces pipe waste to a minimum!

perforated  or closed 

**DN/ID 100 mm**

**DN/ID 150 mm**



prices and information to the pipes see page 4, fittings see page 8-9

## Advantages of PP-MEGA-Drain-System 100 and 150

- **higher stability** than PVC pipe SN4, tunnel pipe and drainage hose
- With the PP-MEGA drain DN 100 (1/2 perforation) and DN 150 (1/3 or 2/3 perforation) the collected water is safely drained through the **closed bottom**! The **tight socket connection** also contributes to **reliable water drainage**. Due to the wall thickness, **cleaning** with a sewer rat is possible.
- Pipe and drain can be connected with the **same fittings**. The fittings are equipped with **sockets at all ends**. This makes it possible to continue using socketless pipe remnants without additional sockets.
- The **smooth inner surface** and the **circular shape** increase the water flow rate and reduce the risk of silting up. In contrast to tunnel-shaped drainages, which are particularly easy to dirty or difficult to clean in the corners of the skirting boards.



## PP-MEGA-Manhole DN 400

- the **innovative corrugated pipe profile** prevents the deformation due to lateral compressive loads
- **protection against groundwater**
- **easy handling** during transport and assembly due to low weight
- **flexible and simple adjustment of the shaft height** by cutting the PP-MEGA-Manhole pipe to length or adjusting the telescopic adapter

### Connections

- inlet: 2 x DN/ID 100  
outlet: 1 x DN/ID 150
- unneeded connections can be sealed with a socket plug
- an existing PVC pipe can be easily connected with an adapter










# PP-MEGA-Fittings 8

DN/ID 100 - 1200 mm

**ÖNORM EN  
13476-3 certified**

## Bends

DN/ID	bend 15°	bend 30°	bend 45°	bend 60°	Bogen 90°
					
100	8,20	8,20	8,20	-	8,20
150	14,30	14,30	14,30	-	14,30
200	30,--	50,70	30,--	50,70	50,70
250	70,50	100,80	70,50	100,80	100,80
300	127,90	168,90	127,90	168,90	168,90
350	169,80	169,80	169,80	293,30	293,30
400	288,80	288,80	288,80	527,60	527,60
500	677,--	677,--	677,--	1.027,--	1.027,--
600	1.090,--	1.090,--	1.090,--	1.459,--	1.459,--
800	1.952,--	1.952,--	1.952,--	2.453,--	2.453,--
1000	on request in various versions available				
1200					

## Reductions

The different versions of the reductions in the same size have the same price.



standard reduction  
with 1 socket



with 2  
sockets without  
sockets

DN/ID	€/pc.	
150/100 <sup>1</sup>	14,--	56,80
200/100 <sup>1</sup>	15,90	58,70
200/150 <sup>1</sup>	15,90	61,--
250/100	-	61,--
250/150	-	61,--
250/200	-	68,70
300/100	-	102,90
300/150	-	102,90
300/200	-	102,90
300/250 <sup>1</sup>	97,20	155,90

Reductions in sizes DN/ID 350 to 1200 mm available on request.



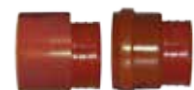
PP-MEGA-Socket  
to PVC-Pipe/Socket



PP-MEGA-Pipe to  
PVC-Pipe/Socket






PVC-Socket/Pipe  
to PP-MEGA-Pipe



PVC-Pipe/Socket  
to PP-MEGA-Socket

## Adapters to PVC

DN/ID	MEGA-Socket to PVC-Pipe	MEGA-Pipe to PVC-Pipe	MEGA-Pipe to PVC-Socket
			
100	10,10	10,10	29,60
150	16,--	16,--	31,60
200	47,50	27,80	55,40
250	50,--	50,--	60,20
300	89,40	89,40	107,30
400	167,80	167,80	201,50
500	310,--	310,--	373,--
600	592,--	592,--	712,--

## Reductions- and pipebends

Various versions available on request  
(see [www.bauernfeind.at](http://www.bauernfeind.at))



## Branch 45° und 90°

injection moulded branch  
45° or 90°handmade branch  
45° or 90°branch 250/250/87° for  
pigstiesbranch with PVC-connection  
injection moulded or handmade

\*special  
net price  
41,--  
€/pc. excl. VAT.

DN/ID	branch 45°	branch 90°
100/100	16,80	37,10
150/100	30,10	67,70
150/150	31,50	67,90
200/100	76,60	95,80
200/150	76,60	95,80
200/200	76,60	95,80
250/100	131,10	166,10
250/150	131,10	166,10
250/200	131,10	166,10
250/250	131,10	61,90*
300/100	181,60	211,80
300/150	181,60	211,80
300/200	181,60	211,80
300/250	250,60	293,--
300/300	250,60	293,--

DN/ID	branch 45° or 90°
350/100	375,80
350/150	375,80
350/200	375,80
350/250	511,20
350/300	511,20
350/350	661,20
400/100	570,80
400/150	570,80
400/200	570,80
400/250	672,40
400/300	672,40
400/350	672,40
400/400	927,10
500/100	1.083,--
500/150	1.083,--








DN/ID	branch 45° or 90°
500/200	1.083,--
500/250	1.083,--
500/300	1.124,--
500/350	1.124,--
500/400	1.124,--
500/500	1.433,--
from DN/ID 600 on request	



At injection moulded branches with PVC-branches the price for the branch will be added up with the price for the adapter to PVC

fittings available in all  
dimensions and variations

## Sockets and Fittings

DN/ID	connection socket	double socket	shaft socket	end cap	socket plug	sealing ring	cleaning pipe <sup>1</sup>
							
100	6,40	6,70	6,70	8,--	8,--	1,90	176,--
150	13,--	14,10	7,30	12,10	12,10	3,--	249,--
200	25,70	28,10	14,80	16,20	59,50	3,40	271,--
250	40,--	43,70	22,50	80,70	80,70	6,70	on request
300	75,80	83,50	42,20	93,70	93,70	11,10	
350	111,80	122,10	62,10	134,80	134,80	20,--	
400	148,10	163,10	81,80	148,60	148,60	20,40	
500	257,--	284,--	144,--	253,--	253,--	38,--	
600	397,--	435,--	219,--	407,--	407,--	70,--	
800	914,--	1.006,--	507,--	906,--	906,--	137,--	
1000	1.539,--	1.689,--	849,--	1.524,--	1.524,--	on request	
1200	2.069,--	2.279,--	1.141,--	2.215,--	2.215,--		

colour marking:

handmade fittings: inlet with socket

injection moulded fittings: inlet with socket

injection moulded fittings: inlet and outlet with socket

Injection moulded fittings can be returned, handmade fittings only by appointment.

All reductions with PVC/PP-GLATT connections can be produced up to DN/OD 630 mm.

