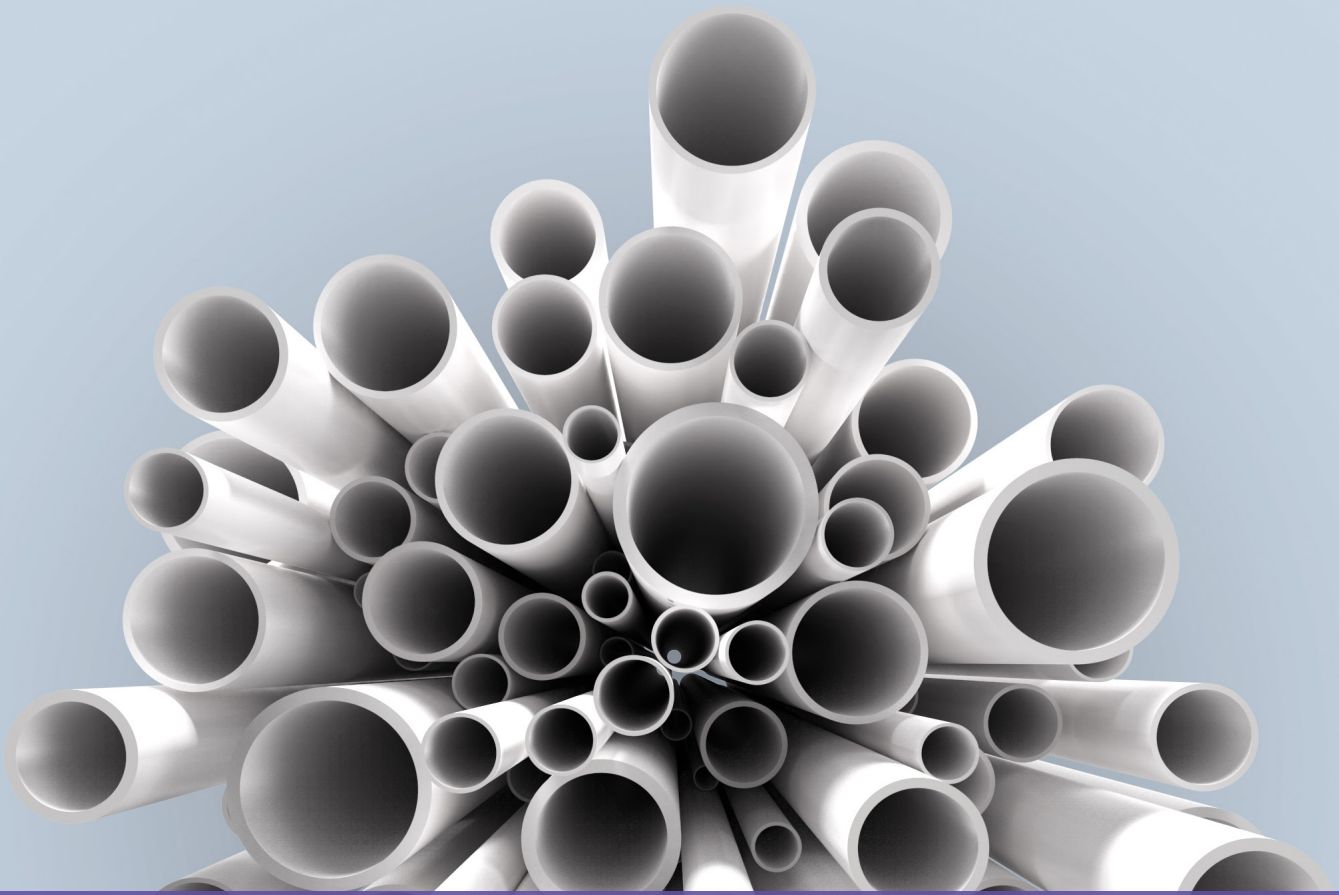




昆山协羽阀门管道有限公司 KUNSHAN SHIEYU VALVE CO. LTD



HD-PE 管材及配件
HD-PE PIPES&FITINGS

协羽的愿景

在塑胶管道 / 配件 / 阀门的领域里，为客户提供优质的产品以及最好的服务，成为客户首选及最佳的合作伙伴

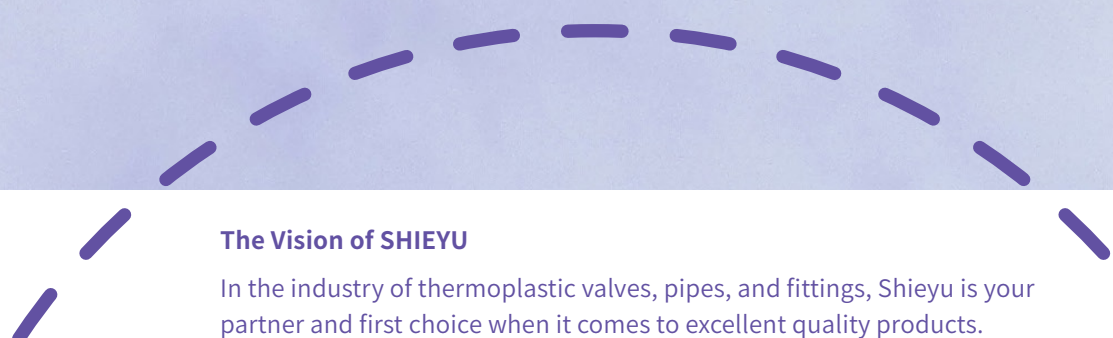
公司简介

协羽公司成立于西元 1973 年，是台湾第一家自主开发设计且规模最大的塑胶阀门管道公司。建厂 40 余年来，协羽产品行销三十多个国家。我们的专业服务以及稳定的品质，一直深受客户的好评与肯定。

协羽可生产的塑料阀门有隔膜阀、蝶阀、球阀、逆止阀、电动及气动阀等 30 余种，采用之材料有 UPVC、CPVC、HDPE、PPH 及 PVDF 等。目前可生产 60" 阀门以及 24" 以上管材及配件，可谓为世界级的塑料阀门管道专业制作商。

协羽人始终兢兢业业，秉持公司创厂五大信念：诚信、敬业、责任、礼貌、荣誉。立足业界 40 余年，拥有坚实的经营层、专业负责的工作精神，从而获得了广大客户的支持与信赖。在持续壮大事业的同时，更致力于产品的创新设计与品质提升，先后获得了美国 NSF 产品卫生认证、英国 Lloyd's 及 BSI 的品质管理体系认证、特种设备制作许可证（TS 认证）、高新技术企业认证、ISO9001 及涉及饮用水卫生许可证，确保提供全球客户高品质及可靠的工业产品。

协羽人不断自我提升，追求更精良产品，以客户满意为宗旨。同时，我们期盼您宝贵的意见，更欢迎您随时莅临指导。协羽团队将继续研发创新，再接再厉，为业界打拼，进而获得市场的肯定与赞扬。



The Vision of SHIEYU

In the industry of thermoplastic valves, pipes, and fittings, Shieyu is your partner and first choice when it comes to excellent quality products.



COMPANY PROFILE

Shieyu Valve Company Ltd. was found in 1973, is the first self-developed and the largest plastic valve and pipe manufacturer in Taiwan. For the past 40 years, we have market and distribute our products to over 30 countries worldwide.

Shieyu developed more than 30 kinds of valve products including Diaphragm Valve, Butterfly Valve, Ball Valve and Check Valve from a broad range of materials such as UPVC, CPVC, HDPE, PPH, PPS, and PVDF. We are also the leading manufacturer of 60" plastic valves and up to 24" pipes and fittings.

SH people, committed to the five beliefs all the time---HONESTY, RELIABILITY, RESPONSIBILITY, COURTESY AND HONOUR---working together as a responsible and reliable team, are led by a group of resilient and determined leaders, and dedicated to design, innovation, and quality increase with business growth. In order to ensure high quality products, we have been successfully certified by NSF(American National Sanitation Federation) and approved by UK Lloyd 's and BSI quality management system certification, special equipment manufacturing license (TS), Certification of New Hi-tech Enterprises,ISO9001 and related to drinking water hygiene license, to provide global customers with high quality and reliable industrial products.

Self-encouraged SH people are always in pursuit of excellence for the sole purpose of total customer satisfaction. Besides, you are always welcome at our company at any time and we prize your highly valued opinions. We continue to be devoted to the R&D and innovation in this industry to win customer approval and receive customer compliments.



