

ANEXA 1

Utilajul, echipamentul tehnologic: **FITINGURI FONTA**

Nr. crt.	Specificatii tehnice impuse prin Caietul de sarcini	Corespondenta propunerii tehnice cu specificatiile tehnice impuse prin Caietul de sarcini	Producator
0	1	2	3
1	<p>Parametrii tehnici si functionali: Utilizare generala: apa, apa uzata, tratarea apei, industria de productie a hartiei, industria chimica.</p> <ul style="list-style-type: none"> - DN 50-80: minim 10 bar Temperatura maxima: -10°C / +80°C (etansare standard). 	<p>Parametrii tehnici si functionali: Utilizare generala: apa, apa uzata, tratarea apei, industria de productie ahartiei, industria chimica.</p> <ul style="list-style-type: none"> - DN 50-80: minim 10 bar Temperatura maxima: -10°C / +80°C (etansare standard). 	
2	<p>Specificatii de performanta si conditii privind siguranta in exploatare:</p> <ul style="list-style-type: none"> - Respectarea conditiilor de temperatura: -10 ÷ 80°C; - Amplasare: retea distributie apa potabila; - Lichid de lucru: apa potabila; <p>Montarea se va face conform instructiunilor de montare date de producator.</p>	<p>Specificatii de performanta si conditii privind siguranta in exploatare:</p> <ul style="list-style-type: none"> - Respectarea conditiilor de temperatura: -10 ÷ 80°C; - Amplasare: retea distributie apa potabila; - Lichid de lucru: apa potabila; <p>Montarea se va face conform instructiunilor de montare date deproducator.</p>	
3	<p>Conditii privind conformitatea cu standardele relevante:</p> <ul style="list-style-type: none"> - Certificari obligatorii: ISO 9001 / ISO 14001 / ISO 45001 / ISO 50001 - Certificat obligatoriu DVGW; KIWA sau WRAS; - Aviz potabilitate; - Certificare GSK vopsire epoxy; - Vopsire epoxy in acord cu EN 14901; - Marcaj CE: - Flanse conform EN 1092-2:1999; - Executie conform EN 545:2006; - Certificari obligatorii: Aviz Tehnic si Evaluare tehnica emise de autoritatile din Republica Moldova; Certificare obligatorie: Aviz Sanitar emis de autoritatile din Republica Moldova. 	<p>Conditii privind conformitatea cu standardele relevante:</p> <ul style="list-style-type: none"> - Certificari obligatorii: ISO 9001 / ISO 14001 / ISO 45001 / ISO 50001 - Certificat obligatoriu DVGW; KIWA sau WRAS; - Aviz potabilitate; - Certificare GSK vopsire epoxy; - Vopsire epoxy in acord cu EN 14901; - Marcaj CE: - Flanse conform EN 1092-2:1999; - Executie conform EN 545:2006; - Certificari obligatorii: Aviz Tehnic si Evaluare tehnica emise deautoritatile din Republica Moldova; Certificare obligatorie: Aviz Sanitar emis de autoritatile din RepublicaMoldova. 	<p>VonRoll Hydro - Keulahuette (Deutschland) GmbH & co kg , Germany</p>

4	Conditii de garantie si post-garantie: <ul style="list-style-type: none"> - Minim 24 luni de la livrare; - Furnizorul va asigura service in perioada de garantie; - Furnizorul va asigura piese de schimb pe baza de comanda in perioada post- garantie. 	Conditii de garantie si post-garantie: <ul style="list-style-type: none"> - Minim 24 luni de la livrare; - Furnizorul va asigura service in perioada de garantie; - Furnizorul va asigura piese de schimb pe baza de comanda in perioada post- garantie. 	
5	Alte conditii cu caracter tehnic: <ul style="list-style-type: none"> - Fonta ductila GJS 500-7 EN 1563:2000; Vopsea epoxidica RAL5005 minim 250 µm*. 	Alte conditii cu caracter tehnic: <ul style="list-style-type: none"> - Fonta ductila GJS 500-7 EN 1563:2000;Vopsea epoxidica RAL5005 minim 250 µm*. 	

Annex 1

MANUFACTURER'S AUTHORIZATION

Date: 22.07.2021

Tender Reference:

*“Construcția sondei arteziene și a rețelelor de alimentare cu apă din s.Cajba, r-nul Glodeni /
Construction of an artesian well and water supply network in Cajba village, Glodeni district”*

Reference number: **45200000-9**

To: **Primăria s. Cajba, r-nul Glodeni, Republica Moldova /**

Town Hall Cajba village, Glodeni district, Republic of Moldova

We, **VonRoll hydro (Deutschland) GmbH & co kg**, based in Germany, 35576 Wetzlar, Sophienstraße 52-54 legally represented by its directors Mr. Stefan Neuhorn & Mr. Friedrich Greiser, having production facilities in Germany, 35576 Wetzlar, Sophienstraße 52-54, as manufacturer of:

- DUCTILE CAST IRON FITTINGS & MOUNTINGS ACCESSORIES
- DUCTILE CAST IRON VALVES & ACCESSORIES
- UNDERGROUND AND STANDPOST HYDRANTS & ACCESSORIES
- SURFACE BOXES (COVERS) FOR VALVES & HYDRANTS

we do authorize **ATTRACTIV INVEST LTD** , with the headquarters in R. Moldova MD-2075 Mun. Chișinău, blvd. Mircea cel Bătrîn 39, of.470 , to submit a complete offer which purpose is the supply of the above-mentioned products.

vonRoll hydro's main focus is the needs and requirements of its customers on the national and international market.

vonRoll hydro offers an extensive range of services to guarantee the maintenance of drinking water and gas supply systems.

In doing so, **vonRoll hydro** supports the entire life cycle of the infrastructure, from installation to maintenance to replacement. Its core competencies are leak detection, valve and hydrant inspections and revisions. Customer proximity, many years of experience and identification of market trends flow into the development of new products and services. This guarantees that vonRoll hydro is the ideal partner for forward-looking utilities and waste disposal companies.

We supply customers all over the world with pipe and blocking systems, hydrants, access covers and systems for constant leak detection and monitoring of water quality. We support engineers and builders during project development and help service organisations with maintenance.

Our products and services are used wherever the safe and economic supply of water and gas or the disposal of service water are concerned.

We also agree that **ATTRACTIV INVEST LTD** shall submit to this tender the technical documentation, the sanitary certifications and approvals, the specific technical approvals and approvals to put into operation the products mentioned above.

Signed by:



Mr Stefan Neuhorn

CSO



Mr Friedrich Greiser

CEO

Stamp  vonRoll hydro (deutschland)
gmbh & co kg
Sophienstraße 52-54
35576 Wetzlar



HYDRO

Product programme



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCTIA SONDEI ARTEZIENE SI RETELELOR DE
ALIMENTARE CU APA DIN SATUL CAJBA,
RAIONUL GLODENI,
REPUBLICA MOLDOVA"

MADE BY KEULAHUETTE



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCTIA SONDEI ARTEZIENE SI RETELELOR DE
ALIMENTARE CU APA DIN SATUL CAJBA,
RAIONUL GLODENI, REPUBLICA MOLDOVA"



HYDRO

Pressure pipe fittings



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCTIA SONDEI ARTEZIENE SI RETELELOR DE
ALIMENTARE CU APA DIN SATUL CAJBA,
RAIONUL GLODENI, REPUBLICA MOLDOVA"

2000001

DN150
100



HYDRO

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCTIA SONDEI ARTEZIENE SI RETELELOR DE
ALIMENTARE CU APA DIN SATUL CAJBA,
RAIONUL GLODENI, REPUBLICA MOLDOVA"

FGR 10 pressure pipe fittings



Made of ductile cast iron (SGCI)



Introduction

Keulahütte GmbH in Krauschwitz manufactures certified pressure pipe fittings made of ductile cast iron to be used in pipelines of various materials. The fittings, which are available in nominal sizes ranging between DN 40 and DN 1000, or DN 1200 on request, satisfy highest demands as regards quality and corrosion protection. Fittings which are powder coated with epoxy resin can for example be laid in any soil class.

All fittings can also be supplied with anti-thrust joints on request.

The entire production process is subject to strict quality assurance accompanied by continuous third-party supervision. The trademark FGR 10 and our membership in the Gütegemeinschaft Schwerer Korrosionsschutz (GSK; Heavy-Duty Corrosion Protection Quality Control Association) assure customers to get high-quality products that are made to last many decades.

Our fittings which are certified according to GW 337 by DVGW (German Technical and Scientific Association for Gas and Water) are specially designed for use in drinking water and gas pipelines.

Keulahütte also provides CE-certified fittings for waste water pipelines. Compliance with quality requirements is monitored by MPA Dortmund.

Fittings with the specified coating options are approved for use in drinking water pipelines under hygienic and bacteriological aspects.

FGR 10 pressure pipe fittings



	Type	Pictogram	DN
Flanged sockets	EU		80–1200
Flanged spigots	F		40–1200
Double-flanged pressure pipes	FFG		40–1200
Double-flanged bends	FFK 11°		40–1200
	FFK 22°		40–1200
	FFK 30°		40–1200
	FFK 45°		40–1200
	Q		40–1200
Double-flanged tapers	FFR		50–1200
Socket bends	MK 11°		80– 200
	MK 22°		80– 200
	MK 30°		80– 200
	MK 45°		80– 200
	MQ		80– 200
Double-socket tees with flanged branch	MMA		50–1200
Double-socket tees with socket branch	MMB		80– 300
Double-socket bends	MMK 11°		40–1200
	MMK 22°		40–1200
	MMK 30°		40–1200
	MMK 45°		40–1200
	MQ		40– 600
Double-socket tapers	MMR		50– 600
Double-flanged duckfoot bends	N		40– 600
Duckfoot bends	EN		80– 100
All-flanged tees	T		40–1200
All-flanged cross pieces	TT		80– 400
Double-socket pipe with Tyton slip-in socket	MM		200– 600
Collars	U		80– 600
Blank flanges	X		40–1200
Reducing flanges	XR		80– 400

Pressure pipe fittings



	Type	Pictogram	DN
Flange weld-on pieces for PE pipes	G-PEF		80–200
Flanged sockets	E-KS		80–300
Flanged spigots	F-KS		80–300
Double-socket tees with flanged branch	MMA-KS		80–150

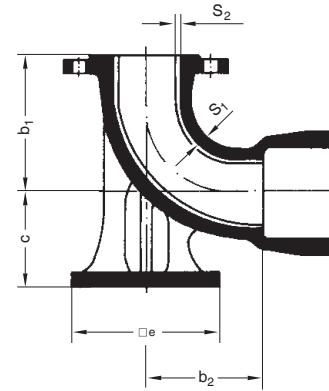
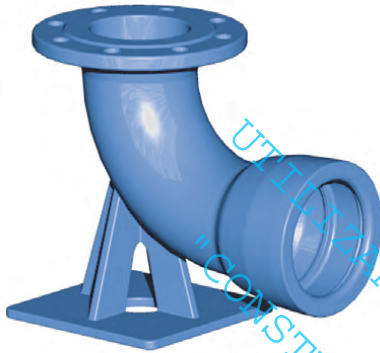
UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCTIA SONDEI ARTEZIENE SI RETELELOR DE
ALIMENTARE CU APA DIN SATUL CAJBA,
RAIONUL GLODENI, REPUBLICA MOLDOVA"

90° duckfoot bend

According to DIN 28650

EN

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	S ₁	S ₂	e	b ₁	b ₂	c	h	PN 10	PN 16	PN 25	PN 40
								TYT	TYT	TYT	TYT
80	7.0	3.5	180	165	145	110	≤ 16	13.2	13.3	13.3*	13.3*
100	7.2	3.5	200	180	158	125		17.0	17.0	17.5*	17.5*

* On request

S₁ Wall thickness of the castingS₂ Thickness of the cement mortar lining**Surface protection:**

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

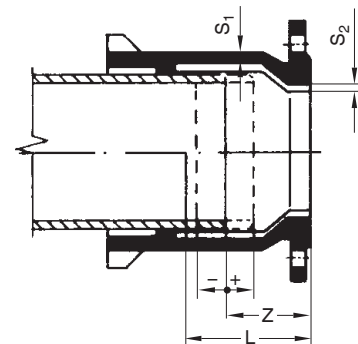
TYT – Tyton® socket according to DIN 28603

Collar-type flanged socket

According to DIN EN 545

EU

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				-/+	Weight of the casting in kg ≈					
	S ₁	S ₂	L	Z		PN 10 TYT	PN 16 TYT	PN 10 SMU	PN 16 SMU	PN 10 STB	PN 16 STB
80	7.0	4.0	130	86		7.5	7.5	7.8	7.8		
100	7.2	4.0	130	87		9.1	9.1	9.4	9.4		
125	7.5	4.0	135	91		11.4	11.4	11.5	11.5		
150	7.8	4.0	135	92		15.3	15.3	15.8	15.8		
200	8.4	4.0	140	97		19.8	19.8	20.5	20.5		
250	9.0	4.0	145	102		29.2	29.2	30.0	30.0		
300	9.6	4.0	150	107		36.5	36.0	37.5	37.5		
350	10.2	5.0	155	112	±40	43.0	46.0				
400	10.8	5.0	160	117		52.1	57.1	56.0	61.0		
500	12.0	5.0	170	127		74.8	89.8			78.5	93.0
600	13.2	5.0	180	137		104.1	128.1			108.0	135.1
700	14.4	6.0	190	147		140.2	154.2				
800	15.6	6.0	200	157		189.2	208.2				
900*	16.8	6.0	210	167		257.2	280.2				
1000	18.0	6.0	220	177		317.1	348.1				
1200*	20.4	6.0	240	197		437.6	499.6				

* On request

Z Standard dimension for installation

-/+ Push-in length difference

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603

SMU – Screw-gland socket according to DIN 28601

STB – Bolted-gland socket

Other pressure levels on request

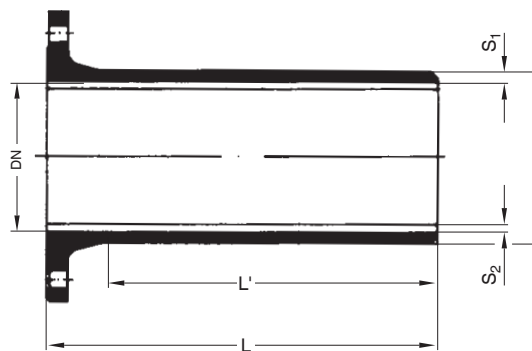
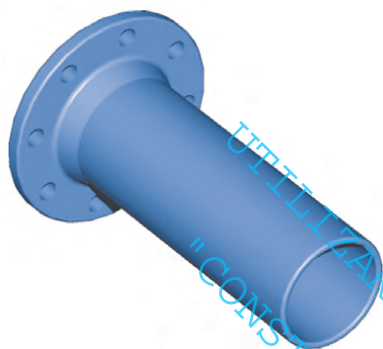


Flanged spigot

According to DIN EN 545

F

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg

DN	L mm	L' mm	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	400	200			6.0	6.0	6.0	6.0
50*	400	200			7.7	7.5	7.5	7.5
65*	400	200			9.5	9.5	9.5	9.5
80	350	215	7.0	4.0	7.8	7.8	7.8	7.8
100	360	215	7.2	4.0	9.7	9.7	10.2*	10.2*
125	370	220	7.5	4.0	12.5	12.5	13.0*	14.5*
150	380	225	7.8	4.0	15.8	15.8	16.8	18.8
200	400	230	8.4	4.0	22.8	22.8	24.8	30.3
250	420	240	9.0	4.0	32.8	31.8	35.8*	45.8*
300	440	250	9.6	4.0	43.2	42.7	47.7*	63.2*
350	460	260	10.8	5.0	52.3	55.3	64.3*	85.3*
400	480	270	10.2	5.0	64.3	70.3	81.3	115.3*
500	520	290	12.0	5.0	93.9	108.9	120.9*	153.9*
600	560	310	13.2	5.0	133.3	159.3	173.3	226.3
700	600	330	14.4	6.0	179.4	194.4	228.4*	
800	600	330	15.6	6.0	226.3	245.3	294.3*	
900*	600	330	16.8	6.0	272.2	295.2	356.2	
1000	600	330	18.0	6.0	328.1	369.1	447.1*	
1200*	600	330	20.4	6.0	455.9	519.9	619.9	

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

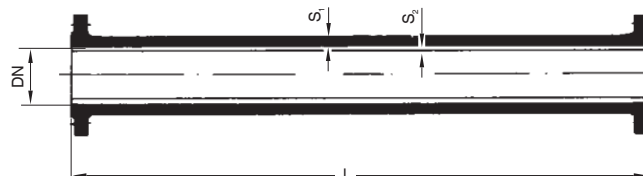
- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

Note: Flanged spigots with customised lengths on request



Pressure pipe

With cast-on flanges
According to DIN EN 545
FFG made of ductile cast iron (SGCI)
Flanges according to DIN EN 1092-2 PN 10



Nominal size DN	Dimensions in mm		Weight in kg of a pipe section with the nominal length (l) in mm												
	S ₁	S ₂	100	150	200	250	300	400	500	600	700	800	900	1000	
40*	7.6	4.0	4.2	4.6	5.0	5.4	5.8	6.6	7.5	8.3	9.0	9.9	10.7	11.5	
50	7.7	4.0	5.2	5.7*	6.2	6.7*	7.2	8.2	9.2	10.2*	11.2*	12.2*	13.1*	14.1*	
65*	7.9	4.0	6.3	7.0	7.6	8.3	8.9	10.2	11.5	12.8	14.1	15.4	16.7	18.0	
80	7.0	4.0	7.0	8.0	8.7	9.4	10.1	11.5	13.0	14.4	15.8	17.3	18.7*	20.1	
100	7.2	4.0	8.4	9.3	10.2	11.1	12.0	13.8	15.6	17.4	19.1	20.9	22.7*	24.5	
125	7.5	4.0	10.2	11.4	12.5	13.6	14.7	16.9	19.2	21.4	23.6	25.9	28.1*	30.3	
150	7.8	4.0	12.6	14.1	15.5	16.9	18.3	21.1	24.0	23.2	29.6	32.5	35.3*	38.1	
200	8.4	4.0	17.6	19.6	21.6	23.6	25.6	29.5	33.5	37.5	41.5	45.5	49.4*	53.4	
250	9.0	4.0	24.5	27.1*	29.8*	32.4*	35.1	40.3*	45.6	50.9*	56.2*	61.5	66.7*	72.0	
300	9.7	4.0	32.8	36.2*	39.6	42.9*	46.3	53.1	59.9	66.6*	73.4*	80.2*	86.9*	93.7	
350*	10.2	5.0			45.6	49.8	53.9	62.2	70.5	78.8	87.1	95.4	103.7	112.0	
400	10.8	5.0			53.0*	58.0*	63.0*	73.0*	83.0	93.0*	103.0*	113.0*	123.0*	133.0	
500	12.0	5.0			71.7*	78.6*	85.6*	99.4*	113.3*	127.1*	141.0*	154.8*	168.7*	182.5	
600	13.2	5.0			98.4*	107.5*	116.6*	134.8*	153.0	171.2	189.4	207.6	225.8*	244.0	
700*	14.4	6.0						150.2	173.2	196.3	219.3	242.4	265.4	288.5	311.5
800	15.6	6.0						195.5*	224.0*	252.5	281.0*	309.5*	338.0*	366.5*	395.0
900*	16.8	6.0						232.7	267.2	301.8	336.3	370.9	405.4	440.0	474.5
1000	18.0	6.0						286.0*	327.0*	368.0	409.0	450.0*	491.0	532.0*	573.0
1200*	20.4	6.0						409.4	465.2	521.0	576.8	632.6	688.4	744.2	800.0

- * On request
- S₁ Wall thickness of the casting
- S₂ Thickness of the cement mortar lining

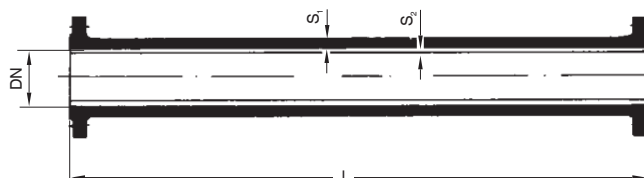
Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

Other lengths on request

Pressure pipe

With cast-on flanges
 According to DIN EN 545
 FFG made of ductile cast iron (SGCI)
 Flanges according to DIN EN 1092-2 PN 16