**All handmade bends and branches can be produced with special degrees.**

\*special net price




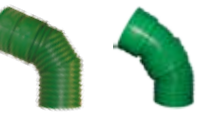

<sup>1</sup> not certified with ÖNORM

# PP-MEGA-Fittings 12 and 16

DN/ID 100 - 1200 mm

**ÖNORM EN  
13476-3 certified**

## Bends

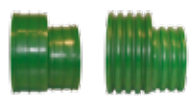
DN/ID	bend 15°		bend 30°		bend 45°		bend 60°		bend 90°	
										
	SN12	SN16	SN12	SN16	SN12	SN16	SN12	SN16	SN12	SN16
100	-	8,20	-	8,90	-	9,10	-	-	-	9,80
150	-	15,50	-	15,90	-	16,--	-	-	-	22,50
200	-	41,90	-	70,80	-	41,90	-	70,80	-	70,80
250	-	91,20	-	131,80	-	91,20	-	131,80	-	131,80
300	-	166,10	-	220,30	-	166,10	-	220,30	-	220,30
350	221,30	245,10	221,30	245,10	221,30	245,10	257,90	422,50	382,60	422,50
400	376,50	414,40	376,50	414,40	376,50	414,40	460,60	758,80	683,20	758,80
500	878,--	974,--	878,--	974,--	878,--	974,--	897,--	1.476,--	1.332,--	1.476,--
600	1.205,--	1.337,--	1.205,--	1.337,--	1.205,--	1.337,--	1.091,--	1.798,--	1.619,--	1.798,--
800	2.169,--	2.408,--	2.169,--	2.408,--	2.408,--	2.408,--	1.836,--	3.024,--	2.724,--	3.024,--
1000	on request in various versions available									
1200										

## Reductions

The different versions of the reductions in the same size have the same price.

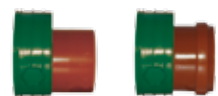


standard reduction  
with 1 socket

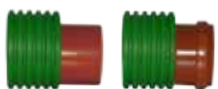


with 2  
sockets without  
sockets

DN/ID	€/pc.	
150/100 <sup>1</sup>	16,--	79,80
200/100 <sup>1</sup>	17,60	86,50
200/150 <sup>1</sup>	17,60	89,80
250/100	-	98,50
250/150	-	98,50
250/200	-	98,50
300/100	-	148,20
300/150	-	148,20
300/200	-	148,20
300/250 <sup>1</sup>	126,30	189,20



PP-MEGA-Socket  
to PVC-Pipe/Socket



PP-MEGA-Pipe  
to PVC-Pipe/Socket






PVC-Muffe/Pipe  
to PP-MEGA-Pipe



PVC-Pipe/Socket  
to PP-MEGA-Socket

Reductions in sizes DN/ID 350 to 1200 mm are available on request.

## Adapters to PVC

DN/ID	MEGA-Socket to PVC-Pipe	MEGA-Pipe to PVC-Pipe	MEGA-Pipe to PVC-Socket
			
100	11,--	11,--	33,50
150	17,60	17,60	35,10
200	52,20	30,80	61,30
250	66,20	66,20	79,40
300	118,30	118,30	142,--
400	224,30	224,30	269,30
500	411,--	411,--	494,--
600	839,--	839,--	1.006,--

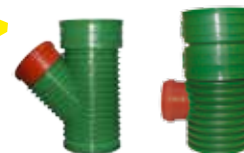
## Reductions- and pipebends

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## Branch 45° and 90°

injection moulded branch  
45° or 90°handmade branch  
45° or 90°branch 250/250/87° for  
pigstiesbranch with PVC-connection  
injection moulded or handmade

\*special  
net price  
46,--  
€/pc. eckl. VAT

DN/ID	branch 45°	branch 90°
100/100	18,80	42,20
150/100	33,60	95,60
150/150	35,10	95,60
200/100	107,20	134,--
200/150	107,20	134,--
200/200	107,20	134,--
250/100	170,70	215,70
250/150	170,70	215,70
250/200	170,70	215,70
250/250	170,70	69,90*
300/100	235,70	275,90
300/150	235,70	275,90
300/200	235,70	275,90
300/250	324,30	379,--
300/300	324,30	379,--

DN/ID	branch 45° or 90° in SN12	branch 45° or 90° in SN16
350/100	488,--	542,80
350/150	488,--	542,80
350/200	488,--	542,80
350/250	663,10	732,60
350/300	663,10	732,60
350/350	858,90	956,70
400/100	741,50	820,30
400/150	741,50	820,30
400/200	741,50	820,30
400/250	868,80	966,90
400/300	868,80	966,90
400/350	868,80	966,90
400/400	1.202,90	1.333,50
500/100	1.405,--	1.558,--
500/150	1.405,--	1.558,--

DN/ID	branch 45° or 90° in SN12	branch 45° or 90° in SN16
500/200	1.405,--	1.558,--
500/250	1.405,--	1.558,--
500/300	1.457,--	1.614,--
500/350	1.457,--	1.614,--
500/400	1.457,--	1.614,--
500/500	1.860,--	2.068,--
from DN/ID 600 on request		

fittings available in all  
dimensions and variations

At injection moulded branches with PVC-branches the price for the branch will be added up to the price for the adapter to PVC.

## Sockets and Fittings

DN/ID	connection socket	double socket	shaft socket	end cap	socket plug	sealing ring
100	6,70	7,50	7,50	9,10	9,10	1,90
150	14,10	15,50	8,--	14,--	14,--	3,--
200	28,20	30,90	16,60	18,--	98,50	3,40
250	43,70	48,20	25,--	107,50	107,50	6,70
300	83,50	91,60	46,30	124,80	124,80	11,10
350	122,80	134,40	68,60	179,90	179,90	20,--
400	162,40	179,30	89,80	197,60	197,60	20,40
500	281,--	313,--	161,--	341,--	341,--	38,--
600	435,--	480,--	242,--	539,--	539,--	70,--
800	1.006,--	1.105,--	557,--	1.205,--	1.205,--	137,--
1000	1.696,--	1.857,--	936,--	1.676,--	1.676,--	on request
1200	2.279,--	2.505,--	1.259,--	2.440,--	2.440,--	

colour marking:

handmade fittings: inlet with socket

injection moulded fittings: inlet with socket SN16

injection moulded fittings: inlet and outlet with socket SN16

**For pipes and drains SN12 injection moulded fittings SN16 are used.**

*Injection moulded fittings can be returned, handmade fittings only by appointment..*

*All Fittings with PVC/PP-GLATT connections can be produced up to DN/OD 630 mm.*

**All handmade bends and branches can be produced with special degrees.**

# Custom-made products with new technology

## CNC-controlled 6-axis-robot

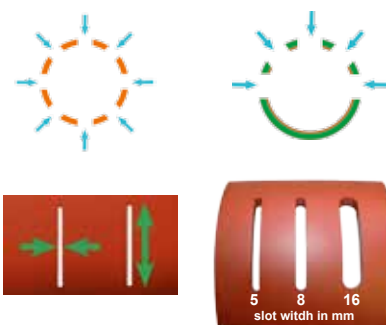
### Perforation

With our fully automatic perforation system the milling work is carried out with help of a CNC-controlled 6-axis robot (of the ABB company) with a rod milling cutter.