公司环境



台湾清水厂
HEAD QUARTER IN TAIWAN



高雄工厂
KAOHSIUNG FACTORY



台中工厂
TAICHUNG HARBOR FACTORY



昆山工厂
KUNSHAN FACTORY



工厂航拍
AERIAL PHOTOGRAPHY



工厂航拍
AERIAL PHOTOGRAPHY



重要记事

- 1973 协羽创立于台湾台中县清水镇，占地16000M2。
- 1980 成立台北公司，北区市场及外销部门成立。
- 1983 获得台湾最大民营化工企业台塑集团长期统购合约。
- 1988 成立高雄第一厂，位于大发工业区莒光一街11-1号，占地2000M2。
- 1994 获得美国卫生协会标准#14/61认证，为台湾第一家取得NSF产品认证列名公司。
- 1997 取得ISO9001认证。
- 1999 高雄二厂成立，位于大发工业园区华中路19号，占地8000 M2。
- 2001 于上海设立分公司。
- 2002 江苏昆山厂成立。
- 2003 于台湾台中港加工出口区设立现代化工厂，占地34000 M2，规划为生产UPVC、CPVC、HDPE、PPH、ABS、PVDF管材及配件。
- 2005 昆山厂开发全尺寸美标（SCH80），国标（DIN）管材及管件模具，可生产16” UPVC及CPVC管材。
- 2007 台湾厂购入5000T注塑机，产出24” 一体成型之阀门。
- 2008 昆山厂成功开发24” UPVC/CPVC管材。
- 2012 昆山厂成功开发12” UPVC/CPVC国美标配件模具，可顺利生产12” UPVC/CPVC国美标配件。
- 2013 昆山厂PPH及HDPE产品开发成功，可顺利生产20-400mm PPH及HDPE管材及配件。
- 2013 昆山厂获得ISO9001认证。
- 2015 昆山厂获得特种设备制造许可证。
- 2015 昆山厂获得涉及饮用水卫生许可批件。
- 2016 昆山厂顺利开发14” UPVC/CPVC国美标配件。
- 2016 昆山厂获得高新技术企业荣誉。
- 2016 昆山厂成功开发透明(CLEAR-PVC)管及配件，可顺利生产1/2” -- 8” 管材及配件。
- 2017 昆山厂成功开发16” UPVC/CPVC国美标配件。
- 2017 昆山厂成功开发450mm -- 630mm PPH/HDPE管材及配件。

MILESTONES

- 1973 Founded in Chin-Shui town, Taichung County, Taiwan, covering an area of 1,600 square meters.
- 1980 Set up the export division and Taipei branch operation for north Taiwan and overseas markets.
- 1983 Signed long-term supply contracts with Formosa Plastic Group (FPG), the biggest industrial group in Taiwan.
- 1988 Established Kaohsiung 1st plant, located in DA FA Industrial Zone, covering an area of 20,000 square meters.
- 1994 Achieved American Health Association standard #14/61 certification, the first manufacturer in Taiwan to have the NSF listing on the PVC ball valves.
- 1997 Obtain ISO9001 certification.
- 1999 Established Kaohsiung 2nd plant, located in DA FA industrial Zone, covering an area of 8,000 square meters.
- 2001 Set up Shanghai Branch office.
- 2002 Established a manufacturing facility in Kunshan, Jang-Su, China.
- 2003 Established a pipe plant in Taichung Harbor Export Processing Zone for production of UPVC, CPVC, HDPE, PP, ABS, PVDF pipes and fittings, covering an area of 34,000 square meters.
- 2005 Kunshan factory has developed full size ANSI (SCH80), ISO (DIN) pipe and pipe mould, able to produce 16" UPVC and CPVC pipe.
- 2007 Taiwan factory purchased 5000T injection molding machine, produced 24" integrated value.
- 2008 Kunshan factory has successfully developed 24" UPVC/CPVC pipe.
- 2012 Kunshan factory has successfully developed 12" UPVC/CPVC ANSI & DIN Products mould, able to efficiently produce 12" UPVC/CPVC ANSI & ISO DIN Products.
- 2013 Kunshan factory has successfully developed PPH and HDPE products, able to efficiently produce 20-400mm PPH and HDPE pipe and fitting.
- 2013 Kunshan factory obtained ISO9001 certification.
- 2015 Kunshan factory obtained special equipment manufacturing license
- 2015 Kunshan factory obtained related to drinking water hygiene license.
- 2016 Kunshan factory has successfully developed 14" UPVC/CPVC ANSI & ISO DIN Products.
- 2016 Kunshan factory has successfully developed High tech enterprise honor.
- 2016 Kunshan factory has successfully developed clear (CLEAR-PVC) pipe and fitting, able to efficiently produce 1/2" -- 8" pipe and fitting.
- 2017 Kunshan factory has successfully developed 16" UPVC/CPVC ANSI & ISO DIN Products.
- 2017 Kunshan factory has successfully developed 450mm -- 630mm PPH/HDPE pipe and fitting.