Nominal size DN	Dimensions in mm		Weight in kg of a pipe section with the nominal length (l) in mm												
	S ₁	S ₂	100	150	200	250	300	400	500	600	700	800	900	1000	
40*	7.6	4.0	4.2	4.6	5.0	5.4	5.8	6.6	7.5	8.3	9.0	9.9	10.7	11.5	
50	7.7	4.0	5.2	5.7*	6.2	6.7*	7.3	8.2	9.2	10.2*	11.2*	12.2*	13.1*	14.1*	
65*	7.9	4.0	6.3	7.0	7.6	8.3	8.9	10.2	11.5	12.8	14.1	15.4	16.7	18.0	
80	7.0	4.0	7.2	8.0	8.7	9.4	10.1	11.5	13.0	14.4	15.8	17.3	18.7*	20.1	
100	7.2	4.0	8.4	9.3	10.2	11.1	12.0	13.8	15.6	17.4	19.1	20.9	22.7*	24.5	
125	7.5	4.0	10.2	11.4	12.5	13.6	14.7	16.9	19.2	21.4	23.6	25.9	28.1*	30.3	
150	7.8	4.0	12.6	14.1	15.5	16.9	18.3	21.1	24.0	23.2	29.6	32.5	35.3*	38.1	
200	8.4	4.0	17.2	19.2	21.2	23.2	25.2	29.1	33.1	37.1	41.1	45.1	49.0*	53.0	
250	9.0	4.0	23.7	26.3*	29.0*	31.6*	34.3	39.5*	44.8	50.1*	55.4*	60.7	65.9*	71.2	
300	9.6	4.0	31.8	35.2*	38.6	41.9*	45.3	52.1	58.9	65.6*	72.4*	79.2*	85.9*	92.7	
350*	10.2	5.0			51.6	55.7	59.9	68.2	76.5	84.8*	95.1	101.4	109.7	118.0	
400	10.8	5.0			64.0*	69.0*	74.0*	84.0*	94.0	104.0*	114.0*	124.0*	134.0*	144.0	
500	12.0	5.0			101.7*	108.6*	115.6*	129.4*	143.3*	157.1*	171.0*	184.8*	198.7*	212.5	
600	13.2	5.0			151.4*	160.5*	169.6*	187.8*	206.0	164.2	242.4	260.6	278.8*	297.0	
700*	14.4	6.0					181.2	204.2	227.3	250.3	273.4	296.4	319.5	342.5	
800	15.6	6.0					233.5*	262.0*	290.5	219.0*	347.5*	376.0*	404.5*	433.0	
900*	16.8	6.0					280.7	315.2	349.9	384.3	418.9	453.4	488.0	522.5	
1000	18.0	6.0					369.0*	410.0*	451.0	492.0	533.0*	574.0	615.0*	656.0	
1200*	20.4	6.0					537.4	593.2	649.0	704.8	760.6	816.4	872.2	928.0	

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

Other pressure levels on request

Other lengths on request

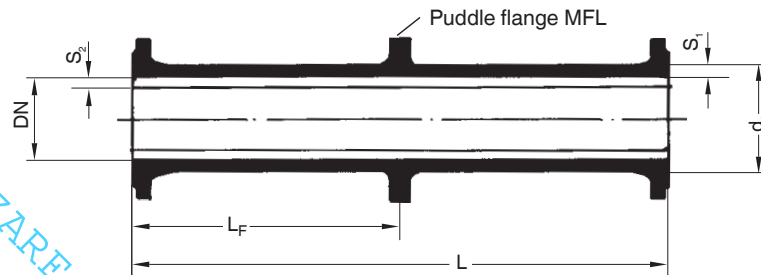
FFG with puddle flange

FGR 10



Pressure pipe

With cast-on flanges and puddle flange
 According to DIN EN 545
 FFG with puddle flange
 Made of ductile cast iron (SGCI)
 Flanges according to DIN EN 1092-2



Nominal size DN	Dimensions in mm		Weight in kg of a pipe section with the nominal length (l) in mm										
	S ₁	S ₂	200	250	300	400	500	600	700	800	900	1000	MFL
40*	7.6	4.0	5.0	5.4	5.8	6.6	7.5	8.3	9.0	9.9	10.7	11.5	0.7
50	7.7	4.0	6.2	6.7*	7.3	8.2	9.2	10.2*	11.2*	12.2*	13.1*	14.1*	0.9
65*	7.9	4.0	7.6	8.3	8.9	10.2	11.5	12.8	14.1	15.4	16.7	18.0	1.0
80	7.0	4.0	8.7	9.4	10.1	11.5	13.0	14.4	15.8	17.3	18.7*	20.1	1.4
100	7.2	4.0	10.2	11.1	12.0	13.8	15.6	17.4	19.1	20.9	22.7*	24.5	1.6
125	7.5	4.0	12.5	13.6	14.7	16.9	19.2	21.4	23.6	25.9	28.1*	30.3	2.3
150	7.8	4.0	15.5	16.9	18.3	21.1	24.0	23.2	29.6	32.5	35.3*	38.1	2.8
200	8.4	4.0	21.2	23.2	25.2	29.1	33.1	37.1	41.1	45.1	49.0*	53.0	4.0
250	9.0	4.0	29.0*	31.6*	34.3	39.5*	44.8	50.1*	55.4*	60.7	65.9*	71.2	5.7
300	9.6	4.0	38.6	41.9*	45.3	52.1	58.9	65.6*	72.4*	79.2*	85.9*	92.7	6.3
350*	10.2	5.0	51.6	55.7	59.9	68.2	76.5	84.8	95.1	101.4	109.7	118.0	8.1
400	10.8	5.0	64.0*	69.0*	74.0*	84.0*	94.0	104.0*	114.0*	124.0*	134.0*	144.0	10.7
500	12.0	5.0	101.7*	108.6*	115.6*	129.4*	143.3*	157.1*	171.0*	184.8*	198.7*	212.5	13.9
600	13.2	5.0	151.4*	160.5*	169.6*	187.8*	206.0	164.2	242.4	260.6	278.8*	297.0	18.2
700*	14.4	6.0			181.2	204.2	227.3	250.3	273.4	296.4	319.5	342.5	26.2
800	15.6	6.0			233.5*	262.0*	290.5	219.0*	347.5*	376.0*	404.5*	433.0	34.7
900*	16.8	6.0			280.7	315.2	349.9	384.3	418.9	453.4	488.0	522.5	41.0
1000	18.0	6.0			369.0*	410.0*	451.0	492.0	533.0*	574.0	615.0*	656.0	51.7
1200*	20.4	6.0			537.4	593.2	649.0	704.8	760.6	816.4	872.2	928.0	77.1

- * On request
- S₁ Wall thickness of the casting
- S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

Fitting dimensions according to DIN 2501
 Specify L and, if necessary, L_F in your order
 Length tolerance ± 10 mm
 Different designs on request

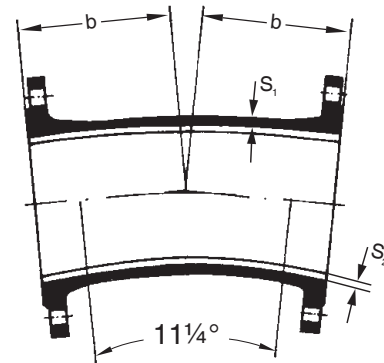
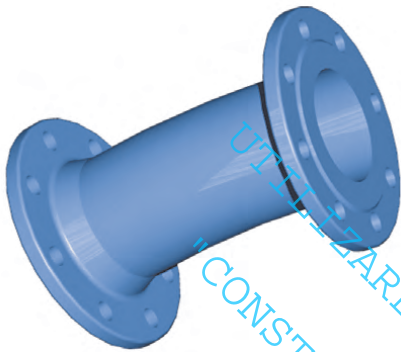
FFK 11



FGR 10



11¼° double-flanged bend
 According to DIN EN 545
 FFK 11¼°
 Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	b	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	140			7.0	6.0	7.0	7.0
50*	150			9.0	9.0	9.0	9.0
65*	165			12.0	12.0	12.0	12.0
80	130	7.0	4.0	9.5	9.5	9.5*	9.5*
100	140	7.2	4.0	11.9	11.9	12.9*	12.9*
125	150	7.5	4.0	15.3	15.3	17.3	20.5
150	160	7.8	4.0	19.0	19.0	21.5*	25.5*
200	180	8.4	4.0	26.0	25.0	29.5	39.0
250	210	9.0	4.0	41.5	41.0	48.0*	65.5*
300	255	9.6	4.0	60.0	59.5	69.5*	96.5*
350*	105	10.2	5.0	56.0	61.5	77.0	
400	113	10.8	5.0	58.0	67.5	90.0	
500	135	12.0	5.0	85.0	113.0	134.0*	
600	174	13.2	5.0	157.0	202.0	223.0*	
700*	194	14.4	6.0	243.0	269.0	299.0	
800	213	15.6	6.0	330.0	366.0	333.0*	
900*	280	16.8	6.0	368.0	363.0	485.0	
1000*	310	18.0	6.0	488.0	482.0	542.0	
1200*	300	20.4	6.0	684.0	774.0		

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

FFK 22



FGR 10

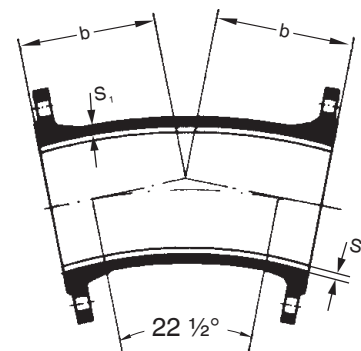


22½° double-flanged bend

According to DIN EN 545

FFK 22½°

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	b	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	140			7.0	7.0	7.0	7.0
50*	150			9.0	9.0	9.0	9.0
65*	165			12.0	12.0	12.0	12.0
80	130	7.0	4.0	9.5	9.5	9.5*	9.5*
100	140	7.5	4.0	11.9	11.9	12.9*	12.9*
125	150	7.5	4.0	15.3	15.3	17.8	20.5
150	160	7.8	4.0	19.7	19.7	21.5*	25.5*
200	180	8.4	4.0	29.0	27.5	32.5	42.0
250	210	9.0	4.0	41.5	41.0	48.0*	65.5*
300	255	9.6	4.0	60.0	59.0	69.5*	96.5*
350*	140	10.2	5.0	58.0	64.0	81.0	
400	153	10.8	5.0	67.0	75.5	98.0	
500	185	12.0	5.0	99.0	127.0	148.0*	
600	254	13.2	5.0	182.0	227.0	248.0*	
700*	284	14.4	6.0	313.0	339.0	334.0	
800*	314	15.6	6.0	428.0	464.0	445.0	
900*	375	16.8	6.0	442.0	437.0	554.0	
1000*	410	18.0	6.0	587.0	581.0	758.0*	
1200*	393	20.4	6.0	785.0	875.0		

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

FFK 30



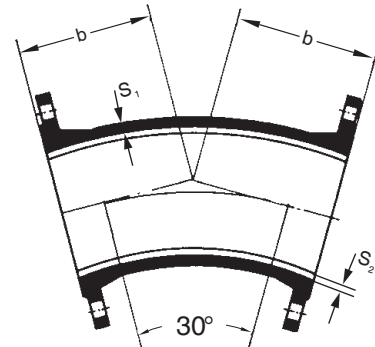
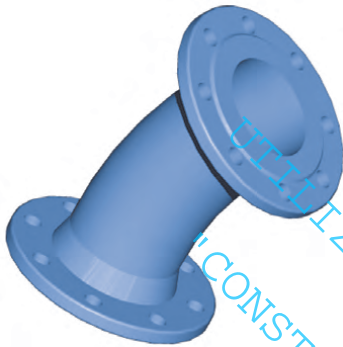
FGR 10



30° double-flanged bend

According to factory standard
FFK 30°

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	b	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	140			7.0	7.0	7.0	7.0
50*	150			9.0	9.0	9.0	9.0
65*	165			12.0	12.0	12.0	12.0
80	130	7.0	4.0	9.5	9.5	9.5*	9.5*
100	140	7.2	4.0	11.9	11.9	12.9*	12.9*
125	150	7.5	4.0	15.3	15.3	17.8*	20.5*
150	160	7.8	4.0	19.5	19.5	19.5*	25.0*
200	180	8.4	4.0	29.0	27.5	32.5	42.0
250	210	9.0	4.0	41.5	40.5	48.0*	65.0*
300	255	9.6	4.0	59.5	59.0	69.0*	96.0*
350*	165	10.2	5.0	65.0	71.0	88.0	
400	183	10.8	5.0	73.0	82.5	106.0	
500	220	12.0	5.0	109.0	137.0	158.0*	
600	309	13.2	5.0	212.0	257.0	278.0*	
700*	346	14.4	6.0	360.0	386.0	430.0	
800	383	15.6	6.0	493.0	529.0	674.0*	
900*	420	16.8	6.0	693.0	741.0	862.0	
1000*	455	18.0	6.0	896.0	979.0	1126.0	
1200*	530	20.4	6.0	1402.0	1531.0		

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

FFK 45



FGR 10

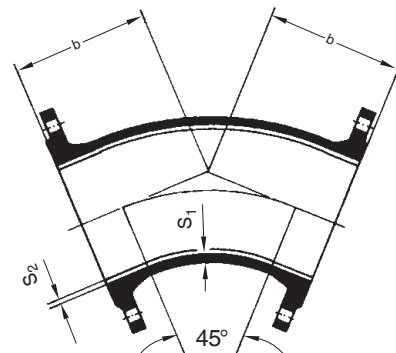


45° double-flanged bend

According to DIN EN 545

FFK 45°

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	b	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	140			7.0	7.0	7.0	7.0
50*	150			9.0	9.0	9.0	9.0
65*	165			12.0	12.0	12.0	12.0
80	130	7.0	4.0	9.2	9.2	9.4*	9.4*
100	140	7.2	4.0	11.3	11.3	12.3	12.3
125	150	7.5	4.0	14.5	14.5	15.7*	18.3*
150	160	7.8	4.0	18.4	18.4	20.5	24.5
200	180	8.4	4.0	27.5	27.0	31.0	41.5
250	350	9.0	4.0	54.5	54.0	61.5*	82.0*
300	400	9.6	4.0	77.2	76.2	87.7*	118.2*
350*	298	10.2	5.0	75.5	82.0	99.0	141.0
400	324	10.8	5.0	94.4	106.4	128.4	196.4*
500	375	12.0	5.0	143.5	173.5	196.5*	264.5*
600	426	13.2	5.0	210.0	263.0	292.0*	397.0*
700*	478	14.4	6.0	292.5	322.5	392.5	
800	529	15.6	6.0	399.5	437.5	535.5*	
900*	581	16.8	6.0	513.0	561.0	682.0	
1000*	632	18.0	6.0	661.0	744.0	899.0	
1200*	735	20.4	6.0	1028.0	1157.0	1356.0	

* On request

S₁ Wall thickness of the casting

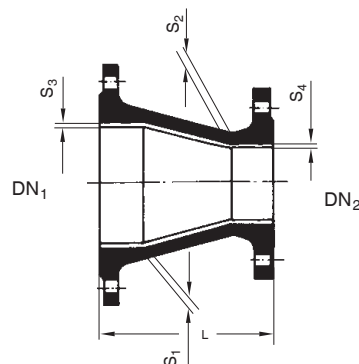
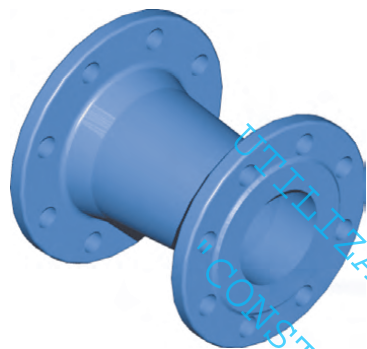
S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request



Double-flanged taper
According to DIN EN 545
FFR
Made of ductile cast iron (SGCI)



Weight of the casting in kg ≈

DN	DN ₂	L mm	S ₁	S ₂	S ₃	S ₄	PN 10	PN 16	PN 25	PN 40
50* **	40	200					7.0	7.0	7.0	7.0
65* **	40	200					8.0	8.0	8.0	8.0
	50	200					9.0	9.0	9.0	9.0
80	40*	200	7.0	7.0	4.0	4.0	6.6	6.7	6.7	6.7
	50	200	7.0	7.0	4.0	4.0	7.2	7.3	7.3	7.3
	65	200	7.0	7.0	4.0	4.0	7.9	8.0	7.9	7.9
100	40*	200	7.2	7.0	4.0	4.0	11.5	11.5	12.1	12.1
	50	200	7.2	7.0	4.0	4.0	8.1	8.1	8.6*	8.6*
	65	200	7.2	7.0	4.0	4.0	8.7	8.7	9.1*	9.1*
	80	200	7.2	7.0	4.0	4.0	9.3	9.4	9.9*	9.9*
125	40*	280	7.5	7.0	4.0	4.0	19.0	19.0	19.9	19.9
	50*	290	7.5	7.0	4.0	4.0	12.3	12.3	13.2	13.2
	65*	305	7.5	7.0	4.0	4.0	13.2	13.2	14.2	14.2
	80	200	7.5	7.0	4.0	4.0	10.5	10.6	11.2*	12.5*
	100	200	7.5	7.2	4.0	4.0	11.3	11.3	12.4*	13.7*
150	40*	331	7.8	7.0	4.0	4.0	15.2	15.2	16.2	16.2
	50*	341	7.8	7.0	4.0	4.0	15.8	15.8	16.8	16.8
	80	200	7.8	7.0	4.0	4.0	12.0	12.0	13.0	15.1
	100	200	7.8	7.2	4.0	4.0	12.8	12.8	14.3	16.4
	125	200	7.8	7.5	4.0	4.0	14.0	14.0	15.6	19.0
200	80	300	8.4	7.0	4.0	4.0	17.9	17.7	19.8*	25.1*
	100	300	8.4	7.2	4.0	4.0	18.9	18.6	21.5	26.5
	125	300	8.4	7.5	4.0	4.0	20.5	20.0	23.0*	29.5*
	150	300	8.4	7.8	4.0	4.0	21.9	21.9	24.9	32.4
250	80	300	9.0	7.0	4.0	4.0	26.4	26.0	29.8	40.3
	100	300	9.0	7.2	4.0	4.0	28.5	28.1	32.4	42.9
	125**	300	9.0	7.5	4.0	4.0	41.0	40.5	45.0	56.5
	150	300	9.0	7.8	4.0	4.0	44.0	43.5	48.5*	60.5*
	200	300	9.0	8.4	4.0	4.0	30.6	30.1	36.1	51.5

* On request

** According to factory standard

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

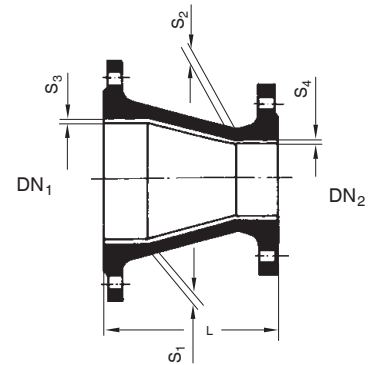
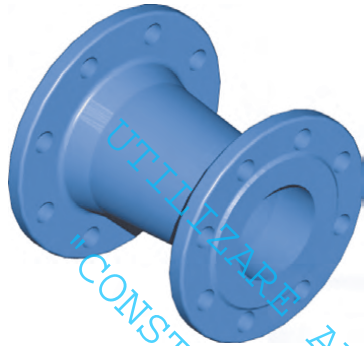


Double-flanged taper

According to DIN EN 545

FFR

Made of ductile cast iron (SGCI)