Special perforation is possible for all our pipes, whereby the following specifications are freely selectable<sup>1</sup>:

- number of slot rows and their distribution over the pipe circumference
- different slot width and slot length
- size of the water inlet area



5 mm perforation

### Holes and cuts

Besides the various special perforations, our large tanks, manholes and custom-made fittings are also processed with this system.

With our PP-MEGA-Pipe or PP-GLATT-Pipe DN 100 - 1200 mm holes can be milled from 5 mm to 1000 mm depending on the pipe size. Any shape and size of holes and slots as well as any type of cut can be milled.



various bevel cuts



45° milled cutout



small milled holes



hole DN1000 in pipe DN 1200



square opening with panels

## CNC-controlled, fully automatic panel milling machine

The new fully automatic panel milling machine is used for producing tunnel flush manholes and dividing plates for pipe-packages.

We also manufacture custom-made milled parts from panels for our customers.



pipe packages



special milled parts



Further information can be found on our homepage.

# Custom-made products overview

We produce customized products according to your requirements.

For a non-binding offer we only need a handsketch or a plan.

**individually  
made**

With all custom-made products you are free to choose:

## • Type of pipe / diameter

possible with PP-MEGA-Pipe from DN/ID 100 to DN/ID 1200 and PP-GLATT-Pipe from DN/OD 110 to DN/OD 630



PP-GLATT-special fitting



Reduction DN 1200 to DN 800



large tank 18 m length



manhole 4 m height

## • Length and height

Length and height of the fabrications are freely selectable

## • SN class

Custom-made products are available in SN8, SN12 and SN16



Manhole SN8



special branch PP-GLATT SN16

## • Manhole cone

The manhole pipe DN 800, 1000, 1200 is reduced to DN 600 by a manhole cone.



## • Type of pipe for in- and outlets

Following connections can be welded into our custom-made products according to the slope:

PP-MEGA-Pipe,  
PP-MEGA-Drain



with pipe

with socket

PP-GLATT-Pipe, PP-GLATT-Drain,  
HT-pipe as well as PVC sewer pipe



with pipe

with socket

PE-pressure pipe



with pipe



with socket

cable  
conduit



with socket

## • Number and position of connections



collecting manhole with bottom outlet



manhole DN 400 with various connections



PP-MEGA-special branch



PP-GLATT-Manhole with various connections



Manhole with angular connections



# Tanksystem for surface water

Our PP-MEGA-Tank is available from a **small collecting tank** for private purposes up to a **large tanksystem** for surface water.

We produce our tanks in SN8, SN12 and SN16 with freely selectable tank volume, especially according to customer's requirements. **Amount, diameter, SN-class, type of pipe, length, height as well as the position of in- and outlets are freely selectable.**

(see page 13)

For a non-binding offer we only need a hands sketch or a plan.

## Retention tank

Retention tanks are used for the temporary storage of rainwater in order to reduce the discharge rate into the sewer or into the receiving watercourse (stream) and to avoid discharge of excessively large quantities of water in a short period of time.

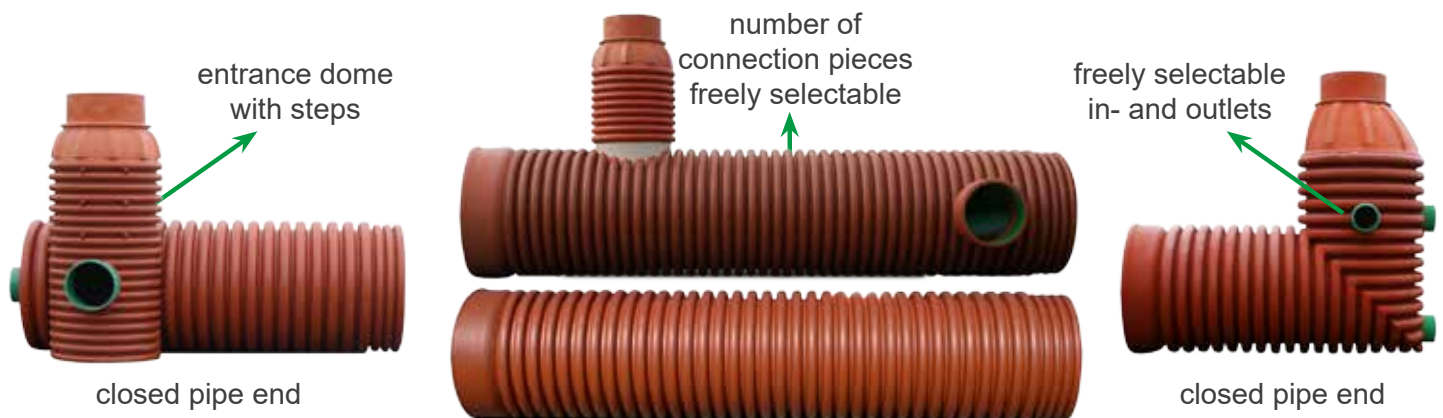
## Storage tank

Storage or collection tanks serve to store and collect rainwater for later use.

(extinguishing water, irrigation water and such).



## Structure of our tanks

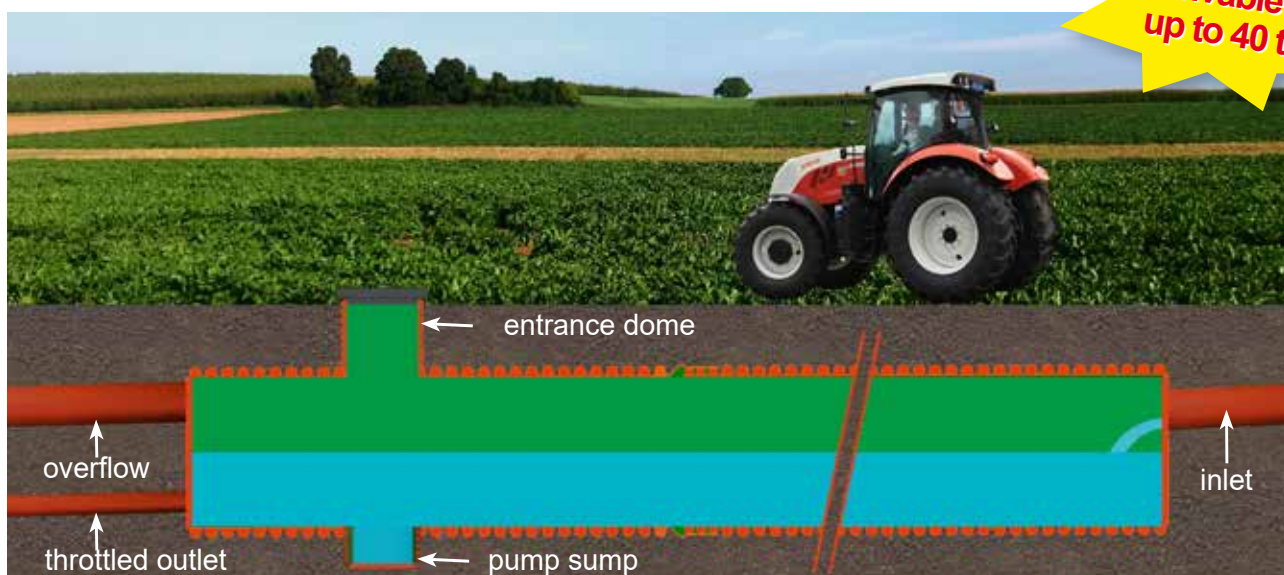


## Advantages

- To achieve the **required tank capacity**, any number of PP-MEGA pipes can be installed **between the two end pieces**. PP-MEGA pipes with or without connections can be used as connecting pieces.
- In a tank system, it is possible to **connect several tanks with each other side by side** or they can be **arranged like a serpentine with bends**.  
The largest tank we have produced has a capacity of 640 m<sup>3</sup> (640.000 litres).
- In addition, an **entry dome** can be welded in for inspection and cleaning purposes.
- The tank is **installed in the soil**, so no additional ground area is required.
- The **innovative corrugated pipe profile** prevents deformation from high lateral pressure loads and makes it possible to drive over it when properly laid.