SHIEYU 质量保证 Quality Warranty

ISO9001质量管理体系认证



高新技术证书



卫生许可证书

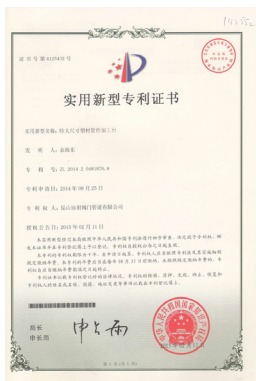
江苏省涉及饮用水卫生安全产品卫生许可批件	
产品名称	“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件
产品类别	输配水设备(管件)
产品规格型号	外径Φ20mm-Φ400mm
产品技术信息	【产品说明】 该产品为“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件，主要用途符合《生活饮用水输配水设备及防护材料卫生安全标准》(GB17057)。 【主要成份或部件】 氯化聚氯乙烯(PVC-C) 【使用范围】 用于生活饮用水输送。 【注意事项】 1. 应与相应的管件配套使用。 2. 最大工作压力不得超过1.0MPa。
申请单位	昆山协创阀门管道有限公司

江苏省涉及饮用水卫生安全产品卫生许可批件	
产品名称	“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件
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申请单位	昆山协创阀门管道有限公司

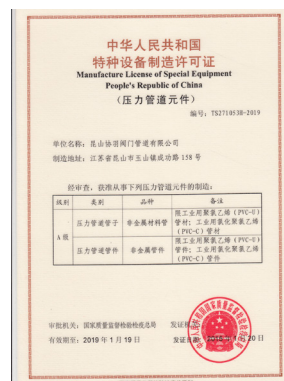
江苏省涉及饮用水卫生安全产品卫生许可批件	
产品名称	“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件
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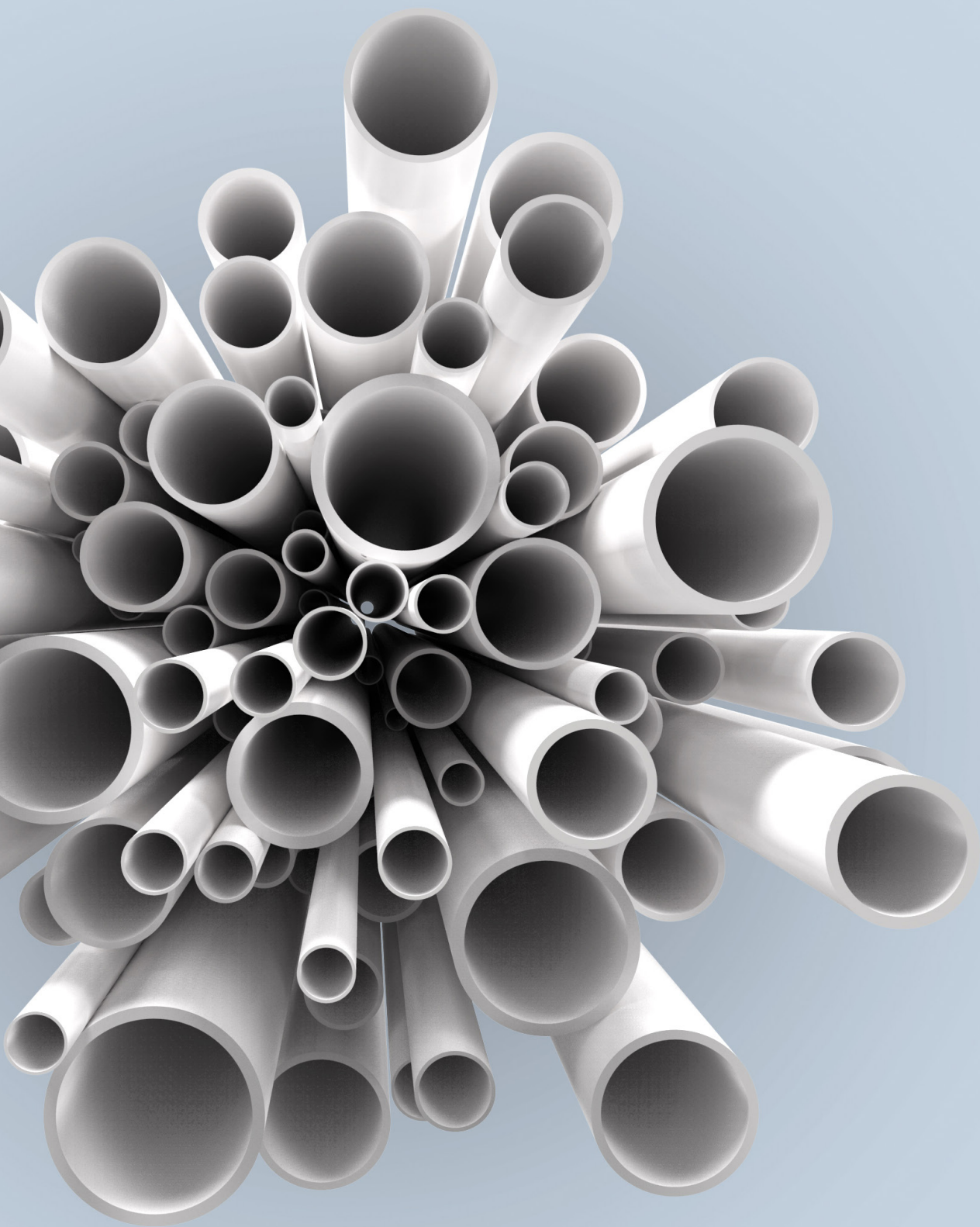
江苏省涉及饮用水卫生安全产品卫生许可批件	
产品名称	“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件
产品类别	输配水设备(管件)
产品规格型号	外径Φ20mm-Φ400mm
产品技术信息	【产品说明】 该产品为“Q”牌球墨铸铁水用氯化聚氯乙烯(PVC-C)管件，主要用途符合《生活饮用水输配水设备及防护材料卫生安全标准》(GB17057)。 【主要成份或部件】 氯化聚氯乙烯(PVC-C) 【使用范围】 用于生活饮用水输送。 【注意事项】 1. 应与相应的管件配套使用。 2. 最大工作压力不得超过1.0MPa。
申请单位	昆山协创阀门管道有限公司