Weight of the casting in kg ≈

DN	DN ₂	L mm	S ₁	S ₂	S ₃	S ₄	PN 10	PN 16	PN 25	PN 40
300	100	300	9.6	7.2	4.0	4.0	36.2	35.2	41.7	57.2
	150	300	9.6	7.8	4.0	4.0	33.0	32.5	38.0*	55.0*
	200	300	9.6	8.4	4.0	4.0	35.9	35.4	42.9*	63.9*
	250	300	9.6	9.0	4.0	4.0	40.8	39.8	49.3*	74.8*
350*	200**	300	10.2	8.4	5.0	4.0	51.0	69.0	103.0*	127.0*
	250	300	10.2	9.0	5.0	4.0	44.4	46.9	59.4	90.4
	300	300	10.2	9.6	5.0	4.0	49.7	52.2	66.2	103.2
400	200***	300	10.8	8.4	5.0	4.0	45.6	50.5	63.5	98.0
	250	300	10.8	9.0	5.0	4.0	49.1	54.6	69.6	113.1*
	300	300	10.8	9.6	5.0	4.0	54.4	59.4	76.4	125.9*
	350*	300	10.8	10.2	5.0	5.0	58.1	66.6	86.1	141.1
500	300	600	12.0	9.6	5.0	5.0	150.0	163.0	181.0*	229.5*
	350***	600	12.0	10.2	5.0	5.0	160.0	178.0	198.0	253.0
	400	600	12.0	10.8	5.0	5.0	109.6	130.6	153.6*	220.6*
600	400	600	13.2	10.8	5.0	5.0	210.0	242.0	268.0	354.0*
	500*	600	13.2	12.0	5.0	5.0	148.5	189.5	216.5	302.5
700*	500**	600	14.4	12.0	6.0	5.0	281.0	311.0	358.0	
	600	600	14.4	13.2	6.0	5.0	195.4	236.4	285.4	
800*	600**	600	15.6	13.2	6.0	5.0	368.0	414.0	477.0	
	700	600	15.6	14.4	6.0	5.0	250.3	284.3	368.3	
900*	700**	600	16.8	14.4	6.0	6.0	458.0	497.0	592.0	
	800**	600	16.8	15.6	6.0	6.0	308.2	352.2	461.2	
1000*	800**	600	18.0	15.6	6.0	6.0	570.0	631.0	758.0	
	900	600	18.0	16.8	6.0	6.0	373.2	438.2	576.2	
1200*	1000	600	20.4	18.0	6.0	6.0	494.0	600.0	777.0	

* On request

** According to factory standard

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

MK 11



FGR 10

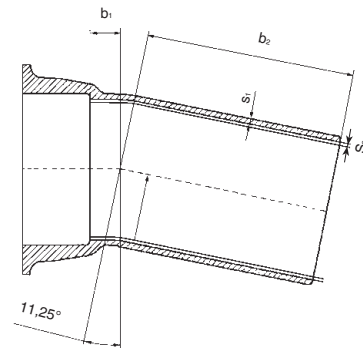
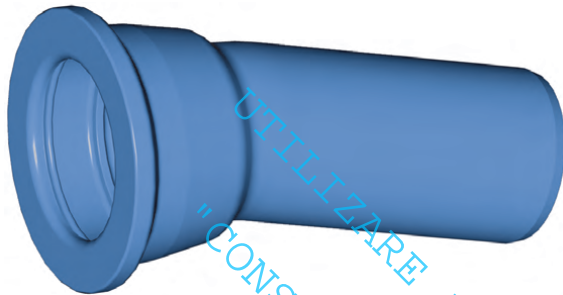


11¼° socket bend

According to FGR 70

MK 11¼°

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting kg = TYT
	S ₁	S ₂	b ₁	b ₂	
80	7.0	4	30	240	7.1
100	7.2	4	33	243	8.6
125	7.5	4	36	261	12.0
150	7.8	4	40	284	15.9
200	8.4	4	46	311	23.5

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901, with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603

MK 22



FGR 10

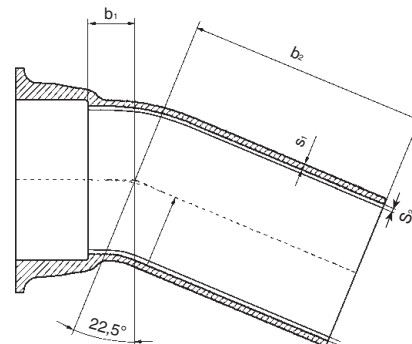
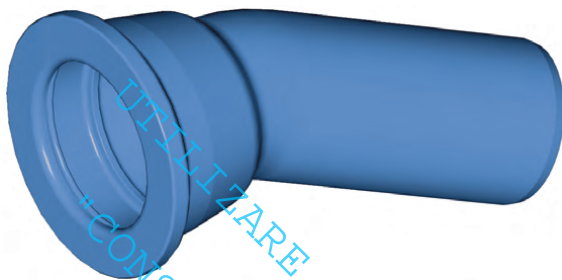


22½° socket bend

According to FGR 70

MK 22½°

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting kg = TYT
	S ₁	S ₂	b ₁	b ₂	
80	7.0	4	38	248	7.2
100	7.2	4	43	253	8.7
125	7.5	4	49	274	12.3
150	7.8	4	55	299	16.6
200	8.4	4	66	331	24.6

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603

MK 30



FGR 10

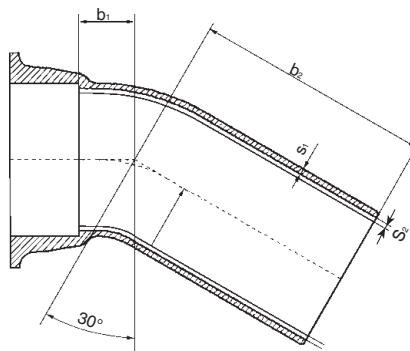
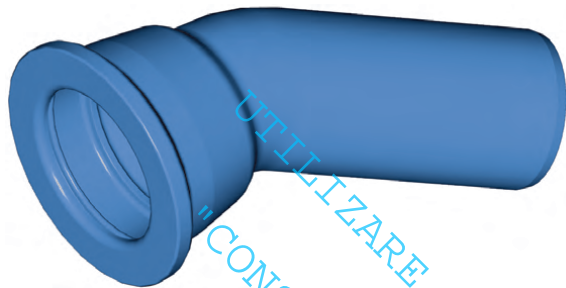


30° socket bend

According to FGR 70

MK 30°

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting kg = TYT
	S ₁	S ₂	b ₁	b ₂	
80	7.0	4	44	253	7.4
100	7.2	4	50	260	8.8
125	7.5	4	57	283	12.6
150	7.8	4	65	309	16.7
200	8.4	4	80	345	25.4

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603

MK 45



FGR 10

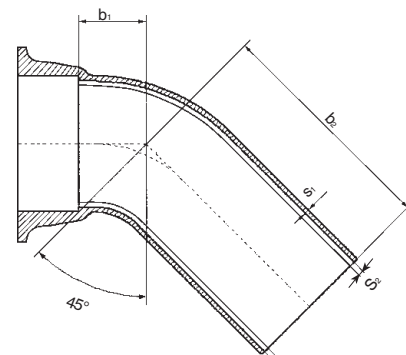
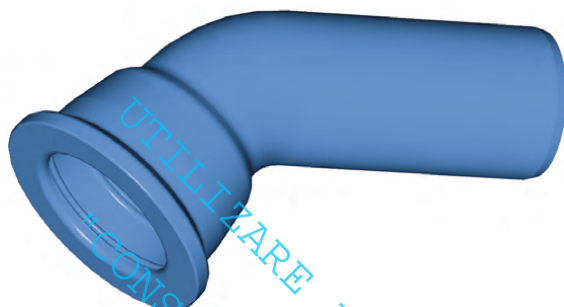


45° socket bend

According to FGR 70

MK 45°

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting kg = TYT
	S ₁	S ₂	b ₁	b ₂	
80	7.0	4	55	265	7.6
100	7.2	4	65	274	9.3
125	7.5	4	76	301	13.2
150	7.8	4	87	331	17.2
200	8.4	4	109	374	26.9

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

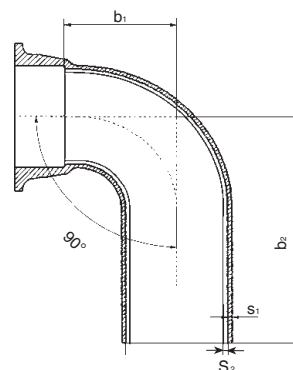
TYT – Tyton® socket according to DIN 28603

90° socket bend

According to FGR 70

MQ

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting
kg = TYT

DN	S ₁	S ₂	b ₁	b ₂	Weight of the casting kg = TYT
80	7.0	4	102	312	8.5
100	7.2	4	123	333	11.0
125	7.5	4	149	374	15.7
150	7.8	4	175	419	20.1
200	8.4	4	226	491	33.5

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

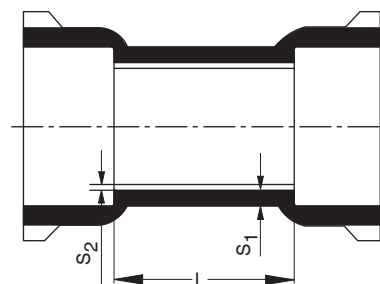
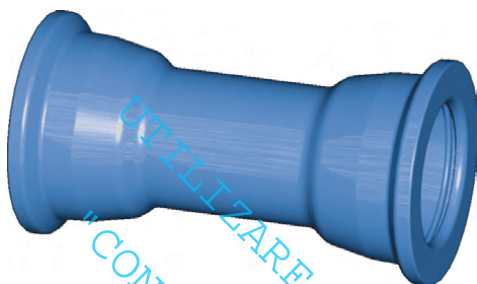
TYT – Tyton® socket according to DIN 28603

Double-socket adapter with Tyton socket

According to factory standard

MM

Made of ductile cast iron (SGCI)



DN	Dimensions in mm			Weight of the casting kg
	S ₁	S ₂	L	
200	9.8	4.0	175	24.9
250	9.0	4.0	180	34.2
300	9.6	4.0	180	43.0
400	10.8	5.0	185	66.5
500	12.0	5.0	215	100.0
600	13.2	5.0	340	140.0

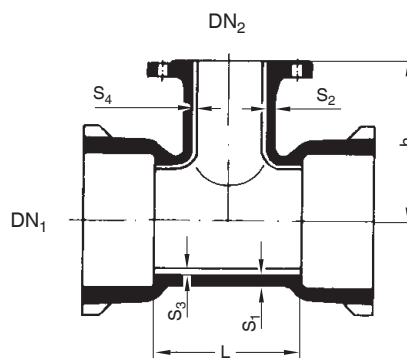
S₁ Wall thickness of the castingS₂ Thickness of the cement mortar lining**Surface protection:**

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603

Double-socket tees with flanged branch

According to DIN EN 545
MMA
Made of ductile cast iron (SGCI)



Dimensions in mm								Weight of the casting in kg ≈			
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	PN 10 TYT	PN 16 TYT	PN 25 TYT	PN 40 TYT
50*	50					170	150	13.5	13.5	13.5	13.5
65*	50					191	165	16.5	16.5	16.5	16.5
	65					191	165	18.1	18.1	18.1	18.1
80	40*	7.0	7.0	4.0	4.0	170	155	10.8	10.8	10.8	10.8
	50*	7.0	7.0	4.0	4.0	170	160	11.4	11.4	11.4	11.4
	65*	7.0	7.0	4.0	4.0	170	160	13.4	13.4	13.4	13.4
	80	7.0	7.0	4.0	4.0	170	165	12.9	12.9	12.9	12.9
100	40	7.2	7.0	4.0	4.0	190	170	12.6	12.6	12.6	12.6
	50	7.2	7.0	4.0	4.0	190	170	13.2	13.2	13.2	13.2
	65*	7.2	7.0	4.0	4.0	190	170				
	80	7.2	7.0	4.0	4.0	170	175	14.5	14.5	14.5	14.5
	100	7.2	7.2	4.0	4.0	190	180	15.8	15.8	16.3*	16.3*
125	40	7.5	7.0	4.0	4.0	170	185	16.0	16.0	16.0	16.0
	50*	7.5	7.0	4.0	4.0	195	185	18.0	18.0	18.0	18.0
	65*	7.5	7.0	4.0	4.0	150	189				
	80	7.5	7.0	4.0	4.0	170	190	17.9	18.0	18.0	18.0
	100	7.5	7.2	4.0	4.0	195	195	19.3	19.3	19.8*	19.8*
	125	7.5	7.5	4.0	4.0	225	200	21.6	21.6	22.1*	23.6*
150	40	7.8	7.0	4.0	4.0	170	195	19.2	19.2	19.2	19.2
	50	7.8	7.0	4.0	4.0	170	200	19.9	19.9	19.9	19.9
	80	7.8	7.0	4.0	4.0	170	205	21.3	21.3	21.3	21.3
	100	7.8	7.2	4.0	4.0	195	210	22.7	22.7	23.2	23.2
	150	7.8	7.8	4.0	4.0	255	220	27.4	27.4	29.4	30.9
200	40	8.4	7.0	4.0	4.0	175	230	26.7	26.7	26.7	26.7
	50	8.4	7.0	4.0	4.0	175	230	25.6	25.6	25.6	25.6
	80	8.4	7.0	4.0	4.0	175	235	28.6	28.6	28.6	28.6
	100	8.4	7.2	4.0	4.0	200	240	30.4	30.4	30.9	30.9
	125*	8.4	7.5	4.0	4.0	255	250				
	150	8.4	7.8	4.0	4.0	255	250	36.1	36.1	37.1	39.1*
	200	8.4	8.4	4.0	4.0	315	260	42.2	41.7	43.7	49.2*
250	80	9.0	7.0	4.0	4.0	180	265	37.9	37.9	37.9	37.9
	100	9.0	7.2	4.0	4.0	200	270	39.7	39.7	40.2*	40.2*
	150	9.0	7.8	4.0	4.0	260	280	46.3	46.3	47.3*	49.3*
	200	9.0	8.4	4.0	4.0	315	290	42.9	42.9	44.9*	60.4*
	250	9.0	9.0	4.0	4.0	375	300	61.0	60.5	64.5*	74.5*

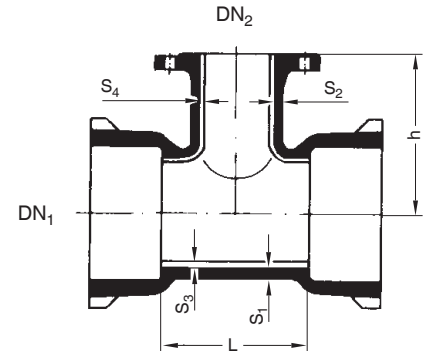


Double-socket tees with flanged branch

According to DIN EN 545

MMA

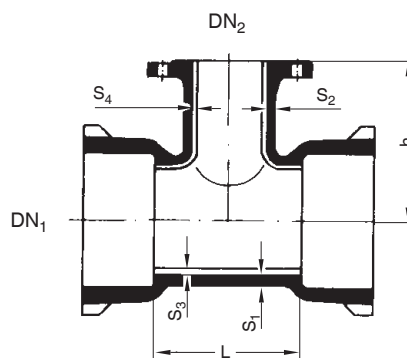
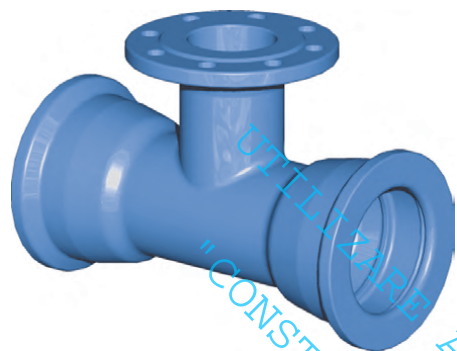
Made of ductile cast iron (SGCI)



Dimensions in mm								Weight of the casting in kg ≈			
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	PN 10 TYT	PN 16 TYT	PN 25 TYT	PN 40 TYT
300	80	9.6	7.0	4.0	4.0	180	295	47.2	47.2	47.2	47.2
	100	9.6	7.2	4.0	4.0	205	300	50.0	50.0	50.5*	50.5*
	150	9.6	7.8	4.0	4.0	260	310	57.0	57.0	58.0*	60.0*
	200	9.6	8.4	4.0	4.0	320	320	65.0	65.0	67.0*	72.5*
	250	9.6	9.0	4.0	4.0	430	330	75.5	75.5		
	300	9.6	9.6	4.0	4.0	435	340	83.6	83.1	88.6*	104.6*
350*	80*	10.2	7.0	5.0	4.0	205	325	70.0	70.0	70.0	70.0
	100	10.2	7.2	5.0	4.0	205	330	59.3	59.3	59.3	59.8
	150*	10.2	7.8	5.0	4.0	325	340	90.0	90.0	90.5	90.5
	200	10.2	8.4	5.0	4.0	325	350	77.2	76.7	79.2	84.2
	250*	10.2	9.0	5.0	4.0	495	370	98.0	98.0	102.0	112.0
	300*	10.2	9.6	5.0	4.0	495	370	110.0	110.0	117.0	128.0
400	350	10.2	10.2	5.0	5.0	495	380	106.0	109.6	117.6	138.6
	80	10.8	7.0	5.0	4.0	185	355	67.8	67.8	67.8	67.8
	100	10.8	7.2	5.0	4.0	210	360	71.4	71.4	71.9*	71.9*
	150	10.8	7.8	5.0	4.0	270	370	81.4	81.4	82.4*	82.4*
	200*	10.8	8.4	5.0	4.0	325	380	91.1	90.6	92.6	98.1
	250*	10.8	9.0	5.0	4.0	440	390	130.0	130.0	134.0	144.0
500	300	10.8	9.6	5.0	4.0	440	400	113.5	113.5	118.5*	134.5*
	350*	10.8	10.2	5.0	5.0	560	405	150.0	153.0	161.0	183.0
	400	10.8	10.8	5.0	5.0	560	420	135.6	140.6	152.6	185.6*
	80	12.0	7.0	5.0	4.0	215	415	103.0	104.0	104.0	104.0
	100	12.0	7.2	5.0	4.0	215	420	104.0	104.0	104.0*	104.0*
	150	12.0	7.8	5.0	4.0	330	430	126.0	126.0	128.0*	128.0*
500	200	12.0	8.4	5.0	4.0	330	440	127.9	127.9	129.9*	134.9*
	250	12.0	9.0	5.0	4.0	450	450	157.0	156.0	161.0*	173.0*
	300	12.0	9.6	5.0	4.0	450	460	156.7	155.7	161.7*	176.7*
	350*	12.0	10.2	5.0	5.0	565	470	182.0	188.0	199.0	230.0
	400	12.0	10.8	5.0	5.0	565	480	182.5	188.5	199.5*	233.5*
	500	12.0	12.0	5.0	5.0	680	500	212.1	227.1	239.1*	273.1*

Double-socket tee with flanged branch

According to DIN EN 545
MMA
Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	Weight of the casting in kg ≈			
								PN 10 TYT	PN 16 TYT	PN 25 TYT	PN 40 TYT
600	80	13.2	7.0	5.0	4.0	340	475	163.0	163.0	163.0	163.0
	100	13.2	7.2	5.0	4.0	340	480	164.0	164.0	165.0*	165.0*
	150	13.2	7.8	5.0	4.0	340	490	166.0	166.0	167.0*	168.0*
	200	13.2	8.4	5.0	4.0	340	500	168.5	168.5	170.5*	175.5*
	250	13.2	9.0	5.0	4.0	570	510	224.0	224.0	228.0*	238.0*
	300	13.2	9.6	5.0	4.0	570	520	230.0	230.0	235.0*	251.0*
	350*	13.2	10.2	5.0	5.0	570	530	233.0	236.0	245.0	266.0
	400	13.2	10.8	5.0	5.0	570	540	233.3	239.3	250.3*	284.3*
	500	13.2	12.0	5.0	5.0	800	550	303.0	317.0	327.0*	361.0*
	600	13.2	13.2	5.0	5.0	800	580	308.7	335.7	349.7*	401.7*
700*	100	14.4	7.2	6.0	4.0	345	510	250.0	250.0	250.0	
	150	14.4	7.8	6.0	4.0	345	520	262.0	262.0	263.0	
	200	14.4	8.4	6.0	4.0	345	525	225.3	225.3	227.3	
	250	14.4	9.0	6.0	4.0	365	535	272.0	271.0	274.0	
	300	14.4	9.6	6.0	4.0	575	540	327.0	327.0	343.0	
	400	14.4	10.8	6.0	5.0	575	555	286.7	292.7	303.7	
	500	14.4	12.0	6.0	5.0	925	570	432.0	446.0	480.0	
	600	14.4	13.2	6.0	5.0	925	585	457.0	481.0	502.0	
800*	100	15.6	7.2	6.0	4.0	350	570	325.0	325.0	326.0	
	150	15.6	7.8	6.0	4.0	303	580	316.0	316.0	318.0	
	200	15.6	8.4	6.0	4.0	350	585	316.9	316.9	318.9	
	250	15.6	9.0	6.0	4.0	360	585	350.0	349.0	352.0	
	300	15.6	9.6	6.0	4.0	580	600	417.0	417.0	422.0	
	400	15.6	10.8	6.0	6.0	580	615	405.4	411.4	422.4	
	500	15.6	12.0	6.0	6.0	1045	630	590.0	605.0	617.0	
	600	15.6	13.2	6.0	6.0	1045	645	579.0	606.0	620.0	
	800	15.6	15.6	6.0	6.0	1045	675	612.0	611.0	680.0	