**individually  
made**

**drivable  
up to 40 t**



## Examples for tanksystems



connected parallel tank



serpentine tank



tank in one length

12 m tank with 3 entrances, inlets in one entrance and throttled outlet



tank SN8



tank SN8 with entrance dome





## Custom-made products

### A lot is possible!

We offer you a broad selection of custom-made products, especially designed for our customers. For a non-binding offer we only need a handsketch or a plan.

(see page 13)

### Areas of application

- well casings
- small sewage treatment plant
- laundry chute
- formwork
- umbrella and flag pedestals
- playgrounds
- etc.

**individually  
made**



DN/ID 600 mm      DN/ID 1000 mm  
bend with funnel-shaped  
reduction



air supply line pipe



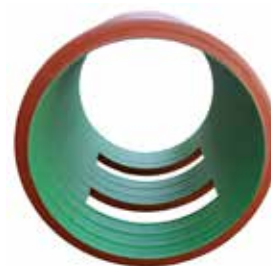
Weight for umbrellas, flags, etc.



closed cant  
for embankment



Crawl-through tunnel with branch on both sides  
for children's playground



outlet pipes with slots



PP-MEGA-Drain DN/ID 1200  
with connections



PP-MEGA-Pipe DN/ID 1200  
with flap



PP-MEGA-Special  
branches



special construction  
SN12

### Special manholes for tunnel construction:



tunnel flush manhole with channel  
and 9 connections



special manhole



channel for manhole  
concreted in a tunnel



# PP-MEGA-Manhole

## DN/ID 400, 500, 600, 800, 1000 and 1200

Plastic manholes made of polypropylene with ring stiffness SN8, SN12 and SN16 are manufactured by us according to customer's requirements based on a hand sketch or plan. (see page 13)

### Areas of application

- sewage manhole
- inspection manhole
- cable manhole
- pump manhole
- collecting manhole
- drainage manhole

### Advantages of the manhole

- the innovative corrugated pipe profile prevents deformation from high lateral pressure loads
- the amount, diameter, SN-class, type of pipe and position of the in- and outlets as well as the installation height of the manhole can be selected freely
- a great advantage for installation and transport is the low weight of the manholes.
- connections can be welded according to the slope
- for easier access, steps can be attached to the manhole



### Manholes with various connections:



for PP-GLATT-Pipe  
and PP-MEGA-Pipe



for PP-MEGA-Pipe, PP-GLATT-Pipe,  
PE-pressure pipe and cable conduit

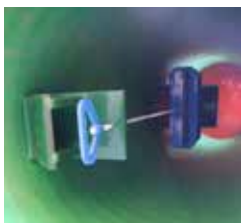


for PP-GLATT-Pipe  
and PVC-Pipe



Manhole for  
house builders

### Special manholes:



Manhole DN 800 with PP-MEGA  
connections and built in  
water stop valve



overflow manhole with pusher  
and PP-GLATT connection



conversion manhole DN 1000  
with in- and outlet, deflector  
and vent hole

# Installation of PP-MEGA-Pipes

PP-MEGA-Pipes and fittings, which are made of polypropylene, shall be installed in accordance with ÖNORM EN 1610 and ÖNORM B 2503.

The gradient of the trench sole, the bedding material and the properties of the trench sole must correspond to the planner's requirements. At frost it is necessary to save the trench sole, so that no frozen layers will remain beneath the pipeline.

Prior to installation, the PP-MEGA-Pipe and the fittings must be checked for damages, which can occur during the transport or storage. Damaged components must not be installed. If two pipelines are installed side by side, it must be ensured, that the distance between the pipes is chosen in a way, that proper compression laterally of all pipes can be ensured.

## Connection of the pipes

To protect the necessary sealing from damages, it is separately enclosed to the delivery. The **sealing** has to be put **in the first wave trough** of the pipe and it has to be taken care of that the sealing fits correct. Before connecting, the gasket and the sliding surface have to be cleaned and the inside of the socket must be **greased well with our lubricant**.

When the pipes are put together, the pipe respectively the **socket must be protected**. At the socket end, a short piece of pipe (without sealing) should be inserted beforehand. Afterwards a piece of wood is clamped between pipe and tool. Subsequently under **continuous axial force**, the socket and the pipe will be inserted into the insertion depth, which was marked in advance. Neither the socket nor the pipe will be damaged this way.

The PP-MEGA-Pipe has to be laid exactly according direction and altitude. **The socket joint must not be bent.**

The **pipe can be cut easily** depending on the required length. Therefore the pipe will be cut to length in the wave trough and vertical to the pipe axis. Ridges and irregularities of the cut surface have to be removed with a scraper, file or knife.

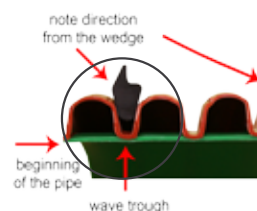
**The material of the backfilling, the compression of the ground sole and the single bedding layers are crucial to determine, which SN-class has to be used and which overfill height is needed, to reach a certain weight-bearing capacity.**

## Filling of the trench

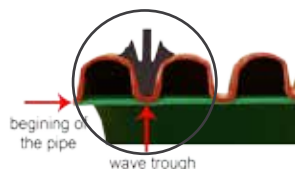
The embedment, the main backfill and the removing of the shoring should be carried out in order that the pipe connection and bedding are capable of bearing the loads. Please note that the pipes are not allowed to be deformed more than 5 %, otherwise the proper function will not be ensured.

## Building material for filling

As building material for bedding, filling, side filling and covering, company Bauernfeind recommends fine gravel 4/8 mm (for the closed pipe).



**PP-MEGA-Sealing**  
DN/ID 150, 200, 250, 350,  
500, 600, 800, 1200



**PP-MEGA-Sealing**  
DN/ID 100, 300, 400, 1000

Detailed information about the seals you can find on our homepage.



the socket should be protected with a short piece of PP-MEGA-Pipe in the socket



correct installation  
PP-MEGA-Drain SN8

**On request the building material (bulk material) for installation (at special installation conditions) can be changed!**

# PP-MEGA-Pipe

## Hydraulic behavior

The PP-MEGA-Pipe has, due to its very smooth and pore-free inner surface, a roughness between 0,005 to 0,05 mm.