新型专利证书



压力管道许可证





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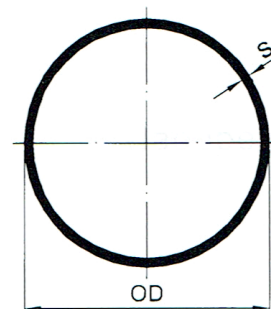
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HD-PE 100-PIPE

DIN 8074/8075 ISO 4427

(Special lengths on request)

直管 HD-PE100

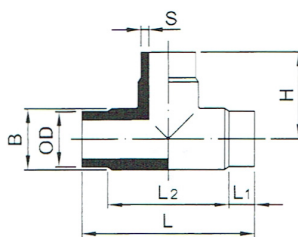
OD (mm)	SDR17 ISO S8 PN10		SDR11 ISO S5 PN16	
	S (mm)	Weight (kg/m)	S (mm)	Weight (kg/m)
20	-	-	2.0	0.115
25	-	-	2.3	0.171
32	2.0	0.187	2.9	0.272
40	2.4	0.295	3.7	0.430
50	3.0	0.453	4.6	0.666
63	3.8	0.721	5.8	1.050
75	4.5	1.020	6.8	1.470
90	5.4	1.460	8.2	2.012
110	6.6	2.170	10.0	3.140
125	7.4	2.760	11.4	4.080
140	8.3	3.460	12.7	5.080
160	9.5	4.520	14.6	6.670
180	10.7	5.710	16.4	8.420
200	11.9	7.050	18.2	10.400
225	13.4	8.930	20.5	13.100
250	14.8	11.000	22.7	16.200
280	16.6	13.700	25.4	20.300
315	18.7	17.400	28.6	25.600
355	21.1	22.100	32.2	32.500
400	23.7	28.000	36.3	41.300
450	26.7	35.400	40.9	52.300
500	29.7	43.800	45.4	64.500
560	33.2	54.800	50.8	80.800
630	37.4	69.400	57.2	102.00
710	42.1	88.100	64.5	130.00
800	47.4	112.00	72.8	169.00
900	53.3	141.00	81.8	212.85
1000	59.3	175.00	-	-
1200	70.6	255.00	-	-