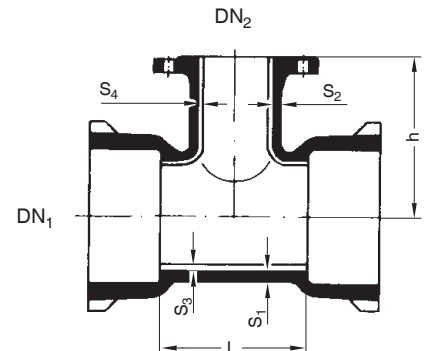
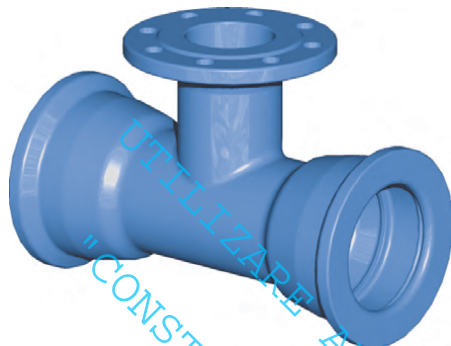


Double-socket tee with flanged branch

According to DIN EN 545

MMA

Made of ductile cast iron (SGCI)



Dimensions in mm									Weight of the casting in kg ≈			
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	PN 10 TYT	PN 16 TYT	PN 25 TYT	PN 40 TYT	
900*	100	16.8	7.2	6.0	4.0	355	630	451.0	451.0	452.0		
	150	16.8	7.8	6.0	4.0	355	640	443.0	443.0	444.0		
	200	16.8	8.4	6.0	4.0	355	645	453.5	453.5	455.5		
	250	16.8	9.0	6.0	4.0	375	635	474.0	474.0	477.0		
	300	16.8	9.6	6.0	4.0	590	660	561.0	561.0			
	400	16.8	10.8	6.0	6.0	590	675	560.0	565.0	577.0		
	500	16.8	12.0	6.0	6.0	1170	690	813.0	827.0	861.0		
1000*	600	16.8	13.2	6.0	6.0	1170	705	810.5	837.5	851.5		
	900	16.8	16.8	6.0	6.0	1170	750	921.0	969.0	1090.0		
	200	18.0	8.4	6.0	4.0	360	705	556.0	556.0	558.0		
	250	18.0	9.0	6.0	4.0	400	705	520.0	519.0	522.0		
	300	18.0	9.6	6.0	4.0	595	720	670.0	670.0	675.0		
	400	18.0	10.8	6.0	6.0	595	735	679.5	685.0	696.5		
	600	18.0	13.2	6.0	6.0	1290	765	1029.0	1056.0	1070.0		
1200*	800	18.0	15.6	6.0	6.0	1290	795	1044.0	1063.0	1112.0		
	900	18.0	16.8	6.0	6.0	1290	810	1128.0	1147.0	1196.0		
	1000	18.0	17.0	6.0	6.0	1290	825	1098.0	1139.0	1217.0		
	200	20.4	8.4	6.0	4.0	375	825	828.8	828.8	830.8		
	250	20.4	9.0	6.0	4.0	810	875	950.0 ¹⁾	950.0 ¹⁾	953.0 ¹⁾		
	400	20.4	10.8	6.0	6.0	605	855	989.0	995.0	1006.0		
	600	20.4	13.2	6.0	6.0	1525	855	1595.5	1621.5	1636.5		
	1000	20.4	18.0	6.0	6.0	1275	920	1359.0	1361.0	1445.0		
	1200	20.4	20.4	6.0	6.0	1525	975	1718.5 ¹⁾	1783.5 ¹⁾	1882.5 ¹⁾		

* On request
¹⁾ STD Standard system socket joint
 S₁, S₂ Wall thickness of the casting
 S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

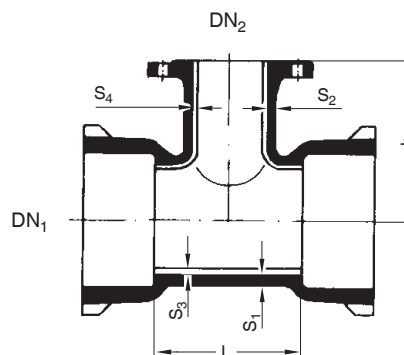
TYT – Tyton® socket according to DIN 28603

Double-socket tee screwed-type with flanged branch

According to DIN EN 545

MMA

Made of ductile cast iron (SGCI)



Dimensions in mm								Weight of the casting in kg ≈			
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	PN 10 SMU	PN 16 SMU	PN 25 SMU	PN 40 SMU
125	40	7.5	7.0	4.0	4.0	170	185	16.0	16.0	16.0	16.0
	80	7.5	7.0	4.0	4.0	170	190	18.0	18.0	18.0	18.0
	100	7.5	7.2	4.0	4.0	195	195	19.2	19.2	19.2*	19.2*
	125	7.5	7.5	4.0	4.0	225	200	21.5	21.5	21.5*	21.5*
150	40	7.8	7.0	4.0	4.0	170	195	14.0	14.0	14.0	14.0
	50	7.8	7.0	4.0	4.0	170	200	17.0	17.0	17.0	17.0
	80	7.8	7.0	4.0	4.0	170	205	21.0	21.0	21.0	21.0
	100	7.8	7.2	4.0	4.0	195	210	23.0	23.0	23.0	23.0
	150	7.8	7.8	4.0	4.0	255	220	25.0	25.0	25.0	25.0
200	40	8.4	7.0	4.0	4.0	175	230	25.5	25.5	25.5	25.5
	50	8.4	7.0	4.0	4.0	175	230	26.5	26.5	26.5	26.5
	80	8.4	7.0	4.0	4.0	175	235	31.0	31.0	31.0	31.0
	100	8.4	7.2	4.0	4.0	200	240	30.3	30.3	30.3	30.3
	150	8.4	7.8	4.0	4.0	255	250	36.5	36.5	36.5	36.5*
200	8.4	8.4	4.0	4.0	315	260	43.0	42.5	42.5	42.5*	

S₁, S₂ Wall thickness of the casting

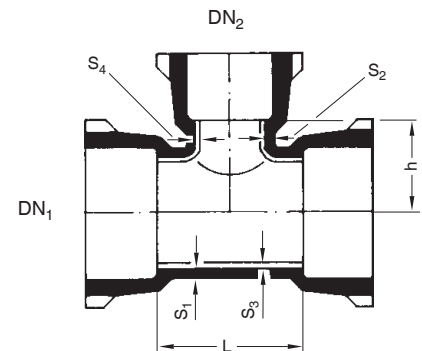
S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

SMU – Screw-gland socket according to DIN 28601

Double-socket tee with socket branch
 According to DIN EN 545
 MMB
 Made of ductile cast iron (SGCI)



		Dimensions in mm						Weight of the casting
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	kg ≈ TYT
80*	40	8.1	8.1	4.0	4.0	170	80	
	50	8.1	8.1	4.0	4.0	170	80	11.0
	80	8.1	8.1	4.0	4.0	170	85	11.4
100*	40	8.4	8.4	4.0	4.0	170	90	
	50	8.4	8.4	4.0	4.0	190	90	14.5
	80	8.4	8.4	4.0	4.0	170	95	13.1
125	100	8.4	8.4	4.0	4.0	190	95	14.1
	40**	8.8	8.8	4.0	4.0	170	100	
	50* **	8.8	8.8	4.0	4.0	195	105	18.5
150	80	8.8	8.8	4.0	4.0	170	105	16.5
	100	8.8	8.8	4.0	4.0	195	110	17.8
	125	8.8	8.8	4.0	4.0	225	110	19.9
	40**	9.1	9.1	4.0	4.0	170	115	22.5
	50* **	9.1	9.1	4.0	4.0	195	115	22.5
150	80	9.1	9.1	4.0	4.0	170	120	19.9
	100	9.1	9.1	4.0	4.0	195	120	20.9
	125*	9.1	9.1	4.0	4.0	255	125	29.0
	150	9.1	9.1	4.0	4.0	255	125	25.2

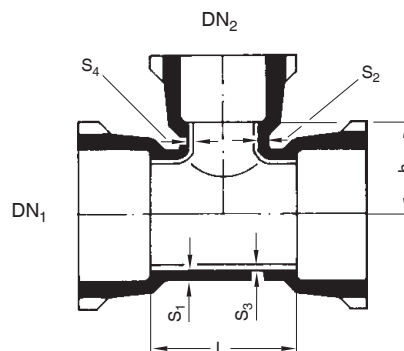
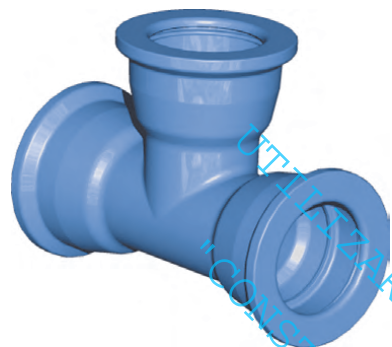


Double-socket tee with socket branch

According to DIN EN 545

MMB

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting

DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	kg ≈ TYT
200	40**	9.8	9.8	4.0	4.0	175	140	26.5
	50*	9.8	9.8	4.0	4.0	200	140	30.5
	65*	9.8	9.8	4.0	4.0	159	228	
	80	9.8	9.8	4.0	4.0	175	145	27.2
	100	9.8	9.8	4.0	4.0	200	145	28.6
	125	9.8	9.8	4.0	4.0	255	145	39.0
	150	9.8	9.8	4.0	4.0	255	150	33.4
	200	9.8	9.8	4.0	4.0	315	155	38.2
250	80*	10.5	10.5	4.0	4.0	180	170	36.0
	100*	10.5	10.5	4.0	4.0	200	170	37.9
	125	10.5	10.5	4.0	4.0	200	175	47.0
	150*	10.5	10.5	4.0	4.0	260	175	43.6
	200*	10.5	10.5	4.0	4.0	315	180	49.3
	250*	10.5	10.5	4.0	4.0	375	190	56.0
300	80*	11.2	11.2	4.0	4.0	180	195	45.3
	100*	11.2	11.2	4.0	4.0	205	195	47.7
	125	11.2	11.2	4.0	4.0	205	200	59.0
	150*	11.2	11.2	4.0	4.0	260	200	54.3
	200*	11.2	11.2	4.0	4.0	320	205	61.0
	250*	11.2	11.2	4.0	4.0	430	210	80.0
	300*	11.2	11.2	4.0	4.0	435	220	75.0

* On request

** Always SMU branch with sizes DN 40, DN 50

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

TYT – Tyton® socket according to DIN 28603

SMU – Screw-gland socket according to DIN 28601

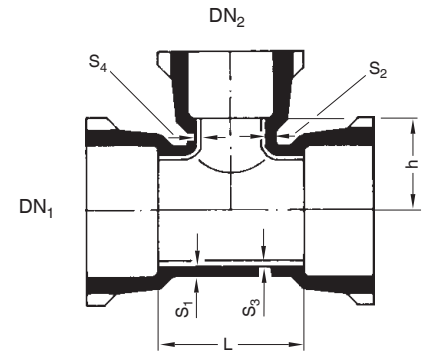


Double-socket tee with socket branch (SMU)

According to DIN EN 545

MMB

Made of ductile cast iron (SGCI)



Dimensions in mm								Weight of the casting in kg ≈
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	h	SMU
125	40	8.8	8.8	4.0	4.0	170	100	15.1
	80	8.8	8.8	4.0	4.0	170	105	16.6
	100	8.8	8.8	4.0	4.0	195	110	17.9
150	125	8.8	8.8	4.0	4.0	225	110	19.9
	40	9.1	9.1	4.0	4.0	170	115	16.7
	80	9.1	9.1	4.0	4.0	170	120	19.8
	100	9.1	9.1	4.0	4.0	195	120	21.0
200	150	9.1	9.1	4.0	4.0	255	125	24.9
	40	9.8	9.8	4.0	4.0	175	140	23.5
	80	9.8	9.8	4.0	4.0	175	145	25.5
	100	9.8	9.8	4.0	4.0	200	145	29.0
	150	9.8	9.8	4.0	4.0	225	145	31.4
	200	9.8	9.8	4.0	4.0	255	150	39.0

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining

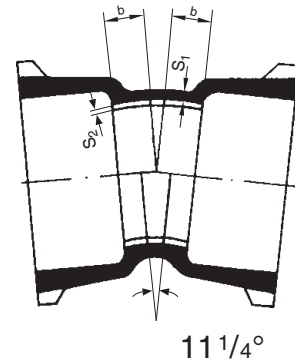
Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

SMU – Screw-gland socket according to DIN 28601



11¼° double-socket bend
 According to DIN EN 545
 MMK 11¼°
 Made of ductile cast iron (SGCI)



DN	b	Dimensions in mm		Weight of the casting kg ≈ TYT
		S ₁	S ₂	
40* **	63			7.0
50* **	65			9.0
65* **	68			11.5
80	30	7.0	4.0	6.5
100	35	7.2	4.0	7.8
125	35	7.5	4.0	10.6
150	40	7.8	4.0	13.4
200 ¹⁾	45	8.4	4.0	24.9
250	50	9.0	4.0	34.2
300	60	9.6	4.0	43.0
350*	65	10.2	5.0	44.9
400	70	10.8	5.0	66.5
500 ²⁾	85	12.0	5.0	100.0
600 ²⁾	95	13.2	5.0	140.0
700	110	14.4	6.0	200.0
800	125	15.6	6.0	271.2
900*	135	16.8	6.0	393.5
1000	150	18.0	6.0	495.7
1200*	175	20.4	6.0	768.5

* On request
 ** With SMU joint according to factory standard
 S₁ Wall thickness of the casting
 S₂ Thickness of the cement mortar lining

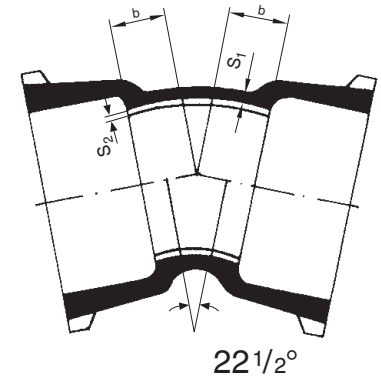
¹⁾ Tyton or SMU options available with DN 200
²⁾ Tyton or STO options available with DN 500 and DN 600

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

TYT – Tyton® socket according to DIN 28603
 SMU – Screw-gland socket according to DIN 28601
 STO – Bolted-gland socket according to DIN 28602

22½° double-socket bend
 According to DIN EN 545
 MMK 22½°
 Made of ductile cast iron (SGCI)



DN	b	Dimensions in mm		Weight of the casting kg ≈ TYT
		S ₁	S ₂	
40* **	87			7.5
50* **	90			9.5
65* **	94			12.5
80	40	7.0	4.0	6.7
100	45	7.2	4.0	8.1
125	50	7.5	4.0	11.2
150	55	7.8	4.0	14.2
200 ¹⁾	65	8.4	4.0	21.0
250	75	9.0	4.0	30.7
300	90	9.6	4.0	40.4
350*	100	10.2	5.0	50.7
400	110	10.8	5.0	63.5
500 ²⁾	135	12.0	5.0	100.4
600 ²⁾	155	13.2	5.0	140.5
700	180	14.4	6.0	232.3
800	205	15.6	6.0	315.8
900*	225	16.8	6.0	456.0
1000	250	18.0	6.0	575.9
1200*	295	20.4	6.0	899.6

* On request
 ** With SMU joint according to factory standard
 S₁ Wall thickness of the casting
 S₂ Thickness of the cement mortar lining

Only SMU option available with DN 40, DN 50, DN 65
¹⁾ Tyton or SMU options available with DN 200
²⁾ Tyton or STO options available with DN 500 and DN 600

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

TYT – Tyton® socket according to DIN 28603

SMU – Screw-gland socket according to DIN 28601

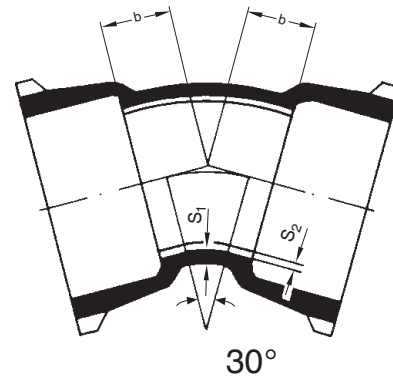
STO – Bolted-gland socket according to DIN 28602

**30° double-socket bend**

According to DIN EN 28650

MMK 30°

Made of ductile cast iron (SGCI)



DN	b	Dimensions in mm		Weight of the casting kg ≈ TYT
		S ₁	S ₂	
40**	103			7.7
50**	107			9.3
65**	113			11.5
80	45	7.0	4.0	6.8
100	50	7.2	4.0	8.3
125	55	7.5	4.0	11.6
150	65	7.8	4.0	14.8
200 ¹⁾	80	8.4	4.0	22.0
250	95	9.0	4.0	32.0
300	110	9.6	4.0	43.2
350*	125	10.2	5.0	54.5
400	140	10.8	5.0	69.2
500	170	12.0	5.0	109.2
600 ²⁾	200	13.2	5.0	155.9
700	230	14.4	6.0	254.1
800	260	15.6	6.0	345.9
900*	290	16.8	6.0	496.3
1000	320	18.0	6.0	630.3
1200*	380	20.4	6.0	988.7

* On request

** With SMU joint according to factory standard

S₁ Wall thickness of the castingS₂ Thickness of the cement mortar lining

Only SMU option available with DN 40, DN 50, DN 65

¹⁾ Tyton or SMU options available with DN 200²⁾ Tyton or STO options available with DN 600**Surface protection:**

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

TYT – Tyton® socket according to DIN 28603

SMU – Screw-gland socket according to DIN 28601

STO – Bolted-gland socket according to DIN 28602

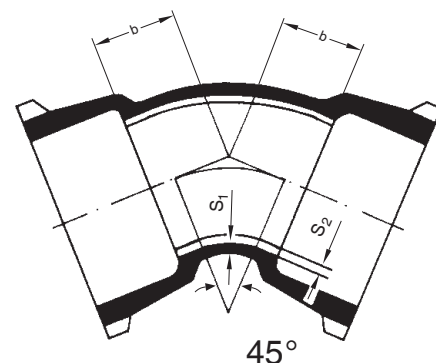


45° double-socket bend

According to DIN EN 545

MMK 45°

Made of ductile cast iron (SGCI)



DN	b	Dimensions in mm		Weight of the casting kg ≈ TYT
		S ₁	S ₂	
40* **	133			8.6
50* **	144			10.7
65* **	151			13.9
80	55	7.0	4.0	7.1
100	65	7.2	4.0	8.8
125	75	7.5	4.0	12.3
150	85	7.8	4.0	15.9
200 ¹⁾	110	8.4	4.0	24.6
250	130	9.0	4.0	35.7
300	155	9.6	4.0	48.7
350*	175	10.2	5.0	64.9
400	200	10.8	5.0	82.2
500	240	12.0	5.0	127.0
600 ²⁾	285	13.2	5.0	183.6
700	330	14.4	6.0	295.6
800	375	15.6	6.0	406.1
900*	420	16.8	6.0	577.9
1000	465	18.0	6.0	737.2
1200*	555	20.4	6.0	1163.9

* On request

** With SMU joint according to factory standard

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Only SMU option available with DN 40, DN 50, DN 65

¹⁾ Tyton or SMU options available with DN 200

²⁾ Tyton or STO options available with DN 600

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

TYT – Tyton® socket according to DIN 28603

SMU – Screw-gland socket according to DIN 28601

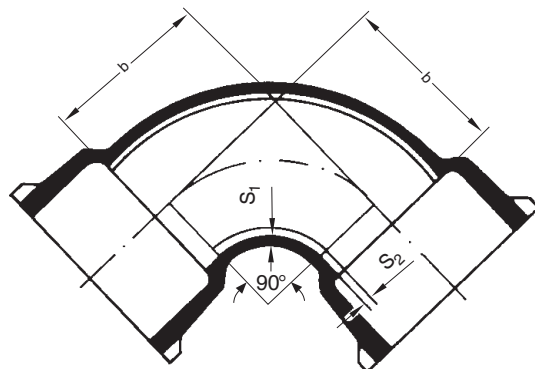
STO – Bolted-gland socket according to DIN 28602