The flow rate for PP-MEGA-Pipes is calculated at an assumed roughness of 0,25 mm.

Example values for sewers with manholes can be taken from the chart below.

DN/ID	100	150	200	250	300	350	400	500	600	800	1000	1200
‰	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s
1	1,98	5,88	12,68	23	37	56	80	144	232	495	889	1434
2	2,87	8,50	18,27	33	53	80	114	206	332	707	1268	2043
3	3,56	10,51	22,57	41	66	99	141	253	409	870	1559	2511
4	4,15	12,22	26,21	47	77	115	163	294	474	1007	1805	2906
5	4,66	13,72	29,42	53	86	129	183	329	531	1128	2021	3254
6	5,13	15,08	32,32	58	94	141	201	361	583	1237	2217	3569
7	5,56	16,34	34,99	63	102	153	217	391	630	1338	2397	3858
8	5,96	17,50	37,48	68	109	164	233	418	674	1432	2565	4127
9	6,34	18,60	39,82	72	116	174	247	444	716	1517	2722	4380
10	6,69	19,64	42,03	76	122	184	261	468	755	1603	2871	4620
15	8,25	24,18	51,72	93	150	226	320	575	927	1967	3523	5668
20	9,57	28,02	59,89	108	174	261	371	665	1072	2275	4073	6551
25	10,73	31,40	67,10	121	195	292	415	745	1200	2545	4557	7330
30	11,78	34,46	73,61	132	214	321	455	817	1316	2790	4995	8034
35	12,75	37,27	79,61	143	231	347	492	883	1422	3015	5398	8681
40	13,65	39,89	85,18	153	247	371	526	944	1521	3225	5772	9284
45	14,49	42,35	90,42	163	263	394	558	1002	1614	3413	6124	9850
50	15,29	44,68	95,30	172	277	415	589	1056	1702	3608	6457	10385
55	16,05	46,89	100,09	180	291	435	618	1108	1786	3785	6774	10894
60	16,78	49,01	104,60	188	304	455	646	1158	1865	3954	7077	11380
65	17,48	51,04	108,92	196	316	474	672	1206	1942	4117	7367	11847
70	18,15	52,99	113,08	203	328	492	698	1251	2016	4273	7646	12296
75	18,80	54,87	117,09	211	340	509	722	1296	2087	4423	7916	12729
80	19,42	56,69	120,97	218	351	526	746	1338	2156	4569	8177	13148
85	20,03	58,46	124,73	224	362	542	769	1380	2222	4710	8429	13554
90	20,62	60,17	128,38	231	373	558	792	1420	2287	4848	8674	13949
95	21,19	61,84	131,93	237	383	574	814	1459	2350	4981	8913	14332
100	21,75	63,47	135,39	243	393	589	835	1497	2412	5111	9154	14706

flow rate in litres per second

DN/ID 100 - 200 mm are rounded to a hundredth litres.

DN/ID 250 - 1200 mm are rounded to whole litres.

The flow rate may vary slightly due to the production.



## PP-GLATT-Pipe 8



SN8

ÖNORM EN  
1852-1  
certified

€/m, with socket and sealing

DN/OD	1 m	2 m	3 m	6 m
110	18,10	16,--	15,40	13,60
160	43,20	35,10	30,20	27,40
200	67,40	54,60	64,80	41,90
250	118,20	91,30	76,70	64,50
315	188,40	143,90	119,40	99,50
400	343,60	258,--	209,90	172,70
500	558,--	416,--	334,--	274,--
630	828,--	625,--	512,--	422,--

Lengths between 0,3 and 16 m available on request.

single-layer solid wall pipe made of  
filler-free polypropylene

## PP-GLATT-Drain 8



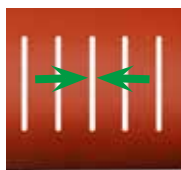
SN8

ÖNORM EN 1852-1  
certified pipe  
perforated

with socket and sealing

DN/OD	perforation	length	€/m
110	1/3, 2/3, 3/3	6 m	15,40
160	1/3, 2/3, 3/3	6 m	30,30
200	1/3, 2/3, 3/3	6 m	45,70
250	1/3, 2/3, 3/3	6 m	70,90
315	1/3, 2/3, 3/3	6 m	109,30
400	1/3, 2/3, 3/3	6 m	188,80
500	1/3, 2/3, 3/3	6 m	302,--
630	1/3, 2/3, 3/3	6 m	463,--

special perforations on request - see page 27



8 mm perforation

DIN 4262-1  
certified

### Our PP-GLATT-Pipe and Drain:

- ✓ complies with the austrian quality requirements for products in urban water engineering (GRIS)
- ✓ complies with the ÖVBB-guidelines of tunnel drainage
- ✓ chain cleaning and high pressure cleaning  
The test of high pressure cleaning was carried out with an increased pressure of 200 bar.  
See page 28 for more information.

Austrian  
quality pipes



high pressure cleaning

## PP-GLATT-Pipe 12



€/m, with socket and sealing

DN/OD	1 m	2 m	3 m	6 m
110	21,90	18,60	16,80	15,--
160	46,80	38,60	33,30	30,40
200	73,70	60,20	51,90	46,80
250	129,10	101,40	86,30	73,70
315	209,20	162,30	136,80	115,20
400	367,90	280,70	232,50	193,80
500	598,--	450,--	369,--	302,--
630	904,--	692,--	574,--	482,--

Lengths between 0,3 and 16 m available on request.



ÖNORM EN  
1852-1  
certified

SN12



single-layer solid wall pipe made of  
filler-free polypropylene

## PP-GLATT-Drain 12



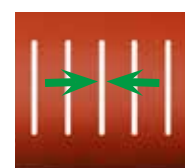
with socket and sealing

DN/OD	perforation	length	€/m
110	1/3, 2/3, 3/3	6 m	16,50
160	1/3, 2/3, 3/3	6 m	33,--
200	1/3, 2/3, 3/3	6 m	51,--
250	1/3, 2/3, 3/3	6 m	80,10
315	1/3, 2/3, 3/3	6 m	126,60
400	1/3, 2/3, 3/3	6 m	211,40
500	1/3, 2/3, 3/3	6 m	333,--
630	1/3, 2/3, 3/3	6 m	527,--

special perforations on request - see page 27

ÖNORM EN 1852-1  
certified pipe  
perforated

SN12



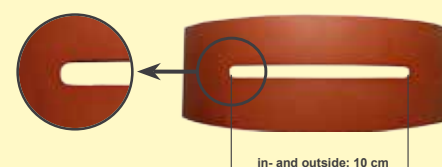
8 mm perforation

DIN 4262-1  
certified

## Advantages of 8 mm perforation

- The slots **can not block up/sinter** as easily
- square, **rounded perforation ends**
- The best cleaning will be achieved at a **slot width from 8 mm**, which is perforated at PP-GLATT-Drain by default.
- Cleaning with **chain spinning head and high pressure** will achieve the best results at a drainage from 8 mm wide slots.

new technology:  
perforation with a rod milling cutter-  
(square, rounded perforation ends)



# PP-GLATT-Pipe 16



SN16

ÖNORM EN  
1852-1  
certified



single-layer solid wall pipe made of  
filler-free polypropylene

€/m, with socket and sealing

DN/OD	1 m	2 m	3 m	6 m
110	24,30	20,60	18,--	17,20
160	51,60	42,90	37,40	33,90
200	80,70	66,90	58,30	53,20
250	138,80	110,--	94,20	81,50
315	226,20	177,20	151,--	128,50
400	387,20	297,70	248,40	208,20
500	638,--	487,--	403,--	334,--
630	950,--	732,--	615,--	516,--

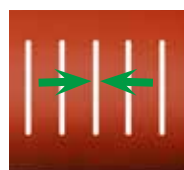
Lengths between 0,3 and 16 m available on request..