**HD-PE TEE**

Reinforced

for butt welding molded from PE100

对接正三通



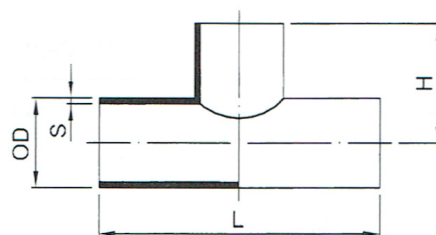
OD (mm)	H (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	B (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
						S (mm)	S (mm)
20	38	76	15	40	21.0	1.8	2.0
25	42	84	15	50.0	26.0	1.8	2.3
32	46	92	17	55.0	33.4	2.0	2.9
40	51	102	15	71.5	45.2	2.4	3.7
50	58	116	23	76.0	54.0	3.0	4.6
63	66	132	27	96.0	65.0	3.8	5.8
75	75	150	28	120.0	76.8	4.5	6.8
90	90	180	32.5	117.0	93.5	5.4	8.2
110	110	220	34.5	148.5	114.0	6.6	10.0
125	119.5	239	35	169.0	133.0	7.4	11.4
140	140	280	35	182.0	150.0	8.3	12.7
160	160	320	35	204.0	170.0	9.5	14.6
180	158.5	317	35	247.0	190.0	10.7	16.4
200	168	336	35	266.0	210.0	11.9	18.2
225	220	440	40	260.0	235.0	13.4	20.5
250	209	418	45	328.0	262.0	14.8	22.7
280	318	636	70	374.0	284.0	16.6	25.4
315	353	706	70	410.0	331.0	18.7	28.6
355	348.3	696.56	152.1	392.4	371.5	21.1	32.2

HD-PE TEE

(Fabricated)

for butt welding molded from PE100

手工正三通

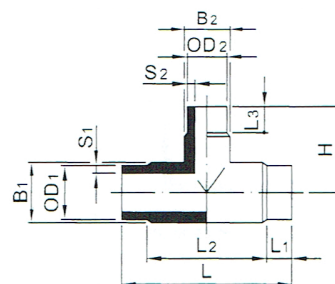


OD (mm)	H (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
			S (mm)	S (mm)
355	362.5	725	21.1	32.2
400	410	820	23.7	36.3
450	460	920	26.7	40.9
500	510	1020	29.7	45.4
560	570	1140	33.2	50.8
630	640	1280	37.4	57.2
710	720	1440	42.1	64.5
800	810	1620	47.4	72.8
900	910	1820	53.3	81.8
1000	1020	2040	59.3	-
1200	1220	2440	70.6	-