**90° double-socket bend**

According to DIN EN 545

MMQ 90°

Made of ductile cast iron (SGCI)



DN	Dimensions in mm			Weight of the casting kg ≈ TYT
	b	S ₁	S ₂	
40* **	140			5.7
50* **	150			7.0
65* **	165			8.7
80	100	7.0	4.0	8.0
100	125	7.2	4.0	10.2
125	150	7.5	4.0	14.5
150	175	7.8	4.0	19.1
200 ¹⁾	225	8.4	4.0	30.5
250	280	9.0	4.0	45.7
300	330	9.6	4.0	63.7
350*	410	10.2	4.0	140.0
400	430	10.2	4.0	126.0
500	550	12.0	4.0	237.0
600	645	13.2	4.0	365.0

* On request

** With SMU joint according to factory standard

S₁ Wall thickness of the castingS₂ Thickness of the cement mortar lining

* Tyton or SMU options available with DN 200

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request

TYT – Tyton® socket according to DIN 28603

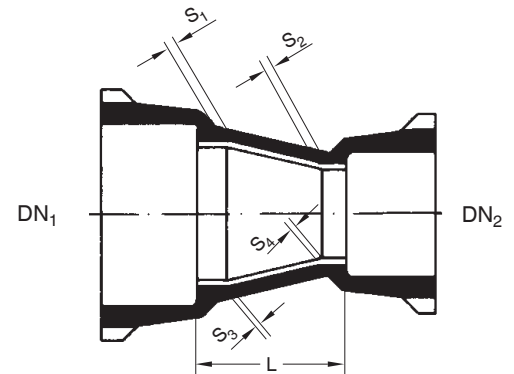
SMU – Screw-gland socket according to DIN 28601

Double-socket taper

According to DIN EN 545

MMR

Made of ductile cast iron (SGCI)



		Dimensions in mm						Weight of the casting
DN ₁	DN ₂	S ₁	S ₂	S ₃	S ₄	L	kg ≈ TYT	
50**	40			4.0	4.0	200	8.5*	
65**	40			4.0	4.0	200	10.0*	
	50			4.0	4.0	200	11.0*	
80*	40	7.0	7.0	4.0	4.0	200	12.0*	
	50	7.0	7.0	4.0	4.0	110	7.0*	
	65	7.0	7.0	4.0	4.0	200	14.5	
100*	50	7.2	7.0	4.0	4.0	150	7.0	
	65	7.2	7.0	4.0	4.0	90	7.2	
	80	7.2	7.0	4.0	4.0	90	7.5	
125	65*	7.5	7.0	4.0	4.0	170		
	80 ¹⁾	7.5	7.0	4.0	4.0	140	9.9	
	100 ¹⁾	7.5	7.2	4.0	4.0	100	9.8	
150*	65	7.8	7.0	4.0	4.0	100		
	80	7.8	7.0	4.0	4.0	190	12.3	
	100	7.8	7.2	4.0	4.0	150	12.3	
	125	7.8	7.5	4.0	4.0	100	12.6	
200	100 ¹⁾	8.4	7.2	4.0	4.0	250	18.3	
	125 ¹⁾	8.4	7.5	4.0	4.0	200	18.7	
	150 ¹⁾	8.4	7.8	4.0	4.0	150	18.7	
250*	125	9.0	7.5	4.0	4.0	300	26.3	
	150	9.0	7.8	4.0	4.0	250	26.5	
	200	9.0	8.4	4.0	4.0	150	25.8	
300*	150	9.6	7.8	4.0	4.0	350	35.9	
	200	9.6	8.4	4.0	4.0	250	35.7	
	250	9.6	9.0	4.0	4.0	150	34.6	

- * On request
- ** With SMU joint according to factory standard
- ¹⁾ Tyton or SMU options available
- S₁, S₂ Wall thickness of the casting
- S₃, S₄ Thickness of the cement mortar lining

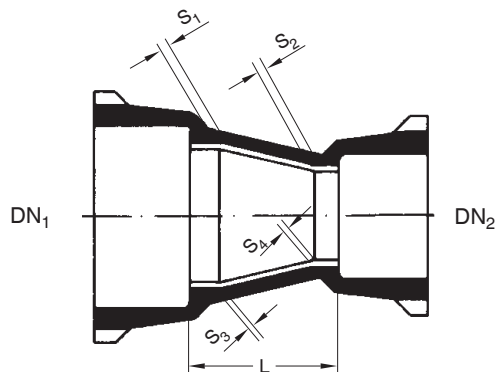
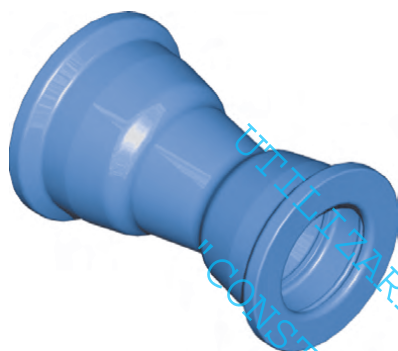
Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

TYT – Tyton® socket according to DIN 28603
 SMU – Screw-gland socket according to DIN 28601



Double-socket taper
 According to DIN EN 545
 MMR
 Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm					L	Weight of the casting kg ≈ TYT
		S ₁	S ₂	S ₃	S ₄			
350*	200	10.2	8.4	5.0	4.0	360	47.8	
	250	10.2	9.0	5.0	4.0	260	46.8	
	300	10.2	9.6	5.0	4.0	160	45.1	
400*	250	10.8	9.0	5.0	4.0	360	60.7	
	300	10.8	9.6	5.0	4.0	260	58.0	
	350	10.8	10.2	5.0	5.0	160	55.5	
500*	350	12.0	10.2	5.0	5.0	360	88.2	
	400	12.0	10.8	5.0	5.0	260	83.0	
600*	400	13.2	10.2	5.0	5.0	460	128.0	
	500	13.2	10.8	5.0	5.0	260	116.0	

* On request
 S₁, S₂ Wall thickness of the casting
 S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TYT – Tyton® socket according to DIN 28603
 SMU – Screw-gland socket according to DIN 28601

N



FGR 10

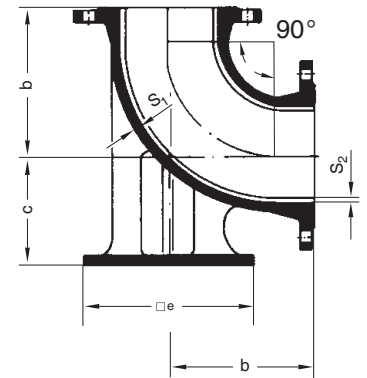


90° double-flanged duckfoot bend

According to DIN 545

N

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting in kg ≈				
	b	c	e	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40*	140	84	160			10.5	10.5	10.5	10.5
50	150	90	160			13.5	13.5	13.5	13.5
65*	165	99	160			17.5	17.5	17.4	17.4
80	165	110	180	7.0	4.0	13.0	13.2	13.2	13.2
100	180	125	200	7.2	4.0	16.9	16.9	17.9*	17.9*
125	200	140	225	7.5	4.0	22.1	22.1	23.1*	26.1*
150	220	160	250	7.8	4.0	28.8	28.8	30.8*	35.3*
200	260	190	300	8.4	4.0	46.2	45.2	49.7	60.2
250	350	225	350	9.0	4.0	73.5	72.5	80.5*	101.0*
300	400	255	400	9.6	4.0	103.9	102.9	113.9*	144.9*
350*	450	290	450	10.2	5.0	136.0	142.0	158.0	201.0
400	500	320	500	10.8	5.0	176.4	186.4	209.4	277.4*
500	600	385	600	12.0	5.0	281.0	311.0	335.0*	402.0*
600	700	450	700	13.2	5.0	425.0	478.0	506.0*	612.0*

* On request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Optional: Tapped holes at up to 3 additionally provided hubs

DN 80: Thread up to 2"

DN 100: Thread up to 1 1/2"

Other nominal sizes on request

Surface protection:

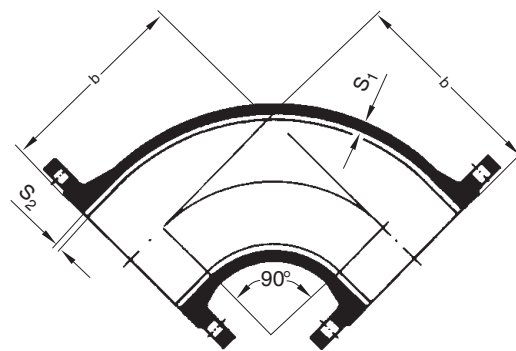
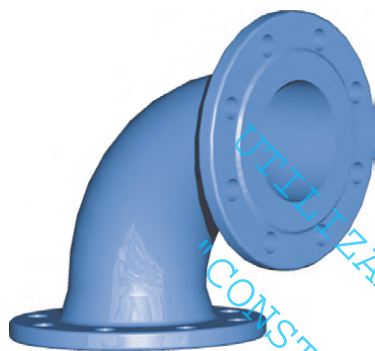
- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

90° double-flanged bend

According to DIN EN 545

Q

Made of ductile cast iron (SGCI)



Dimensions in mm

Weight of the casting in kg ≈

DN	b	S ₁	S ₂	PN 10	PN 16	PN 25	PN 40
40**	140			6.5	6.5	6.5	6.5
50	150			8.5	8.5	8.5	8.5
65**	165			11.0	11.0	11.0	11.0
80	165	7.0	4.0	9.5	9.7	9.7*	9.7*
100	180	7.2	4.0	12.0	12.0	13.0*	13.0*
125	200	7.5	4.0	15.6	15.6	16.8*	19.6*
150	220	7.8	4.0	19.8	19.8	21.8*	26.3*
200	260	8.4	4.0	31.2	30.2	34.7	45.2
250	350	9.0	4.0	50.0	49.0	57.0*	77.0*
300	400	9.6	4.0	69.9	68.9	80.4*	110.9*
350*	450	10.2	5.0	89.5	96.0	112.0	155.0
400	500	10.8	5.0	114.5	125.5	148.5	215.5*
500	600	12.0	5.0	179.0	209.0	233.0*	300.0*
600	700	13.2	5.0	269.0	322.0	350.0*	455.0*
700*	800	14.4	6.0	381.5	411.5	481.5	
800	900	15.6	6.0	527.5	565.5	664.5*	
900*	1000	16.8	6.0	690.0	737.0	858.0	
1000*	1100	18.0	6.0	896.0	979.0	1135.0	
1200**	1300	20.4	6.0	1418.0	1547.0	1746.0	

* On request

** According to factory standard

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Frazinc coating on request



FGR 10

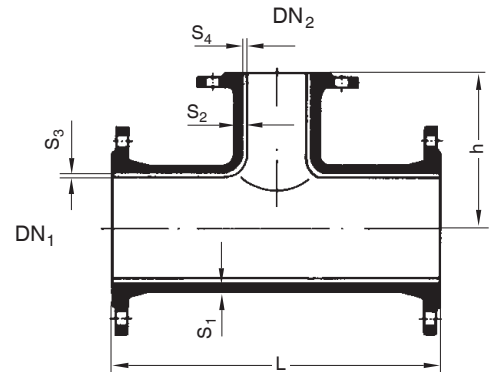


All-flanged tee

According to DIN EN 545

T

Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm				L	h	Weight of the casting in kg ≈			
		S ₁	S ₂	S ₃	S ₄			PN 10	PN 16	PN 25	PN 40
40*	40					280	140	10.5	10.5	10.5	10.5
50	40*					300	145	12.0	12.0	12.0	12.0
	50					300	150	12.5	12.5	12.5	12.5
65*	40					330	153	15.0	15.0	15.0	15.0
	50					330	158	15.5	15.5	15.5	15.5
80	65					330	165	16.5	16.5	16.5	16.5
	40*	7.0	7.0	4.0	4.0	330	160	14.5	14.5	14.5	14.5
	50	7.0	7.0	4.0	4.0	330	160	14.2	14.2	14.2	14.2
	65	7.0	7.0	4.0	4.0	330	160	16.0	16.0	16.0	16.0
100	80	7.0	7.0	4.0	4.0	330	165	15.6	15.6	15.6	15.6
	40*	7.2	7.0	4.0	4.0	360	170	18.0	18.0	19.0	19.0
	50	7.2	7.0	4.0	4.0	360	170	17.1	17.1	18.1	18.1
	65	7.2	7.0	4.0	4.0	360	170	19.0	19.0	19.7	19.7
125	80	7.2	7.0	4.0	4.0	360	175	18.4	18.4	19.6	19.6
	100	7.2	7.2	4.0	4.0	360	180	19.0	19.0	20.5	20.5
	40*	7.5	7.0	4.0	4.0	400	185	22.0	22.0	23.0	26.0
	50*	7.5	7.0	4.0	4.0	400	185	23.0	23.0	24.0	27.0
150	80	7.5	7.0	4.0	4.0	400	190	22.8	22.8	24.3*	26.8*
	100	7.5	7.2	4.0	4.0	400	195	23.8	23.8	25.8*	28.3*
	125	7.5	7.5	4.0	4.0	400	200	25.2	25.2	26.7	30.7
	40*	7.8	7.0	4.0	4.0	500	194	38.0	38.0	40.0	44.0
	50	7.8	7.0	4.0	4.0	440	200	30.5	30.5	32.5	36.5
	80	7.8	7.0	4.0	4.0	440	205	28.5	28.5	30.5	35.0
100	7.8	7.2	4.0	4.0	440	210	29.4	29.4	31.9	35.9	
	125	7.8	7.5	4.0	4.0	440	215	30.9	30.9	33.4*	38.9*
	150	7.8	7.8	4.0	4.0	440	220	32.3	32.3	35.3	41.9

* On request

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining



FGR 10

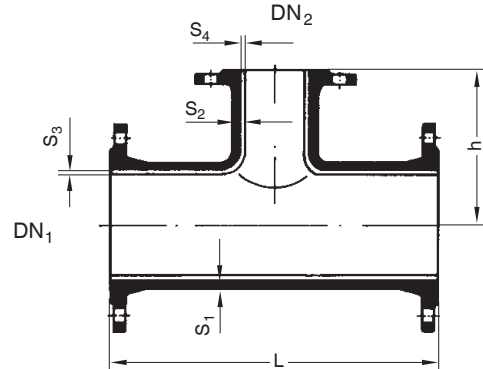


All-flanged tee

According to DIN EN 545

T

Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm						Weight of the casting in kg ≈			
		S ₁	S ₂	S ₃	S ₄	L	h	PN 10	PN 16	PN 25	PN 40
200	50*	8.4	7.0	4.0	4.0	600	225	60.0	59.5	64.0	74.0
	80	8.4	7.0	4.0	4.0	520	235	42.2	41.7	45.7	56.7
	100	8.4	7.2	4.0	4.0	520	240	43.1	42.6	47.1	57.6
	125	8.4	7.5	4.0	4.0	520	245	51.0	51.0	55.0	58.0
	150	8.4	7.8	4.0	4.0	520	250	46.0	45.5	50.5	63.0
	200	8.4	8.4	4.0	4.0	520	260	49.5	48.5	55.0	70.5
250	50*	9.0	7.0	4.0	4.0	700	275	85.0	84.0	92.0	111.0
	80	9.0	7.0	4.0	4.0	700	265	66.5	66.0	74.0	95.0
	100	9.0	7.2	4.0	4.0	700	275	67.6	66.6	75.1	95.2
	125*	9.0	7.5	4.0	4.0	700	275	92.0	91.0	100.0	121.0
	150	9.0	7.8	4.0	4.0	700	300	72.0	71.5	79.5	100.5
	200	9.0	8.4	4.0	4.0	700	325	76.0	75.5	83.5	104.5
300	250	9.0	9.0	4.0	4.0	700	350	81.0	80.5	88.5	109.5
	50*	9.6	7.0	4.0	4.0	800	300	120.0	119.0	130.0	161.0
	80	9.6	7.0	4.0	4.0	800	290	96.5	95.5	108.0*	142.0*
	100	9.6	7.2	4.0	4.0	800	300	98.5	97.5	104.8*	135.8*
	125*	9.6	7.5	4.0	4.0	800	300	125.0	124.0	136.0	167.0
	150	9.6	7.8	4.0	4.0	800	325	101.0	100.0	112.0*	145.0*
350*	200	9.6	8.4	4.0	4.0	800	350	102.4	101.4	114.4*	151.4*
	250	9.6	9.0	4.0	4.0	800	400	113.9	112.9	128.9*	175.9*
	300	9.6	9.6	4.0	4.0	800	375	114.0	113.0	128.0*	168.0*
	80	10.2	7.0	5.0	4.0	850	325	159.0	165.0	182.0	224.0
	100	10.2	7.2	5.0	4.0	850	325	115.5	121.5	138.5	181.5
	150	10.2	7.8	5.0	4.0	850	325	164.0	170.0	188.0	232.0
350*	200	10.2	8.4	5.0	4.0	850	325	120.5	126.5	145.5	193.5
	250	10.2	9.0	5.0	4.0	850	325	173.0	179.0	199.0	258.0
	300	10.2	9.6	5.0	4.0	850	425	188.0	194.0	218.0	274.0
	350	10.2	10.2	5.0	5.0	850	425	138.8	147.8	172.8	236.8

* On request

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining



FGR 10

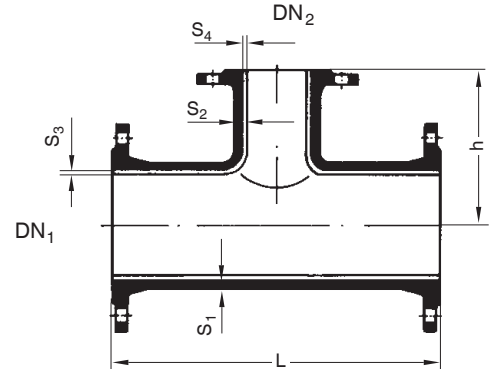


All-flanged tee

According to DIN EN 545

T

Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm						Weight of the casting in kg ≈			
		S ₁	S ₂	S ₃	S ₄	L	h	PN 10	PN 16	PN 25	PN 40
400	80	10.8	7.0	5.0	4.0	900	350	141.0	153.0	235.0*	302.0*
	100	10.8	7.2	5.0	4.0	900	350	143.0	155.0	176.4*	244.4*
	150	10.8	7.8	5.0	4.0	900	350	145.0	157.0	241.0*	310.0*
	200	10.8	8.4	5.0	4.0	900	350	165.0	177.0	183.3*	255.3*
	250*	10.8	9.0	5.0	4.0	900	350	215.0	226.0	252.0	330.0
	300	10.8	9.6	5.0	4.0	900	450	177.0	191.0	271.0*	354.0*
	350*	10.8	10.2	5.0	5.0	900	450	329.0	343.0	374.0	464.0
	400	10.8	10.8	5.0	5.0	900	450	191.5	210.0	219.5	320.5*
500	80	12.0	7.0	5.0	4.0	1000	400	200.0	228.0	260.0*	328.0*
	100	12.0	7.2	5.0	4.0	1000	400	208.0	238.0	264.5*	331.5*
	150	12.0	7.8	5.0	4.0	1000	400	216.0	252.0	359.0*	428.0*
	200	12.0	8.4	5.0	4.0	1000	400	224.0	266.0	269.5*	342.5*
	250	12.0	9.0	5.0	4.0	1000	400	234.0	280.0	372.0*	450.0*
	300	12.0	9.6	5.0	4.0	1000	500	245.0	294.0	393.0	476.0*
	350*	12.0	10.2	5.0	5.0	1000	500	342.0	376.0	407.0	496.0
	400*	12.0	10.8	5.0	5.0	1000	500	234.7	270.7	305.7	406.7
600	500	12.0	12.0	5.0	5.0	1000	500	302.5	350.0	324.6*	425.6*
	80*	13.2	7.0	5.0	4.0	1100	450	304.0	353.0	374.0	478.0
	100	13.2	7.2	5.0	4.0	1100	450	334.0	369.0	518.0*	623.0*
	150	13.2	7.8	5.0	4.0	1100	450	336.0	372.0	522.0*	630.0*
	200	13.2	8.4	5.0	4.0	1100	450	342.0	378.0	387.0*	497.0*
	250	13.2	9.0	5.0	4.0	1100	450	350.0	403.0	533.0*	648.0*
	300	13.2	9.6	5.0	4.0	1100	550	360.0	413.0	553.0*	673.0*
	350*	13.2	10.2	5.0	5.0	1100	550	475.0	531.0	568.0	695.0
	400	13.2	10.8	5.0	5.0	1100	550	374.0	432.0	422.0*	561.0*
	500	13.2	12.0	5.0	5.0	1100	550	390.0	456.0	697.0*	746.0*
	600	13.2	13.2	5.0	5.0	1100	550	440.0	518.0	465.0*	623.0*