# PP-GLATT-Drain 16



SN16

ÖNORM EN 1852-1  
certified pipe  
perforated



8 mm perforation

DIN 4262-1  
certified

with socket and sealing

DN/OD	perforation	length	€/m
110	1/3, 2/3, 3/3	6 m	18,80
160	1/3, 2/3, 3/3	6 m	36,60
200	1/3, 2/3, 3/3	6 m	56,--
250	1/3, 2/3, 3/3	6 m	88,60
315	1/3, 2/3, 3/3	6 m	141,10
400	1/3, 2/3, 3/3	6 m	227,30
500	1/3, 2/3, 3/3	6 m	369,--
630	1/3, 2/3, 3/3	6 m	568,--

special perforations on request - see page 27

tunnel construction  
PP-GLATT-Drain 16



station construction  
PP-GLATT-Pipe 8



highway construction  
PP-GLATT-Rohr 16



tunnel construction  
PP-GLATT-Pipe with  
electrofusion  
couplings





# PP-GLATT-Pipe

## Hydraulic behaviour

The PP-GLATT-Pipe has, due to its very smooth and pore-free inner surface, a roughness of about 0,007 mm.

The flow rate for the PP-GLATT-Pipe is calculated at an assumed roughness of 0,25 mm.

The calculation was based on a PP-GLATT-Pipe SN 12.

DN	110	160	200	250	315	400	500	630
‰	l/s	l/s	l/s	l/s	l/s	l/s	l/s	l/s
1	2,0	5,6	10,2	18	34	64	116	217
2	2,9	8,1	14,7	26	49	92	165	310
3	3,7	10,0	18,1	33	60	113	204	381
4	4,2	11,6	21,1	38	70	131	236	442
5	4,8	13,0	23,7	42	78	147	265	495
6	5,3	14,3	26,0	46	86	162	290	543
7	5,7	15,5	28,1	50	93	175	314	588
8	6,1	16,6	30,2	54	99	187	336	629
9	6,5	17,7	32,0	57	106	199	357	667
10	6,9	18,6	33,8	60	111	210	377	704
15	8,5	23,0	41,6	74	137	258	463	865
20	9,8	26,6	48,2	86	158	298	535	1000
25	11,0	29,8	54,0	96	177	334	599	1119
30	12,1	32,7	59,3	106	195	366	657	1227
35	13,1	35,4	64,1	114	210	396	710	1326
40	14,0	37,9	68,6	122	225	423	760	1419
45	14,8	40,2	72,8	130	239	449	806	1505
50	15,7	42,4	76,8	137	252	474	850	1587
55	16,4	44,5	80,6	144	264	497	892	1665
60	17,2	46,5	84,2	150	276	519	932	1740
65	17,9	48,5	87,7	156	288	541	970	1811
70	18,6	50,3	91,0	162	299	561	1007	1880
75	19,2	52,1	94,3	168	309	581	1043	1946
80	19,9	53,8	97,4	174	319	600	1077	2011
85	20,5	55,5	100,4	179	329	619	1111	2073
90	21,1	57,2	103,4	184	339	637	1143	2133
95	21,7	58,7	106,2	189	348	655	1175	2192
100	22,3	60,3	109,0	194	357	672	1205	2249

DN/OD 110 - 200 mm are rounded to a hundredth litres.

DN/OD 250 - 630 mm are rounded to whole litres.

The flow rate may vary slightly due to the different wall thickness of SN8, SN12 und SN16.

# PP-GLATT-Fittings SN16







## PP-GLATT-Injection moulded bends

DN/OD	bend 15°	bend 30°	bend 45°	bend 90°
				
110	24,40	25,70	26,40	-
160	50,70	54,50	58,90	63,20
200	78,20	83,--	87,80	91,70
250	178,40	187,60	201,10	209,30
315	279,50	293,--	315,20	328,80

**ÖNORM EN  
1852-1  
certified**

## PP-GLATT-Bends handmade

DN/OD	bend 15°	bend 30°	bend 45°	bend 90°
				
400	1.054,30	1.105,80	1.497,60	2.110,10
500	1.980,--	2.083,--	3.298,--	3.832,--
630	2.638,--	2.678,--	4.669,--	5.708,--

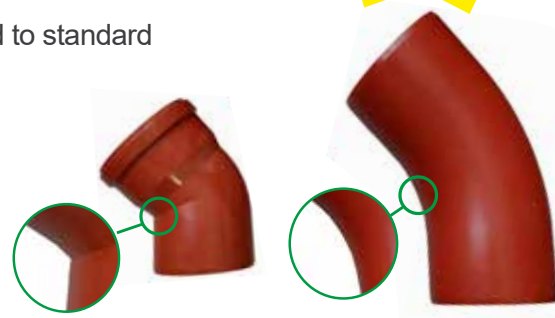
handmade bends with special degrees are available on request!

## PP-GLATT-long drawn bends

DN/OD 200 and DN/OD 250; 11°, 22°, 30° and 45°;  $R = 1,5 \times d$

- ✓ better flow properties due to evenly long drawn bends compared to standard bends with internal kink (see picture comparison)
- ✓ patency of the bends for chain spinning cleaning or high-pressure cleaning
- ✓ long drawn bends are an ideal extension of the options of our wide-ranging PP-GLATT system.
- ✓ due to the injection moulding process, our long drawn bends have an even wall thickness.

PP-GLATT-long drawn bends on request



Standard bend      long drawn bend  
comparison: 45° bend

## Electrofusion sockets

DN/OD 110 - 500

PP-GLATT pipes can be connected with electrofusion sockets in order to guarantee a higher tensile strength in particularly loaded areas.