* On request
 S₁, S₂ Wall thickness of the casting
 S₃, S₄ Thickness of the cement mortar lining



FGR 10

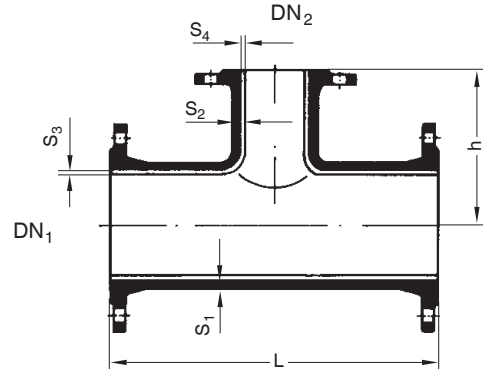
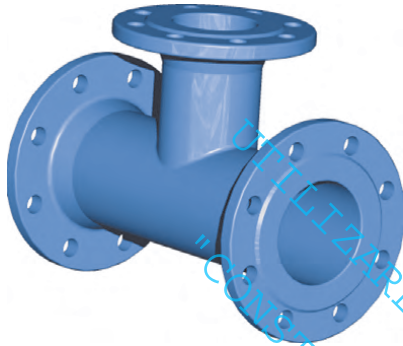


All-flanged tee

According to DIN EN 545

T

Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm						Weight of the casting in kg ≈			
		S ₁	S ₂	S ₃	S ₄	L	h	PN 10	PN 16	PN 25	PN 40
700*	100	14.4	7.2	6.0	4.0	650	510	270.0	296.0	366.0	
	150	14.4	7.8	6.0	4.0	1200	500	608.0	638.0	659.0	
	200	14.4	8.4	6.0	4.0	650	525	265.9	295.9	366.9	
	250	14.4	9.0	6.0	4.0	1200	500	615.0	645.0	719.0	
	300	14.4	9.6	6.0	4.0	870	540	344.0	370.0	444.0	
	350	14.4	10.2	6.0	5.0	1200	600	642.0	675.0	753.0	
	400	14.4	10.8	6.0	5.0	870	555	337.5	372.5	453.5	
	500	14.4	12.0	6.0	5.0	1200	570	669.0	714.0	796.0	
	600	14.4	13.2	6.0	5.0	1200	585	686.0	743.0	827.0	
	700	14.4	14.4	6.0	6.0	1200	600	459.0	504.0	609.0	
800	100	15.6	7.0	6.0	4.0	690	570	354.0	390.0	528.0*	
	150	15.6	7.2	6.0	4.0	690	580	370.0	392.0	476.0*	
	200	15.6	7.8	6.0	4.0	690	585	349.5	387.5	487.5*	
	250	15.6	8.4	6.0	4.0	690	585	379.0	401.0	486.0*	
	300	15.6	9.0	6.0	4.0	690**	600	443.0	478.0	620.0*	
	350*	15.6	9.6	6.0	5.0	1300	650	849.0	849.0	987.0	
	400	15.6	10.2	6.0	5.0	910	615	434.0	478.0	588.0*	
	500	15.6	10.8	6.0	5.0	1350	630	607.0	657.0	795.0*	
	600	15.6	12.0	6.0	5.0	1350	645	599.5	663.5	776.5*	
	700*	15.6	13.2	6.0	6.0	1300	650	916.0	916.0	1054.0	
900*	100	16.8	7.2	6.0	4.0	730	640	445.0	488.0	730.0	
	200	16.8	8.4	6.0	4.0	730	645	432.0	480.0	603.0	
	250	16.8	9.0	6.0	4.0	730	635	461.0	482.0	581.0	
	300	16.8	9.6	6.0	4.0	950	660	544.0	588.0	690.0	
	400	16.8	10.8	6.0	5.0	950	675	532.5	585.5	717.5	
	500	16.8	12.0	6.0	5.0	1500	690	784.0	842.0	960.0	
	600	16.8	13.2	6.0	5.0	1500	705	771.0	846.0	981.0	
	900	16.8	16.8	6.0	5.0	1500	750	818.0	890.0	1071.0	

* On request

** Face-to-face length according to factory standard

S₁, S₂ Wall thickness of the casting

S₃, S₄ Thickness of the cement mortar lining



FGR 10

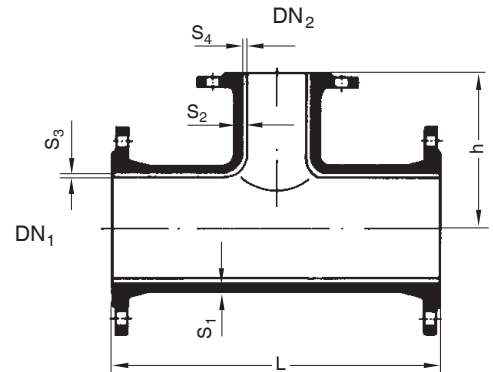


All-flanged tee

According to DIN EN 545

T

Made of ductile cast iron (SGCI)



DN ₁	DN ₂	Dimensions in mm						Weight of the casting in kg ≈			
		S ₁	S ₂	S ₃	S ₄	L	h	PN 10	PN 16	PN 25	PN 40
1000	200*	18.0	8.4	6.0	4.0	770	705	541.0	624.0	782.0	
	250*	18.0	9.0	6.0	4.0	770	705	590.0	695.0	763.0	
	300*	18.0	9.6	6.0	4.0	1500	750	1363.0	1360.0	1516.0	
	400	18.0	10.8	6.0	5.0	990	735	658.0	746.0	913.0	
	500	18.0	12.0	6.0	5.0	1500	750	1396.0	1395.0	1551.0	
	600	18.0	13.2	6.0	5.0	1650	765	990.5	1099.5	1269.5	
700*	700*	18.0	14.4	6.0	6.0	1500	750	1446.0	1445.0	1601.0	
	800	18.0	15.6	6.0	6.0	1500	750	1468.0	1465.0	1621.0*	
	900*	18.0	16.8	6.0	6.0	1500	750	1464.0	1460.0	1616.0	
	1000	18.0	18.0	6.0	6.0	1650	825	1058.5	1183.5	1416.5*	
1200*	200	20.4	8.4	6.0	4.0	850	825	804.0	932.0	1133.0	
	250	20.4	9.0	6.0	4.0	1215	875	1187.0	1276.0	1440.0	
	400	20.4	10.8	6.0	5.0	1070	855	957.5	1091.5	1301.5	
	600	20.4	13.2	6.0	5.0	1950	885	1544.0	1699.0	1913.0	
	1000	20.4	18.0	6.0	6.0	1700	945	1600.0	1705.0	1882.0	
1200	20.4	20.4	6.0	6.0	1950	975	1662.0	1855.0	2153.0		

* On request
 S₁, S₂ Wall thickness of the casting
 S₃, S₄ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request

TT



FGR 10

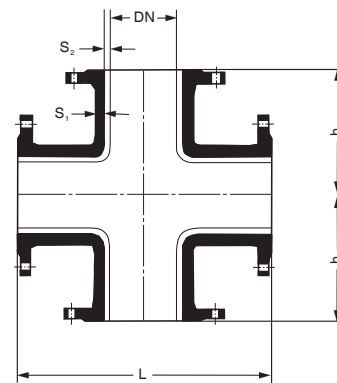
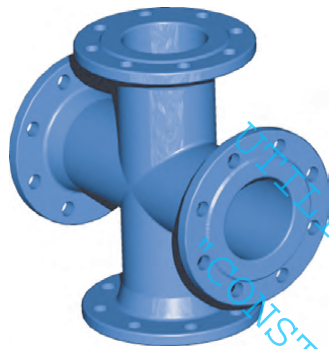


All-flanged cross piece

According to DIN EN 545

TT

Made of ductile cast iron (SGCI)



DN	Dimensions in mm				Weight of the casting in kg ≈	
	S ₁	S ₂	L	h	PN 10	PN 16
80/80	8.1	4.0	330	165	20	20
100/100	8.4	4.0	360	180	26	26
150/150	9.1	4.0	440	220	39	39
200/200	9.8	4.0	520	260	58	58
300/300	11.2	4.0	800	400	155	160
400/400	12.6	6.0	900	450	218	225

Other nominal sizes on request

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Friezinc coating on request



FGR 10

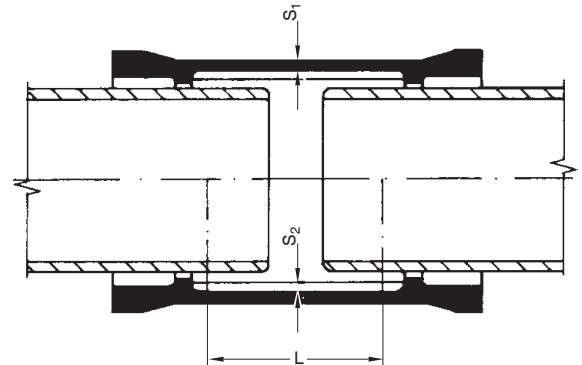


Collar with screwed socket connection

According to DIN EN 545

U

Made of ductile cast iron (SGCI)



DN	Dimensions in mm			Weight of the casting in kg	
	S ₁	S ₂	L	SMU ¹⁾	STO ²⁾
80	7.0	4.0	160	7.7	–
100	7.2	4.0	160	9.7	–
125	7.5	4.0	165	12.5	–
150	7.8	4.0	165	15.2	–
200	8.4	4.0	170	22.2	–
250	9.0	4.0	175	30.0	–
300	9.6	4.0	180	38.2	–
400	10.8	5.0	190	57.5	–
500 ²⁾	12.0 ²⁾	5.0 ²⁾	200 ²⁾	–	78.0
600 ²⁾	13.2 ²⁾	5.0 ²⁾	210 ²⁾	–	102.0

¹⁾ SMU = Screw-gland socket according to DIN 28601 (with thrust protection on request)

²⁾ STO = Bolted-gland socket according to DIN 28602

S₁ Wall thickness of the casting

S₂ Thickness of the cement mortar lining

The permitted component operating pressure (PFA) for screw-gland and bolted-gland socket joints is 16 bar – higher pressures on request.

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901 with a minimum layer thickness of 300 µm
- Cement mortar lining
- Internal and external enamelling according to DIN 51178
- Fria zinc coating on request

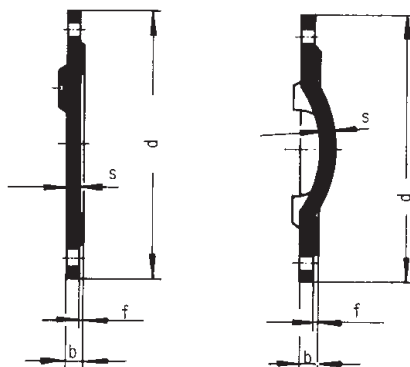
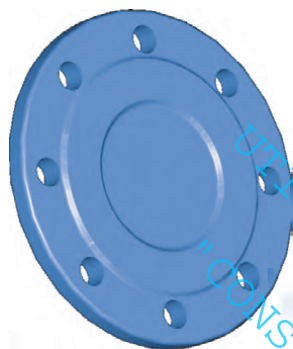


Blind flange

According to DIN EN 545, flange according to DIN EN 1092-2

X

Made of ductile cast iron (SGCI)



DN	d				b				s				f	Drill hole, concentric, up to max.	Weight of the casting in kg ≈			
	PN 10	PN 16	PN 25	PN 40	PN 10	PN 16	PN 25	PN 40	PN 10	PN 16	PN 25	PN 40			PN 10	PN 16	PN 25	PN 40
40	150	150	150	150	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	3	2"	2.5	2.5	2.5	2.5
50	165	165	165	165	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	3	2"	3.0	3.0	3.0	3.0
65	185	185	185	185	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	3	3"	4.0	4.0	4.0	4.0
80	200	200	200	200	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	3	4"	3.6	3.6	3.6	3.6
100	220	220	235	235	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	3	4"	4.3	4.3	4.8	4.8
125	250	250	270	270	19.0	19.0	19.0	23.5	16.0	16.0	16.0	20.5	3	4"	5.6	5.6	6.2*	7.9*
150	285	285	300	300	19.0	19.0	20.0	26.0	16.0	16.0	17.0	23.0	3	4"	7.2	7.2	8.3*	11.1*
200	340	340	360	375	20.0	20.0	22.0	30.0	17.0	17.0	19.0	27.0	3	4"	11.0	10.8	13.3*	20.0*
250	400	400	425	450	22.0	22.0	24.5	34.0	19.0	19.0	21.5	31.0	3	4"	16.9	16.6	21.0*	33.5*
300	455	455	485	515	24.5	24.5	27.5	39.5	20.5	20.5	23.5	35.5	4	4"	26.0	25.5	32.0*	51.5*
350*	505	520	555	580	24.5	26.5	30.0	44.0	20.5	22.5	26.0	40.0	4	4"	33.0	37.0	46.5	73.5
400	565	580	620	660	24.5	28.0	32.0	48.0	20.5	24.0	28.0	44.0	4	4"	41.0	49.0	62.5*	106.0*
500	670	715	730	755	26.5	31.5	36.5	52.0	22.5	27.5	32.5	48.0	4	4"	65.0	85.5*	102.0*	151.0*
600	780	840	845	890	30.0	36.0	42.0	58.0	25.0	31.0	37.0	53.0	5	4"	99.5	136.0*	159.0*	230.0*
700	895	910	960		32.5	39.5	46.5		27.5	34.5	39.5		5	4"	147.0	179.0*	225.0*	
800	1015	1025	1085		35.0	43.0	51.0		30.0	38.0	46.0		5	4"	207.0	252.0*	325.0*	
900	1115	1125	1185		37.5	46.5	55.5		32.5	41.5	50.5		5	4"	273.0	335.0*	429.0*	
1000	1230	1255	1320		40.0	50.0	60.0		35.0	45.0	55.0		5	4"	360.0	453.0*	578.0*	
1200*	1455	1485			45.0	57.0			40.0	52.0			5	4"	582.0	737.0		

* On request

Excentric drill hole available as an option

Surface protection:

- Epoxy resin powder coating according to DIN EN 14901
- Internal and external enamelling according to DIN 51178

Note on installation:

When you use X pieces with bulge, make sure the bulged side faces inside the pipeline. This is because the sealing face is machined on that side only.

Sites and companies

Switzerland

Sites

vonRoll hydro (suisse) ag
Von Roll-Strasse 24
CH-4702 Oensingen
Telephone: +41 (0) 62 388 11 11
Fax: +41 (0) 62 388 11 78
switzerland@vonroll-hydro.world
www.vonroll-hydro.world

Telephone: +41 (0) 800 882 030

vonRoll hydro (suisse) ag
Rüeggisingerstr. 2
CH-6020 Emmenbrücke
Telephone: +41 (0) 41 268 66 77
Fax: +41 (0) 41 268 66 76
switzerland@vonroll-hydro.world
www.vonroll-hydro.world

Telephone: +41 (0) 800 882 030

More information

Oensingen site
(Google Maps)

Service points in Switzerland

Service points
vonRoll hydro (suisse) ag
Industriestrasse 8
7304 Maienfeld

vonRoll hydro (suisse) ag
Rue des Uttins 30
1400 Yverdon

vonRoll hydro (suisse) ag
Via Navett 4
6503 Bellinzona

vonRoll hydro (suisse) ag
Eichzun 4
3800 Unterseen

vonRoll hydro (suisse) ag
Industriestrasse 33a
8304 Wallisellen

Production sites in Switzerland

Production sites
vR production (suisse) ag
von Roll-Strasse 24
CH-4702 Oensingen
Telephone: +41 (0) 62 388 11 11
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info@vrproduction.ch
www.vrproduction.ch

vR production (choindez) sa
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Telephone: +41 (0) 32 436 11 11
Fax: +41 (0) 32 436 11 12
info@vrproduction.ch
www.vrproduction.ch

Austria

Site
vonRoll hydro (austria) gmbh
Herrengasse 6-8/1/23
1010 Vienna, Austria
Telephone: +43 (0) 5263 51585
Fax: +43 (0) 5263 51110-25
austria@vonroll-hydro.world
www.vonroll-hydro.world

"CONSTRUCTIA SONDEI 'REPUBLICA MOLDOVA' UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL: 'REPUBLICA MOLDOVA' CU APA DIN SATUL CAJBA', REPUBLICA MOLDOVA"

Branch establishment

vonRoll hydro (austria) gmbh
Auweg 3
6422 Stams, Austria
Telephone: +43 (0) 52 6351 585

austria@vonroll-hydro.world
www.vonroll-hydro.world

More information

Czech Republic

Site

vonRoll-hydro (cz) s.r.o.
Růžová 1386
CZ - 252 19 Rudná
Telephone +420 311 611 356
Fax +420 311 624 243
czech-republic@vonroll-hydro.world
www.vonroll-hydro.world

More information

France

Site

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20, Route d'Orschwiller
67600 Sélestat, France
Telephone: +33 (0) 3 59 60 04 04
Fax: +33 (0) 3 69 20 81 40
france@vonroll-hydro.world
www.vonroll-hydro.world

More information

Production site in France

Production site

vRproduction (nuelles) s.a.s.
11, rue des Garinnes
69210 Saint-Germain-Nuelles, France
Telephone: +33 (0) 4 74 72 09 50
Fax: +33 (0) 4 74 72 09 51
info@vrproduction.fr
www.vrproduction.fr

Germany

"CONSPECTIA UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
'SATUL CAJBA', REPUBLICA MOLDOVA"
'CONSPECTIA SONDEI ARTEZIENE SI RETELELOR DE ALIMENTARE
DE APA DIN SATUL CAJBA', REPUBLICA MOLDOVA"

Site
vRh (service) gmbh
Lise-Meitner-Strasse 1
72555 Metzingen, Germany
Telephone: +49 7123 947 68 - 0
Fax: +49 7123 947 68 49
germany@vonroll-hydro.world
www.vonroll-hydro.world

vonRoll hydro (deutschland) gmbh & co kg
Sophienstrasse 52 – 54
DE-35576 Wetzlar
Tel +49 6441 49 0
info@duktus.world
www.vonroll-hydro.world

vonRoll hydro (deutschland) gmbh & co kg
Geschwister-Scholl-Strasse 15
DE-02957 Krauschwitz
Tel. +49 35771 54 - 0
Fax +49 35771 54 - 220
info@keula.world
www.vonroll-hydro.world

More information

Production site in Germany

Production site
vR production (prenzlau) gmbh
Armaturenstrasse 4
17291 Prenzlau, Germany
Telephone: +49 3984 / 73 0
Fax: +49 (0) 3984 73 138
info@vrproduction.de
www.vrproduction.de

vR production (DUKTUS) gmbh
Sophienstrasse 52 – 54
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Tel +49 6441 49 0
info@duktus.world
www.vonroll-hydro.world

"CONSPECTUL UTILIZAREI AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"RAZVOIUL SONDII ARTEZIENE SI RETELELOR DE ALIMENTARE
PENTRU LOCALITATEA 'GLODENI', REPUBLICA MOLDOVA"

KEULAHÜTTE GMBH
Geschwister-Scholl-Straße 15
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Tel. +49 35771 54 - 0
Fax +49 35771 54 - 220
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www.vonroll-hydro.world

Italy

Site
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Telephone: +39 (0) 2 805 63 83
Fax: +39 (0) 2 869 90 255
italy@vonroll-hydro.world
www.vonroll-hydro.world

More information

Production sites in Italy

Production site
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Poland

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www.vonroll-hydro.world

More information

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LLC VonRoll hydro.ru
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Telephone +7 495 788 72 68

"CONSPECTUL SI UTILIZAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
RAIUNUL 'SONDEI ARTEZIENE SI RETELELOR DE ALIMENTARE
PENTRU GLOBETI', REPUBLICA MOLDOVA"

russia@vonroll-hydro.world
www.vonroll-hydro.world

More information

Saudi Arabia

Site

vonRoll hydro (ksa) ltd.
Khuraise trading center
Mecca rd. p.o. box 10500
Riyadh 11433
Telephone: +966 (0) 505 822 109
info@vonroll-hydro.sa.com
www.vonroll-hydro.world