Electrofusion sockets on request



## PP-GLATT-Branches 45° und 90°



injection moulded  
branch 45°



handmade  
branch 45°



reduced plugged injection  
moulded branch 45°



plugged injection  
moulded branch 90°



handmade  
branch 90°

DN/OD	branch 45°	DN/OD	branch 45°	DN/OD	branch 45°	DN/OD	branch 45°
110/110	37,10	250/160 <sup>1)</sup>	265,80	315/315	935,30	500/110-315	auf Anfrage
160/110 <sup>1)</sup>	97,80	250/200	265,80	400/110	1.239,60	500/400	3.719,--
160/160	97,80	250/250	597,10	400/160	1.239,60	500/500	4.329,--
200/110 <sup>1)</sup>	182,90	315/110 <sup>1)</sup>	315,20	400/200	1.278,40	630/110-315	auf Anfrage
200/160 <sup>1)</sup>	182,90	315/160	315,20	400/250	1.587,80	630/400	3.250,--
200/200	182,90	315/200	367,10	400/315	1.861,90	630/500	4.127,--
250/110 <sup>1)</sup>	265,80	315/250	685,90	400/400	2.754,80	630/630	5.638,--

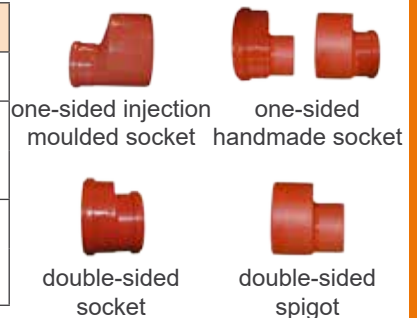
90° branch on request

## Reductions

Reductions with socket or spigot of the same size are the same price.

DN/OD	€/pc.	DN/OD	€/pc.	DN/OD	€/pc.
160/110	81,80 <sup>2)</sup>	315/160	594,80	400/315	888,40
200/110	81,80 <sup>2)</sup>	315/200	572,50	500/110 - 315	on request
200/160	81,80 <sup>2)</sup>	315/250	591,80	500/400	1.558,--
250/110	243,80	400/110	777,10	630/110 - 400	on request
250/160	254,90	400/160	799,80	630/500	2.329,--
250/200	264,70	400/200	819,10		
315/110	532,20	400/250	861,--		

<sup>2)</sup> reductions with one-sided socket as injection moulded fittings



## PP-GLATT-sockets and other fittings

DN/OD	connection socket	double socket	shaft socket	socket plug	end cap	adapter to PP-MEGA
110	23,10	24,90	11,60	6,40	42,--	11,--
160	45,60	48,--	22,90	11,--	82,10	17,60
200	79,70	84,70	40,10	48,40	186,10	52,20
250	169,60	178,10	85,--	102,10	271,70	66,20
315	246,70	259,30	123,20	188,80	454,70	118,30
400	409,80	430,20	205,10	343,60	640,10	224,30
500	746,--	784,--	375,--	745,--	1.318,--	411,--
630	1.119,--	1.175,--	560,--	1.065,--	1.875,--	839,--

The PP-GLATT-Cleaning Pipe is available on request!

colour marking:

injection moulded fittings SN16

handmade fittings SN16



## Custom-made products

All injection moulded- as well as all handmade fittings are produced in our manufacture in Waizenkirchen (Upper Austria).

For hand-made branches, bends, reductions, end caps and such, the pipe type, SN class, length and number of segments, as well as the angulation and position of the branches are freely selectable.

For a non-binding offer we only need a hands sketch or a plan.

**individually  
made**

### Special fittings



Special branch  
with several branches



PP-GLATT-Pipe with  
weld-on plate



adapter bends to  
PP-MEGA-Pipe

### Manholes



PP-GLATT-Manhole with  
several connections



special manhole



PP-GLATT-Manhole  
with internal sockets



PP-GLATT-Schacht  
mit Überlauf

### Flushing manholes for tunnel construction

These flushing manholes are used for tunnel construction. They were fabricated exactly according to the planner's sketches or technical drawings.



tunnel flushing manhole with  
channel and 9 connections



tunnel flushing manhole with  
surrounding plates



channel for flushing manhole



PP-GLATT-Manhole trough with  
grid for better connection with  
concrete



PP-GLATT-Manhole trough with  
ventilation holes

# Perforations and custom-made products

In our fully automatic slotting system, the milling work is carried out with the aid of a CNC-controlled 6-axis robot (from ABB) with a rod milling cutter.

## Standard perforations for PP-GLATT-Drain



multifunctional pipe  
1/3 perforation



partial drainage pipe  
2/3 perforation



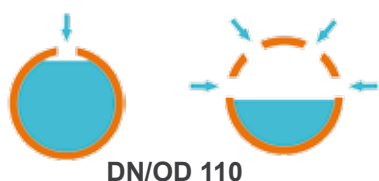
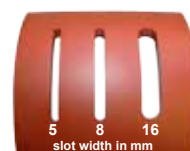
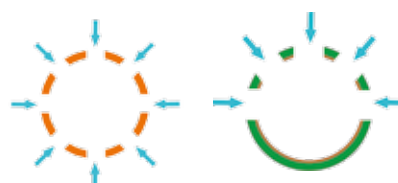
full drainage pipe  
3/3 perforation



## Individually special perforation

Special perforation is possible with all our pipes, following points are freely selectable:

- number of slot rows and their distribution over the pipe circumference
- different slot widths and slot lengths
- distance between slots
- shape of the slots (round hole, oval, oblong hole)
- size of the water inlet area



to



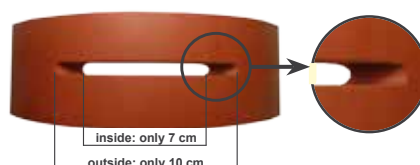
examples for  
special  
perforations

## Quality comparison

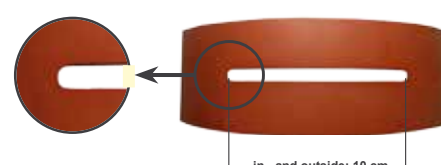
In the case of slots with a saw blade, an incline is created at the ends of the slots, which makes it easier for deposits to accumulate.

Thanks to our new machining centre, round slit ends are milled at right angles to the pipe, which makes the water run off more easily and provides less support for deposits.

conventional:  
Schlitzung mit Sägeblatt  
(bevelled slot ends)



new technology:  
perforation with a milling cutter  
(rectangular rounded slot ends)



## Cuts

For our PP-GLATT-Pipe DN/OD 110-630 mm or PP-MEGA-Pipe DN/ID 100-1200 mm, any type of cut can be milled.



various bevel cuts

# Cleaning of PP-GLATT-Pipe and -Drain

In the case of heavily stressed drainage systems, especially in the case of sintering in tunnel construction, but also in the case of drainage systems with heavy silting, the cleaning of the smooth inner surface and the slit is an important factor for a well-functioning drainage system.

The PP-GLATT-Pipe and PP-GLATT-Drain with connection socket have been tested for durability to chain spinning and high-pressure cleaning.

These two tests were carried out on the basis of the test parameters of the **ÖVBB guidelines "Tunnel drainage."**

## Chain spin cleaning

Cleaning with a chain spinner head was carried out on a PP-GLATT-Drain with connection socket.

After 50 cycles, the chain centrifuge and the steel link chain were subjected to a stationary load in the area of the socket connection and a pipe section of at least 2 minutes each.



### Part of the test parameters:

test pressure	120 bar
number of chains	3
Characteristics of the chains	Eleven-membered steel link chain made of round steel (5,6 mm) attached to loop on both sides stretched length: 210 mm



chain spin cleaning

## High pressure cleaning

The high-pressure cleaning was carried out on a PP-GLATT-Drain with connection socket. The test was carried out at an increased pressure of 200 bar instead of the specified 120 bar.

### Part of the test parameters:

test pressure at the nozzle	200 bar
nozzle diameter	2,8 mm
nozzle jet angle	5°
nozzle position to inner pipe wall	30°
nozzle distance to inner pipe wall	10 mm



high pressure cleaning

You can find more detailed test parameters for chain spin cleaning and high-pressure cleaning on the Internet at [www.bauernfeind.at](http://www.bauernfeind.at)



# Geotextiles

## Non-wovens 105 - 2.000 g/m<sup>2</sup>

### for separating and filtering, polypropylene

The geotextile is made of 100% tensile PP fibres and meets all geotechnical requirements.

It is used to separate the ballast layer from the topsoil or for the production of a filter. Geotextiles are also able to improve the bearing capacity of the soil layer.



g/m <sup>2</sup>	size	€/m <sup>2</sup>
120	1 x 50 m	1,10
120	4 x 100 m	0,98
160	2 x 100 m	1,21
160	4 x 100 m	1,21
200	4 x 100 m	1,39
250	4 x 100 m	1,85
300	5 x 100 m	2,07

500 and 900 g/m<sup>2</sup> for tunnel construction

15 - 2000 g/m<sup>2</sup> on request

**CE-  
conform**

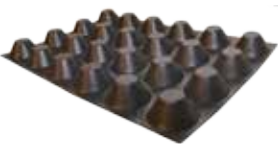


# MEGA-Dimpled sheets

Available are dimple heights of 8, 10, 20 and 40 mm as well as special shapes laminated with non-woven or grid. Also available are special products with special chemical compositions for an extended service life, especially in tunnel construction.

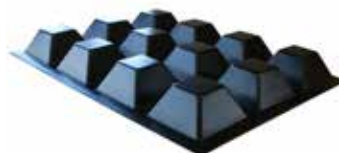
## dimpled sheet

height of dimples  
8 - 20 mm



## dimpled sheet for tunnels and roofs

40 mm height of dimples



# Cable conduits

## PVC cable conduit pipe



with plug-in socket



mit long socket

## PE cable conduit with smooth surface



## LD-PE cable conduit pipe



## PE cable conduit pipe or hose corrugated

available with 450 N or reinforced with 750 N

## split PP protection pipe



## Reference projects

### Construction site ARGE ÖBB Wernstein railway station

Our PP-MEGA-Drain SN8 and SN12 as well as PP-GLATT pipes in diameters 150 – 630 mm are used on the construction site ARGE ÖBB railway station Wernstein. The conversion of Wernstein railway station is the last construction lot on the railway line Wels - Passau.

Our pipe systems were installed on almost the entire railway line.



*Pictures: ARGE Swietelsky - Felbermayr*

### Hall building TCG

For the new building of the hall of TCG plant 4 in Rohr im Kremstal, company Bauernfeind delivered the whole drainage pipes, both inside and outside the hall.

PP-MEGA-pipes and PVC-pipes with a diameter of 150 - 600 mm were used.



*Pictures: ARGE TCG plant 4*

### Project flood defence Zeller Becken

The flood defence Zeller Becken is a century-project of the province of Salzburg. In Bruck and Zell am See about 4700 inhabitants and 700 buildings are protected. In total, the river Salzach will be broadened by about 20 metres to a length of 3.5 km between Bruck an der Glocknerstraße and Kaprun, and the embankments will also be flattened. This will create 6.35 hectares of new water areas and a new local recreation area. For the hinterland drainage, PP-MEGA pipes up to a diameter of 1200mm were used. Due to the poor sub-surface, most of which is peat, the construction management also opted for the Bauernfeind plastic manholes. The main advantage of these plastic manholes is their low weight and the resulting ease of handling. For concrete manholes, a concrete slab with piles would have been necessary to prevent settlement.

Due to the easy handling of the pipes and shafts, the solution with plastic is absolutely economical.



*pictures: flood defence province Salzburg*



## Semmering Basistunnel

As part of ÖBB's new southern route, the Semmering-Basistunnel provides a fast and safe connection between Lower Austria and Styria. From 2026 it connects the lower Austrian Gloggnitz with styrian Mürzzuschlag. This relieves the burden of the historic Semmeringbahn and brings passengers even faster to their destination. In addition, freight transport on this route is becoming more attractive: even heavy trains can pass through the tunnel with a locomotive. Tunnel length: 2 tubes of 27km each. We supply the construction SBT 1.1 Gloggnitz Tunnel with our PP-GLATT pipe system, shafts and custom-made fittings.

In order to guarantee a higher tensile strength in particularly stressed areas, our PP-GLATT pipes were connected with electrofusion sockets in these areas.



Pictures: ARGE SBT 1.1 Tunnel Gloggnitz

## Tunnelkette Granitztal

The TK Granitztal is part of the Koralmbahn, which will reduce the journey time from Graz to Klagenfurt to 45 minutes. The tunnel chain has a total length of 6.1 km and will be constructed with two tubes.

This is the first time that the MDB drainage maintenance system has been installed in a tunnel. This will make it possible in future to inspect and clean the drainage pipes without having to close the tunnel. Company Bauernfeind supplied special manhole systems and bends for this purpose and thus made a major contribution to putting the MDB system into practice.



Pictures: ARGE Tunnelkette Granitztal

For this "Modulare Drainagespülsystem-Bahn" (MDB) developed by ÖBB Infrastruktur AG - more efficiency in the maintenance of railway tunnels - the project managers of the ÖBB infrastructure received the

**1. price**

**tunnel operation in the context of the innovation price tunnel day 2018**

We have contributed to make the project a reality and this award shows that ideas can be realized with company Bauernfeind.



Pictures: ÖBB -Infrastruktur AG

Furthermore, various electrical cables run through the tunnels. Together with construction company Implenia, a spacer system was implemented that enables fast and precise installation. In addition, this system contributes to increased fire safety, as the distances between the individual pipes could be selected larger by CNC milled parts than would have been possible with commercially available spacers.





## MEGA-cable duct

with sealing system



4 way



6 way



9 way

**NEW**



### loadable

extremely resistant to pressure loads, thus also reducing the amount of overfilling is possible



### compact

the required tilt is much smaller compared to cable packages



### time saving

by simply pushing them together, long cable strands can be laid in no time



### low weight

the injection moulded parts made of HDPE are easy to handle due to their overall length of 1 m



6 cable ducts in 1 piece  
(per duct Ø 100 mm)

### load comparison:

conventional  
cable protection pipe



SN 8

0,8  
t/m²\*

### MEGA-cable duct



19  
t/m²\*

SN 190

\*applied load at which the pipe or conduit deforms by 3%.



MEGA-cable duct with  
with connecting elements and stand

## Cablepipe packages

- pre-assembled or for self-assembly
- individual solution for complicated installation situations
- different pipe types and diameters can be combined with each other
- plates can also be used for separating- or block joints



**individually  
made**



## Spacers

DN 75 and DN 110

5 cm spacing between the cable conduits

- simplifies concreting and filling
- increases fire safety
- suitable for smooth-walled and corrugated pipes



**5 cm  
spacing**