More information

Spain

Site

vonRoll hydro (españa) sl
C/ Zurbano, 45 – 1º
28010 - Madrid
Telephone: +34 (0) 91 283 72 00
spain@vonroll-hydro.world
www.vonroll-hydro.world

More information

Do not hesitate to contact us if you have any questions | +41 (0) 800 882 020

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- ZERO WATERLOSS

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- During and after schooling
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vonRoll hydro (suisse) ag | Von Roll-Strasse 24 | 4702 Oensingen, Switzerland

Telephone: +41 (0) 62 388 11 11 | switzerland@vonroll-hydro.world

A vonRoll infratec Group company





CASTING



HYDRO



KEULA



DUKTUS

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCȚIA SONDEI ARTEZIENE SI RETELELOR DE ALIMENTARE
RAJONUL GLODENI, REPUBLICA MOLDOVA"
CU APA DIN SATUL CAJBA,



BIKES

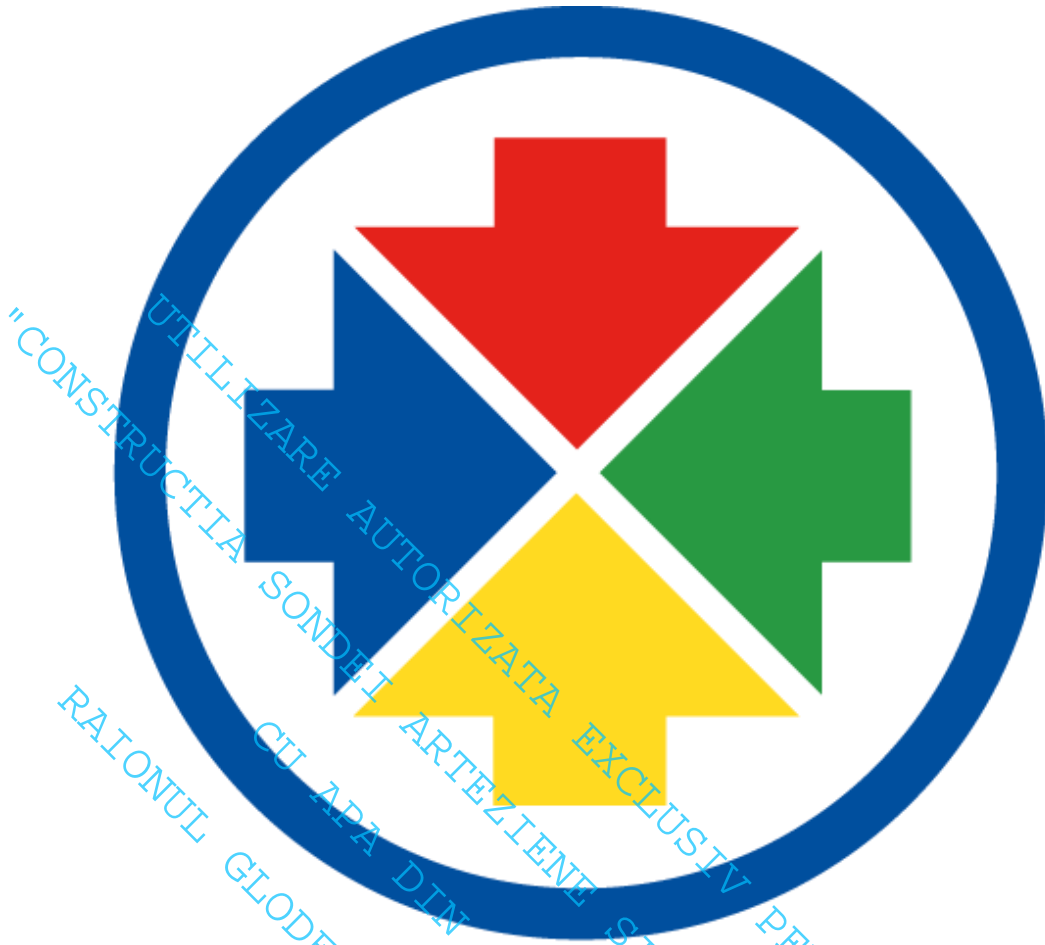


HANDLING



PRODUCTION

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
"CONSTRUCȚIA SONDEI ARTEZIENE SI REȚELELOR DE ALIMENTARE
RAIONUL GLODENI, CU APA DIN SATUL CAJBA,
REPUBLICA MOLDOVA"



ALTECNO
ECOPARTS

ZERTIFIKAT

für das Managementsystem nach

DIN EN ISO 9001:2015

Der Nachweis der regelkonformen Anwendung wurde erbracht

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PRODUCUL:
ARTEZIENE SI REFELELOR DE ALIMENTARE CU APA DIN SAUTUL GLODENI, REPUBLICA MOLDOVA "CONSTRUCIILE SMELT



PRODUCTION



HYDRO

Zertifikatsinhaber:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
D-35576 Wetzlar

mit dem Standort bei:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
D-35576 Wetzlar

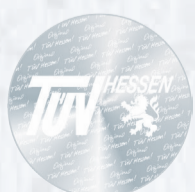
Geltungsbereich:

Vertrieb von Rohrleitungssystemen aus duktilem Gusseisen für den Transport von Wasser und Abwasser einschließlich spezieller Anwendungen für Wasserkraftwerke, Beschneigungsanlagen und Feuerlöschsysteme sowie für grabenlose Verlegetechniken und Pfahlsysteme für den Spezialtiefbau, Armaturen, Hydranten, Messtechnik und Entwässerungstechnik.

Zertifikat-Registrier-Nr. **73 100 954-2**

Zertifikat gültig von 2019-12-20 bis **2022-12-19**

Auditbericht-Nr. 4355 7131



Deutsche
Akkreditierungsstelle
D-ZM 14137-01-00



o. Maht
Darmstadt, 2019-12-02
Zertifizierungsstelle des TÜV Hessen
- Der Zertifizierungsstellenleiter -

CERTIFICATE

Management system as per

DIN EN ISO 9001:2015

Evidence of conformity with the above standard(s) has been furnished

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTE:
ARTEZIENE SI REZELELOR DE ALIMENTARE CU APA DIN SAUT CAJRAI SI SIBIU
RAJONTUL GLODENI, REPUBLICA MOLDOVA



PRODUCTION



HYDRO

Certificate holder:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Germany

with the location at:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Germany

scope:

The sale of pipework systems made from ductile cast iron for the conveyance of water and sewage including special applications for hydroelectric power stations, snow-making equipment and fire extinguishing systems as well as for non-disruptive pipe installation techniques and piling systems for special foundation engineering works, fittings, hydrants, metrology and drainage engineering.

Certificate registration No. **73 100 954-2**

Certificate valid from 2019-12-20 to **2022-12-19**

Audit report No. 4355 7131



O. Malt
Darmstadt, 2019-12-02
Certification body of TÜV Hessen
– Head of Certification body –

CERTIFICATO

per il sistema di gestione secondo

EN ISO 9001:2015

La prova della conformità alla norma sopra indicata è stata fornita

UTILIZZARE AUTORIZZATA EXCLUSIV PENTRU PROTECTIA
ARTEZIENE SI REZELELOR DE ALIMENTARE CU APA DIN SAITEA CALTEA
RAIONUL BLODNI, REPUBLICA MOLDOVA "CONSTRUCTIA FONTANARIEI"



PRODUCTION



HYDRO

Licenziatario Certificato:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Germania

con la posizione a:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Germania

Campo di applicazione:

Vendita di sistemi di tubature in ghisa duttile per il trasporto di acqua e acqua di scarico e per utilizzi speciali per centrali idroelettriche, impianti di innevamento e sistemi antincendio nonché per tecniche di posa trenchless e sistemi di pilastri per opere di costruzione sotterranee speciali, rubinetterie, idranti, tecnica di misurazione e di drenaggio.

NO registrazione certificato **73 100 954-2**

Certificato valido da 2019-12-20 a **2022-12-19**

Rapporto di Audit 4355 7131



o. Malt
Darmstadt, 2019-12-02
Organismo di Certificazione del TÜV Hessen
– Responsabile della certificazione –

CERTIFICAT

Pour le système de management selon

EN ISO 9001:2015

La preuve de l'utilisation conforme aux règles a été démontrée

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROFITUL
ARTEZIENE SI REZELELOR DE ALIMENTARE CU
RAIONTY GLODENT, REPUBLICA MOLDOVA
"CONSTRUCIILE SINTETI"

Titulaire de la certification:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Allemagne

avec l'emplacement à:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Allemagne



PRODUCTION



HYDRO

Domaine d'application:

Distribution de tuyaux en fonte ductile pour le transport de l'eau et des eaux usées, y compris les applications spéciales pour des centrales hydroélectriques, des systèmes d'enneigement et des installations d'extinction d'incendie, ainsi que pour les techniques de pose sans tranchée et systèmes de pieux pour des fondations, robinetterie, poteaux d'incendie, technique de mesure et d'évacuation des eaux.

Certificat enregistré sous le n° **73 100 954-2**

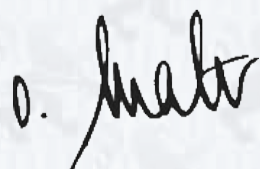
Certificat valable du 2019-12-20 au **2022-12-19**

Rapport-Audit n° 4355 7131



Deutsche
Akkreditierungsstelle
D-ZM 14137-01-00




Darmstadt, 2019-12-02
Organisme de certification du TÜV Hessen
- Le chef de service de la certification -

ZERTIFIKAT

für das Managementsystem nach

DIN EN ISO 14001:2015

Der Nachweis der regelkonformen Anwendung wurde erbracht

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL:
ARTEZIENE SI RETELELOR DE ALIMENTARE CU APA DIN SATUL CALBETI
RAJONUL GLODENI, REPUBLICA MOLDOVA
"CONSTRUCTIA SCHEDEI"



Zertifikatsinhaber:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
D-35576 Wetzlar

mit dem Standort bei:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
D-35576 Wetzlar

Geltungsbereich:

Vertrieb von Rohrleitungssystemen aus duktilem Gusseisen
für den Transport von Wasser und Abwasser einschließlich spezieller Anwendungen
für Wasserkraftwerke, Beschneiungsanlagen und Feuerlöschsysteme
sowie für grabenlose Verlegetechniken und Pfahlsysteme für den Spezialtiefbau,
Armaturen, Hydranten, Messtechnik und Entwässerungstechnik.

Zertifikat-Registrier-Nr. **73 104 954-2**

Zertifikat gültig von 2019-12-20 bis **2022-12-19**

Auditbericht-Nr. 4355 7131



O. Malt
Darmstadt, 2019-12-02
Zertifizierungsstelle des TÜV Hessen
– Der Zertifizierungsstellenleiter –

CERTIFICATE

Management system as per

DIN EN ISO 14001:2015

Evidence of conformity with the above standard(s) has been furnished

UTILIZARE AUTORIZATA
ARTEZIENE SI RETELELOR DE ALIMENTARE
RAJONUL GLODENI, REPUBLICA MOLDOVA
EXCLUSIV PENTRU
PRIMELE
"CONSTRUCTII CAJETA SI METEJ"



PRODUCTION



HYDRO

Certificate holder:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Germany

with the location at:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Germany

scope:

The sale of pipework systems made from ductile cast iron for the conveyance of water and sewage including special applications for hydroelectric power stations, snow-making equipment and fire extinguishing systems as well as for non-disruptive pipe installation techniques and piling systems for special foundation engineering works, fittings, hydrants, metrology and drainage engineering.

Certificate registration No. **73 104 954-2**

Certificate valid from 2019-12-20 to **2022-12-19**

Audit report No. 4355 7131



Deutsche
Akkreditierungsstelle
D-ZM 14137-01-00



O. Malt
Darmstadt, 2019-12-02
Certification body of TÜV Hessen
– Head of Certification body –

CERTIFICATO

per il sistema di gestione secondo

EN ISO 14001:2015

La prova della conformità alla norma sopra indicata è stata fornita

UTILIZZARE AUTORIZZATA EXCLUSIVAMENTE PER RAI ONTE GLODENI, REPUBLICA MOLDOVA
ARTEZIENE SI RETELELOR DE ALIMENTARE CU APA DIN SATU CRUTA PONTETI
"CONSTRUCTII PONTETI"



PRODUCTION



HYDRO

Licenziatario Certificato:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Germania

con la posizione a:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Germania

Campo di applicazione:

Vendita di sistemi di tubature in ghisa duttile per il trasporto di acqua e acqua di scarico e per utilizzi speciali per centrali idroelettriche, impianti di innevamento e sistemi antincendio nonché per tecniche di posa trenchless e sistemi di pilastri per opere di costruzione sotterranee speciali, rubinetterie, idranti, tecnica di misurazione e di drenaggio.

NO registrazione certificato **73 104 954-2**

Certificato valido da 2019-12-20 a **2022-12-19**

Rapporto di Audit 4355 7131



DAkkS

Deutsche
Akkreditierungsstelle
D-ZM 14137-01-00



Darmstadt, 2019-12-02
Organismo di Certificazione del TÜV Hessen
– Responsabile della certificazione –

CERTIFICAT

Pour le système de management selon

EN ISO 14001:2015

La preuve de l'utilisation conforme aux règles a été démontrée

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROTECTIA
ARTEZIENE SI RETELELOR DE ALIMENTARE CU APA DIN SATUL
RAJONULI GLODENI, REPUBLICA MOLDOVA "CONSTRUCTIA
GRUPA 15/16/17



PRODUCTION



HYDRO

Titulaire de la certification:

vR production (DUKTUS) gmbh
Sophienstraße 52-54
35576 Wetzlar / Allemagne

avec l'emplacement à:

vonRoll hydro (deutschland) gmbh & co. kg
Sophienstraße 52-54
35576 Wetzlar / Allemagne

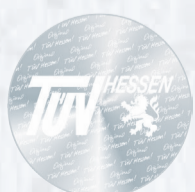
Domaine d'application:

Distribution de tuyaux en fonte ductile pour le transport de l'eau et des eaux usées, y compris les applications spéciales pour des centrales hydroélectriques, des systèmes d'enneigement et des installations d'extinction d'incendie, ainsi que pour les techniques de pose sans tranchée et systèmes de pieux pour des fondations, robinetterie, poteaux d'incendie, technique de mesure et d'évacuation des eaux.

Certificat enregistré sous le n° **73 104 954-2**

Certificat valable du 2019-12-20 au **2022-12-19**

Rapport-Audit n° 4355 7131



DAkkS

Deutsche
Akkreditierungsstelle
D-ZM 14137-01-00



Darmstadt, 2019-12-02
Organisme de certification du TÜV Hessen
- Le chef de service de la certification -



THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

SQS has issued an IQNet recognized certificate that the organization:

vonRoll hydro (suisse) ag

Von Roll-Strasse 24

4702 Oensingen

Switzerland

has implemented and maintains a

Management System

for the following scope:

Further sites according to appendix SQS

which fulfills the requirements of the following standard(s):

ISO 9001:2015 / ISO 14001:2015 / ISO 45001:2018

Issued on: 2020-04-01

Expires on: 2023-03-31

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: CH-H20430



Alex Stoichitoiu
President of IQNet

Felix Müller
CEO SQS



IQNet Partners*:

AENOR Spain AFNOR Certification France APCER Portugal CCC Cyprus CISQ Italy
CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany EAGLE Certification Group USA
FCAV Brazil FONDONORMA Venezuela ICONTEC Colombia Inspecta Sertifiointi Oy Finland INTECO Costa Rica
IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland
NYCE-SIGE México PCBC Poland Quality Austria Austria RR Russia SII Israel SIQ Slovenia
SIRIM QAS International Malaysia SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey YUQS Serbia

* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

Zertifikat

In einem Zertifizierungsaudit hat die Organisation

Keulahütte GmbH

am Standort

Geschwister Scholl-Str. 15, 02957 Krauschwitz



KEULA

nachgewiesen, dass ein Energiemanagementsystem eingeführt wurde und erfolgreich angewendet wird entsprechend der Norm

ISO 50001

DIN EN ISO 50001 Ausgabe Dezember 2018

für die Tätigkeit

Entwicklung, Herstellung und Vertrieb von Formstücken, Hydranten, Armaturen und Gusserzeugnissen für den Maschinen-, Anlagen- und Fahrzeugbau

Dieses Zertifikat ist gültig vom 09.04.2021 bis zum 05.05.2022

Berlin, 9. April 2021

Prof. Dr.-Ing. Jan Uwe Lieback
Geschäftsführer

Andreas Lemke
Leiter der Zertifizierungsstelle



Nr. b-21-23094

Duktus (Production) GmbH
Sophienstraße 52–54
35576 Wetzlar
Germany

T + 49 (0) 6441 49-01
Fax +49 (0) 6441 49-1303
www.duktus.com

Konformitätserklärung

Declaration of Conformity

Gemäß EG-Bauproduktenrichtlinie 89/106/EWG
In accordance with EU Construction Products Directive 89/106/EEC

Hersteller
Manufacturer

Duktus (Production) GmbH,
Sophienstraße 52 – 54, D-35576 Wetzlar

erklärt, dass die Produkte
declare that the products

Bezeichnung
Description

Rohre, Formstücke und Zubehörteile aus duktilem
Gusseisen für die Abwasser-Entsorgung
Ductile iron pipes, fittings and accessories for sewerage applications

Nennweiten
nominal dimension

DN 80-1000

den Bestimmungen der EN 598 entsprechen und die Voraussetzungen für die CE
Kennzeichnung gemäß EN 598 erfüllen. Für Handelsware liegt die CE-Konformitätserklärung
der Hersteller vor.

comply with the specifications of EN 598 and fulfill the requirements for CE marking according to EN 598.
Merchandise traded: Suppliers' declarations of CE conformity are available.

Angewandtes Regelwerk:
Applied standard

EN 598

Konformitätsbewertung nach:
Assessment of conformity according to

EN 598



Die Produkte wurden einer Erstprüfung unterzogen und unterliegen der werkseigenen Produktionskontrolle gemäß
EN 598. Jegliche nachträgliche Veränderung an den Produkten, die Auswirkungen auf die technische Ausführung
und/oder auf die bestimmungsgemäße Verwendung entsprechend der Betriebsanleitung hat, macht diese
Erklärung nichtig.

The products passed the initial type-testing and the manufacturer carries out tests in accordance with EN 598. Any modification of the
products which changes the technical layout and/or the field of application as specified in the operating instructions
invalidates this declaration.

Ort, Datum
Place, date

Stefan Weber

Wetzlar, 11.10.2016

Geschäftsführung Wetzlar
Executive board Wetzlar



Certificate of Compliance

This certificate is issued for the following:

DUCTILE IRON PIPE

BLS AND BLS WITH RETAINING RING SIZES 80 THROUGH 400 MM NPS

Prepared for:

Duktus (Wetzlar) GmbH & Co. KG
Sophienstraße 52-54
Wetzlar 35576
Germany

Manufactured at:

Duktus (Production) GmbH
Sophienstraße 52-54
Wetzlar 35576
Germany

FM Approvals Class: 1610

Approval Identification: 0003026057
Revision Request: RR209514

Approval Granted: October 12, 2016
Dated: May 11, 2017

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

David B. Fuller
VP, Manager – Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062 USA



Member of the FM Global Group



Duktus (Production) GmbH
Sophienstraße 52-54
35576 Wetzlar
Deutschland

Magistrat der Stadt Wien
Magistratsabteilung 39
Prüf-, Überwachungs- und
Zertifizierungsstelle der Stadt Wien
Rinnböckstraße 15/2
1110 Wien
Tel.: (+43 1) 4000-8039
Fax: (+43 1) 4000-99-8039
E-Mail: post@ma39.wien.gv.at
www.ma39.wien.at www.ma39.wien.at

MA 39 – VFA 2019-0221.03

Wien, 3. April 2019

Bescheinigung über Fremdüberwachung 2019

**Auftraggeber und
Herstellwerk:** Duktus (Production) GmbH
D-35576 Wetzlar

Inspektionsgegenstand: Rohre und Formstücke aus duktilem Gusseisen für die
Wasserversorgung, Ausführungsvarianten: TYTON, TYTON-TIS-K,
TYTON-SIT, TYTON-NOVO-SIT, VRS, BLS, BRS und Flansch
Nennweiten DN 80 bis DN 1000

Datum der Inspektion: 5. und 6. März 2019

Inspektionsprogramm: Fremdüberwachung
gemäß DIN EN 545 bzw. ISO 2531 und DVGW GW 337
auf Basis des Überwachungsvertrages MA 39 – ROR – Ü 1577/2018:

- Inspektion des Fertigungsprozesses
- Überprüfung werkseigener Produktionskontrolle
- Produktprüfungen

Inspektionsergebnis: Sowohl die werkseigene Produktionskontrolle, als auch die
Prüfergebnisse erreichen die Anforderungen gemäß DIN EN 545 bzw.
ISO 2531 und DVGW GW 337

Der Sachbearbeiter:

Ing. Bernhard Wihlidal

Der Laboratoriumsleiter:

Dipl.-Ing. Andreas Tichy
Oberstadtbaurat

Der Leiter der Prüf-, Überwachungs-
und Zertifizierungsstelle:

Dipl.-Ing. Georg Pommer
Senatsrat

Die Inspektion, sowie die Prüfungen und deren Ergebnisse sind im Inspektionsbericht MA 39 – VFA 2019-0221.01 dokumentiert.

Prüfungen beziehen sich ausschließlich auf die Prüfgegenstände. Alle Seiten des Berichtes sind mit dem Amtssiegel der Stadt Wien versehen. Veröffentlichung und Auszüge bedürfen der schriftlichen Bewilligung der MA 39. Bitte beachten Sie die derzeit gültigen Allgemeinen Geschäftsbedingungen der MA 39 im Internet unter <http://www.ma39.wien.at>.

Zertifiziert gemäß den Forderungen der ÖNORM EN ISO 9001:2008 und der ÖNORM EN ISO 14001:2004 durch die Quality Austria.

Öffnungszeiten: Montag bis Donnerstag: 7:30 - 15:30 Uhr und Freitag: 7:30 - 13:30 Uhr; UID: ATU 36801500
Bankverbindung: Bank Austria, IBAN: AT631200051428007186; BIC: BKAUATWW, DVR: 0000191



Duktus (Production) GmbH
Sophienstraße 52-54
35576 Wetzlar
Deutschland

Municipality of Vienna
MUNICIPAL DEPARTMENT 39
Testing; inspection and certification body
of the City of Vienna
Address: Rinnböckstrasse 15/2
A-1110 Vienna
Tel.: (+43 1) 79514-8039
Fax: (+43 1) 79514-99-8039
E-Mail: post@ma39.wien.gv.at
Homepage: www.ma39.wien.at

MA 39 – VFA 2019-0221.05

Vienna, 3. April 2019

Attestation of Inspection 2019

Applicant and production plant : Duktus (Production) GmbH
D-35576 Wetzlar

Object of inspection: Ductile iron pipes and fittings for water pipelines,
type variation: TYTON, TYTON-TIS-K, TYTON-SIT, TYTON-NOVO-SIT, VRS, BLS, BRS and flange
nominal size DN 80 to DN 1000

Date of Inspection: 5th and 6th of March 2019

Inspection program: third party inspection
according to ISO 2531, DIN EN 545 and DVGW GW 337
based on the inspection contract MA 39 – ROR – Ü 1557/2018:

- Inspection of the production process
- Inspection of the factory production control
- Testing of products

Result of the inspection: The factory production control as well as the test results comply with the requirements according to ISO 2531, DIN EN 545 and DVGW GW 337

The official:

Ing. Bernhard Wihlidal

The head of the laboratory:

Dipl.-Ing. Andreas Tichy

The head of testing, inspection and certification body:

Dipl.-Ing. Georg Pommer



The inspection plus the performed tests and their results are documented in the inspection report MA 39 – VFA 2019-0221.01. In any case of doubt the attestation MA 39 – VFA 2019-0221.03 in German language is binding.



Duktus (Production) GmbH
Sophienstraße 52-54
35576 Wetzlar
Deutschland

Magistrat der Stadt Wien
Magistratsabteilung 39
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Zertifizierungsstelle der Stadt Wien
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E-Mail: post@ma39.wien.gv.at
www.ma39.wien.at www.ma39.wien.at

MA 39 – VFA 2019-0221.04

Wien, 3. April 2019

Bescheinigung über Fremdüberwachung 2019

**Auftraggeber und
Herstellwerk:** Duktus (Production) GmbH
D-35576 Wetzlar

Inspektionsgegenstand: Rohre und Formstücke aus duktilem Gusseisen für die
Wasserversorgung, Ausführungsvarianten: TYTON, TYTON-TIS-K,
TYTON-SIT, TYTON-NOVO-SIT, VRS, BLS, BRS und Flansch
Nennweiten DN 80 bis DN 1000

Datum der Inspektion: 5. und 6. März 2019

Inspektionsprogramm: Fremdüberwachung
gemäß ISO 7186, DIN EN 598 und FGR 61
auf Basis des Überwachungsvertrages MA 39 – ROR – Ü 1557/2018:
- Inspektion des Fertigungsprozesses
- Überprüfung werkseigener Produktionskontrolle
- Produktprüfungen

Inspektionsergebnis: Sowohl die werkseigene Produktionskontrolle, als auch die
Prüfergebnisse erreichen die Anforderungen gemäß ISO 7186,
DIN EN 598 und FGR 61

Der Sachbearbeiter:

Ing. Bernhard Wihlidal

Der Laboratoriumsleiter:

Dipl.-Ing. Andreas Tichy
Oberstadtbaurat

Der Leiter der Prüf-, Überwachungs-
und Zertifizierungsstelle:

Dipl.-Ing. Georg Pommer
Senatsrat



Die Inspektion, sowie die Prüfungen und deren Ergebnisse sind im Inspektionsbericht MA 39 – VFA 2019-0221.02 dokumentiert.

Prüfungen beziehen sich ausschließlich auf die Prüfgegenstände. Alle Seiten des Berichtes sind mit dem Amtssiegel der Stadt Wien versehen. Veröffentlichung und Auszüge bedürfen der schriftlichen Bewilligung der MA 39. Bitte beachten Sie die derzeit gültigen Allgemeinen Geschäftsbedingungen der MA 39 im Internet unter <http://www.ma39.wien.at>.

Zertifiziert gemäß den Forderungen der ÖNORM EN ISO 9001:2008 und der ÖNORM EN ISO 14001:2004 durch die Quality Austria.

Öffnungszeiten: Montag bis Donnerstag: 7:30 - 15:30 Uhr und Freitag: 7:30 - 13:30 Uhr; UID: ATU 36801500
Bankverbindung: Bank Austria, IBAN: AT631200051426007186; BIC: BKAUATWW, DVR: 0000191



Duktus (Production) GmbH
Sophienstraße 52-54
35576 Wetzlar
Deutschland

Municipality of Vienna
MUNICIPAL DEPARTMENT 39
Testing; inspection and certification body
of the City of Vienna
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E-Mail: post@ma39.wien.gv.at
Homepage: www.ma39.wien.at

MA 39 – VFA 2019-0221.06

Vienna, 3. April 2019

Attestation of Inspection 2019

Applicant and production plant : Duktus (Production) GmbH
D-35576 Wetzlar

Object of inspection: Ductile iron pipes and fittings for sewerage applications,
type variation: TYTON, TYTON-TIS-K, TYTON-SIT, TYTON-NOVO-SIT, VRS, BLS, BRS and flange
nominal size DN 80 to DN 1000

Date of Inspection: 5th and 6th of March 2019

Inspection program: third party inspection
according to ISO 7186, DIN EN 598 and FGR 61
based on the inspection contract MA 39 – ROR – Ü 1557/2018:

- Inspection of the production process
- Inspection of the factory production control
- Testing of products

Result of the inspection: The factory production control as well as the test results comply with the requirements according to ISO 7186, DIN EN 598 and FGR 61

The official:

Ing. Bernhard Wihlidal

The head of the laboratory:

Dipl. Ing. Andreas Tichy

The head of testing, inspection and certification body:

Dipl.-Ing. Georg Pommer

The inspection plus the performed tests and their results are documented in the inspection report MA 39 – VFA 2019-0221.02. In any case of doubt the attestation MA 39 – VFA 2019-0221.04 in German language is binding.

SVGW

Schweizerischer Verein
des Gas- und Wasserfaches
Grütlistrasse 44
CH- 8027 Zürich

Zertifizierungsstelle Wasser



Zertifikat Nr.: 8002-825

Antragsteller: vonRoll hydro (suisse) ag, Von-Roll-Strasse 24, CH-4702 Oensingen

Gestützt auf das Reglement ZW101 „Allgemeine Geschäftsbedingungen der SVGW Zertifizierungsstelle Wasser“ zertifiziert der SVGW die folgenden Serienprodukte:

Rubrik: Bodenleitungen und Verbindungen

Bezeichnung: Druckrohre mit Doppelkammer-Steckmuffen, mit Schraubmuffen oder mit Flanschen

Typen: CEMPUR / DUCPUR / ECOCEM / ECOPUR: mit Doppelkammer-Steckmuffe, Typ BLS, DN 80 - DN 700;
DUCPUR / ECOCEM / ECOPUR: mit Doppelkammersteckmuffe, Typ HYDROTIGHT, DN 80 - DN 400;
DUCPUR: mit Schraubmuffe, DN 80 - DN 300;
ECOFIT / ECOPUR: mit Flanschen, DN 80 - DN 700;
Sowie passende Dichtungen aus EPDM und Schubsicherungen.
Zertifizierungsumfang siehe Seite 2 des Zertifikates.

DN: 80...700 PN: 10/16/25/40 tmax: 25 °C

Zertifizierungsgrundlage: SVGW ZW162 (01/19), EN 545 (2010)

Gültigkeit: 31.12.2024

Auflagen (A) / Bemerkungen (B):

(B) Der an einer verbauten Leitung zulässige Nenndruck PN ist abhängig von der Kombination der effektiv verwendeten Rohre, der Formstücke, der Verbindungsarten und den Dichtungen.

Der Antragsteller ist berechtigt, die oben erwähnten Produkte als SVGW zertifiziert anzubieten und das obige SVGW-Konformitätszeichen zu verwenden (Publikation im Zertifizierungsverzeichnis Wasser).



akkreditiert nach
SN EN ISO/IEC 17065

Schweizerischer Verein des Gas- und Wasserfaches
Zertifizierungsstelle Wasser

Javier Fernandez
Leiter

Zürich, 16.09.2019

Seite 1 / 2

Rubrik: Bodenleitungen und Verbindungen

Bezeichnung: Druckrohre mit Doppelkammer-Steckmuffen, mit Schraubmuffen oder mit Flanschen

Typen	DN	PN	C°	Geräusch- gruppe	Verluste kWh/24 h / ErP Klasse	Inhalt	Index	Metrologische Klasse
Rohre mit Doppelkammer-Steckmuffe, Typ HYDROTIGHT								
DUCPUR / ECOCEM / ECOPUR, C100	80, 100	25 / 40	25				9	
DUCPUR / ECOCEM / ECOPUR, C64	125 ... 200	25 / 40	25				9	
DUCPUR / ECOCEM / ECOPUR, C50	250, 300	25 / 40	25				9	
DUCPUR / ECOCEM / ECOPUR, C40	350, 400	25 / 40	25				9	
Rohre mit Doppelkammer-Steckmuffe, Typ BLS								
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K10 (C100)	80, 100	25 / 40	25				9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K10 (C64)	125	25 / 40	25				9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C64)	150	25 / 40	25				9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C50)	200, 250	25 / 40	25				9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C40)	300 ... 400	25 / 40	25				9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C30)	500 ... 700	25	25				9	
Rohr mit Schraubmuffe								
DUCPUR, K10 (C100)	80, 100	25 / 40	25				9	
DUCPUR, K10 (C64)	125 ... 200	25 / 40	25				9	
DUCPUR, K10 (C50)	250, 300	25	25				9	
Rohre mit Flanschen								
ECOFIT / ECOPUR, K12	80 ... 150	10 / 16	25				9	
ECOFIT / ECOPUR, K12	200 ... 700	16	25				9	
ECOFIT / ECOPUR, K12	200 ... 700	10	25				9	
Dichtungen zu Steckmuffen								
HYDROTIGHT, Figur 2810 EPDM	80 ... 250	40	25				9	
HYDROTIGHT, Figur 2810 EPDM	300, 350	40	25				9	
HYDROTIGHT, Figur 2810 EPDM	400 ... 600	40	25				9	
HYDROTIGHT, Figur 2810, EPDM	700	25	25				9	
Dichtungen zu Steckmuffen, mit Schubsicherung								
Tyton-Sit-Plus Figur 2504-S, EPDM	80 ... 300	16	25				9	
Tyton-Sit Plus Figur 2504-S, EPDM	350 ... 600	10	25				9	
Schubsicherungen zu Steckmuffen, aussenliegend								
HYDROTIGHT, Figur 2806, EPDM	80 ... 300	40	25				9	
HYDROTIGHT, Figur 2806, EPDM	350	25	25				9	
HYDROTIGHT, Figur 2806, EPDM	400, 500	16	25				9	
HYDROTIGHT, Figur 2806, EPDM	600	10	25				9	
Schubsicherungen zu Steckmuffen, innenliegend								
HYDROTIGHT, Figur 2807A, EPDM	80 ... 200	40	25				9	
HYDROTIGHT, Figur 2807A, EPDM	250, 300	25	25				9	
HYDROTIGHT, Figur 2807A, EPDM	350, 400	16	25				9	
HYDROTIGHT, Figur 2807A, EPDM	500	10	25				9	
HYDROTIGHT, Figur 2807B, EPDM	80 ... 200	25	25				9	
HYDROTIGHT, Figur 2807B, EPDM	250, 300	16	25				9	
Dichtungen zu Schraubmuffenverbindungen								
Figur 2310-4, EPDM	80 ... 300	16	25				9	
Figur 2310m4, EPDM	80 ... 300	16	25				9	
Dichtungen zu Flanschrohre								
G-ST, Figur 2010-16, EPDM	80 ... 700	16	25				9	
G-ST, Figur 2010-10, EPDM	80 ... 700	10	25				9	
Verbindungsset zu Flanschrohre								
Set „G-ST“, Figur 2007-16, EPDM	80 ... 700	16	25				9	
Set „G-ST“, Figur 2007-10, EPDM	80 ... 700	10	25				9	
Set „G-ST“, Figur 2008-16, EPDM	80 ... 700	16	25				9	
Set „G-ST“, Figur 2008-10, EPDM	80 ... 700	10	25				9	

SSIGE

Société Suisse
de l'Industrie du Gaz et des Eaux
Grütlistrasse 44
CH- 8027 Zürich

Organisme de certification eau



Certificat N°: 8002-825

Requérant: vonRoll hydro (suisse) ag, Von-Roll-Strasse 24, CH-4702 Oensingen

Sur la base du règlement ZW101 „conditions générales de l'organisme de certification de la SSIGE“ la SSIGE accorde la certification pour les produits suivants fabriqués en séries:

Rubrique: Conduites souterraines et raccords

Désignation: Tuyau pression avec emboîture automatique double-chambre, emboîture à vis ou à brides

Types: CEMPUR / DUCPUR / ECOCEM / ECOPUR: avec emboîture double-chambre, type BLS, DN 80 - DN 700 ;
DUCPUR / ECOCEM / ECOPUR: avec emboîture double-chambre, type HYDROTIGHT, DN 80 - DN 400;
DUCPUR: avec emboîture à vis, DN 80 - DN 300;
ECOFIT / ECOPUR: à brides, DN 80 - DN 700;
Ainsi que des joints correspondants en EPDM et verrouillages..
Champ de la certification, voir page 2 du certificat.

DN: 80...700 PN: 10/16/25/40 tmax: 25 °C

Base de certification: SSIGE ZW162 (01/19), EN 545 (2010)

Validité: 31.12.2024

Conditions (C) / Remarques (R):

(R) La pression nominale PN admissible sur une conduite installé dépend de la combinaison des tuyaux, des raccords, les types de verouillage et les types de joint utilisés.

Le requérant est de ce fait autorisé à mentionner ces produits comme ayant été certifiés par la SSIGE et à y apposer la marque de conformité de la SSIGE ci-dessus (publication dans la liste des certifications eau).



accrédité selon
SN EN ISO/IEC 17065

Société Suisse de l'Industrie du Gaz et des Eaux
Organisme de certification eau

Javier Fernandez
Chef

Zurich, le 16.09.2019

vonRoll hydro (suisse) ag, Von-Roll-Strasse 24, CH-4702 Oensingen

Rubrique: Conduites souterraines et raccords

Désignation: Tuyau pression avec emboîture automatique double-chambre, emboîture à vis ou à brides

Types	DN	PN	C°	Group acoustique	Pertes kWh/24 h / Classe ErP	Contenu Indexe	Classe metrologique
Tuyaux pression à emboîture automatique double-chambres, type HYDROTIGHT							
DUCPUR / ECOCEM / ECOPUR, C100	80, 100	25 / 40	25			9	
DUCPUR / ECOCEM / ECOPUR, C64	125 ... 200	25 / 40	25			9	
DUCPUR / ECOCEM / ECOPUR, C50	250, 300	25 / 40	25			9	
DUCPUR / ECOCEM / ECOPUR, C40	350, 400	25 / 40	25			9	
Tuyaux pression à emboîture automatique double-chambres, type BLS							
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K10 (C100)	80, 100	25 / 40	25			9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K10 (C64)	125	25 / 40	25			9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C64)	150	25 / 40	25			9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C50)	200, 250	25 / 40	25			9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C40)	300 ... 400	25 / 40	25			9	
CEMPUR / DUCPUR / ECOCEM / ECOPUR, K9 (C30)	500 ... 700	25	25			9	
Tuyaux pression à emboîture à vis							
DUCPUR, K10 (C100)	80, 100	25 / 40	25			9	
DUCPUR, K10 (C64)	125 ... 200	25 / 40	25			9	
DUCPUR, K10 (C50)	250, 300	25	25			9	
Tuyaux pression à brides							
ECOFIT / ECOPUR, K12	80 ... 150	10 / 16	25			9	
ECOFIT / ECOPUR, K12	200 ... 700	16	25			9	
ECOFIT / ECOPUR, K12	200 ... 700	10	25			9	
Bagues de joint pour emboîtements automatiques							
HYDROTIGHT, Figure 2810, EPDM	80 ... 250	40	25			9	
HYDROTIGHT, Figure 2810, EPDM	300, 350	40	25			9	
HYDROTIGHT, Figure 2810, EPDM	400 ... 600	40	25			9	
HYDROTIGHT, Figure 2810, EPDM	700	25	25			9	
Bague de verrouillage et d'étanchéité							
Tyton-Sit Plus, Figure 2504-S, EPDM	80 ... 300	16	25			9	
Tyton-Sit Plus, Figure 2504-S, EPDM	350 ... 600	10	25			9	
Verrouillages (extérieur) pour emboîtements automatiques							
HYDROTIGHT, Figure 2806, EPDM	80 ... 300	40	25			9	
HYDROTIGHT, Figure 2806, EPDM	350	25	25			9	
HYDROTIGHT, Figure 2806, EPDM	400, 500	16	25			9	
HYDROTIGHT, Figure 2806, EPDM	600	10	25			9	
Verrouillages (intérieur) pour emboîtements automatiques							
HYDROTIGHT, Figure 2807A, EPDM	80 ... 200	40	25			9	
HYDROTIGHT, Figure 2807A, EPDM	250, 300	25	25			9	
HYDROTIGHT, Figure 2807A, EPDM	350, 400	16	25			9	
HYDROTIGHT, Figure 2807A, EPDM	500	10	25			9	
HYDROTIGHT, Figure 2807B, EPDM	80 ... 200	25	25			9	
HYDROTIGHT, Figure 2807B, EPDM	250, 300	16	25			9	
Bagues de joint pour emboîtements à vis							
Figure 2310-4, EPDM	80 ... 300	16	25			9	
Figure 2310m4, EPDM	80 ... 300	16	25			9	
Joint pour tuyaux à brides							
G-ST, Figure 2010-16, EPDM	80 ... 700	16	25			9	
G-ST, Figure 2010-10, EPDM	80 ... 700	10	25			9	
Garniture d'assemblage à bride							
Kit vis et joint „G-ST“, Figure 2007-16, EPDM	80 ... 700	16	25			9	
Kit vis et joint „G-ST“, Figure 2007-10, EPDM	80 ... 700	10	25			9	
Kit vis et joint „G-ST“, Figure 2008-16, EPDM	80 ... 700	16	25			9	
Kit vis et joint „G-ST“, Figure 2008-10, EPDM	80 ... 700	10	25			9	