HD-PE REDUCED TEE

for butt welding molded from PE100

对接异径三通



OD ₁ /OD ₂ (mm)	H (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	B ₁ (mm)	B ₂ (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
								S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
63-32	68.5	124	26	72	26	65.0	33.4	3.8/2.0	5.8/2.9
63-50	68.5	124	26	72	26	65.0	52.0	3.8/3.0	5.8/4.6
75-50	74.5	127	26	75	26	76.8	52.0	4.5/3.0	6.8/4.6
75-63	74.5	127	26	75	26	76.8	65.0	4.5/3.8	6.8/5.8
90-63	85.2	153.8	26	101.8	26	93.5	65.0	5.4/3.8	8.2/5.8
90-75	85.2	153.8	26	101.8	26	93.5	76.8	5.4/4.5	8.2/6.8
▲ 110-32	140	346	-	-	-	-	-	6.6/2.0	10.0/2.9
▲ 110-40	140	346	-	-	-	-	-	6.6/2.4	10.0/3.7
▲ 110-50	140	346	-	-	-	-	-	6.6/3.0	10.0/4.6
110-63	140	346	94	123.5	65	114	65.0	6.6/3.8	10.0/5.8
▲ 110-75	155	346	-	-	-	-	-	6.6/4.5	10.0/6.8
110-90	155	346	94	123.5	84	114	93.5	6.6/5.4	10.0/8.2
▲ 125-40	106	214	-	-	-	-	-	7.4/2.4	11.4/3.7
▲ 125-50	106	214	-	-	-	-	-	7.4/3.0	11.4/4.6
▲ 125-63	106	214	35	144	26	130	65.0	7.4/3.8	11.4/5.8
125-75	106	214	35	144	26	130	76.8	7.4/4.5	11.4/6.8
125-90	106	214	35	144	26	130	93.5	7.4/5.4	11.4/8.2
125-110	106	214	35	144	30	130	114	7.4/6.6	11.4/10.0
▲ 140-50	114	214	-	-	-	-	-	8.3/3.0	12.7/4.6
▲ 140-63	114	214	35	144	26	130	65.0	8.3/3.8	12.7/5.8
140-75	114	214	35	144	26	130	76.8	8.3/4.5	12.7/6.8
140-90	114	214	35	144	26	130	93.5	8.3/5.4	12.7/8.2
140-110	114	214	35	144	30	130	114	8.3/6.6	12.7/10.0
▲ 140-125	114	214	-	144	26	146	93.5	8.3/7.4	12.7/11.4
160-63	165	436	110	144	30	146	114	9.5/3.8	14.6/5.8
▲ 160-75	191	436	-	-	-	-	-	9.5/4.5	14.6/6.8
160-90	191	436	110	216	65	167	65.0	9.5/5.4	14.6/8.2
160-110	198	436	110	-	-	-	-	9.5/6.6	14.6/10.0
160-125	198	436	-	216	84	167	93.5	9.5/7.4	14.6/11.4
160-140	198	436	-	216	94	167	114	9.5/8.3	14.6/12.7
▲ 180-63	144	220	35	-	-	-	-	10.7/3.8	16.4/5.8
▲ 180-75	144	220	35	-	-	-	-	10.7/4.5	16.4/6.8
180-90	144	220	35	150	26	188	65.0	10.7/5.4	16.4/8.2
180-110	144	220	35	150	26	188	76.8	10.7/6.6	16.4/10.0
180-125	144	220	35	150	26	188	93.5	10.7/7.4	16.4/11.4
▲ 180-140	144	220	-	-	-	-	-	10.7/8.3	16.4/12.7
▲ 180-160	144	220	-	-	-	-	-	10.7/9.5	16.4/14.6

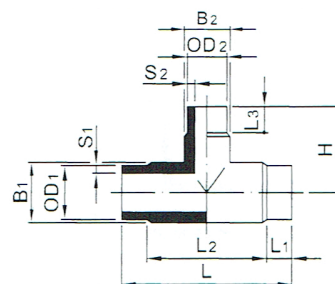
▲ 转接口 (Transition)



HD-PE REDUCED TEE

for butt welding molded from PE100

对接异径三通



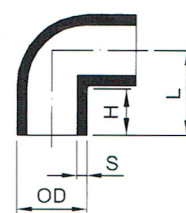
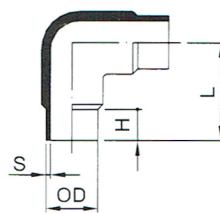
OD ₁ /OD ₂ (mm)	H (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	B ₁ (mm)	B ₂ (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
								S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
▲ 200-63	157	273	35	203	26	208	65.0	11.9/3.8	18.2/5.8
▲ 200-90	157	273	35	203	26	208	93.5	11.9/4.5	18.2/8.2
200-110	157	273	35	203	30	208	114	11.9/5.4	18.2/10.0
200-125	157	273	35	203	35	208	130	11.9/6.6	18.2/11.4
200-140	157	273	35	203	35	208	146	11.9/7.4	18.2/12.7
200-160	157	273	35	203	35	208	167	11.9/8.3	18.2/14.6
▲ 200-180	157	273	-	-	-	-	-	11.9/9.5	18.2/16.4
▲ 225-75	171.5	306	40	226	26	235	76.8	13.4/4.5	20.5/6.8
▲ 225-90	171.5	306	40	226	26	235	93.5	13.4/5.4	20.5/8.2
▲ 225-110	171.5	306	40	226	30	235	114	13.4/6.6	20.5/10.0
225-125	171.5	306	40	226	35	235	130	13.4/7.4	20.5/11.4
▲ 225-140	171.5	306	-	-	-	-	-	13.4/8.3	20.5/12.7
225-160	171.5	306	40	226	35	235	167	13.4/9.5	20.5/14.6
225-180	171.5	306	40	226	35	235	188	13.4/10.7	20.5/16.4
▲ 225-200	171.5	306	-	-	-	-	-	13.4/11.9	20.5/18.2
▲ 250-110	188	325	45	235	30	260	114	14.8/6.6	22.7/10.0
▲ 250-125	188	325	-	-	-	-	-	14.8/7.4	22.7/11.4
▲ 250-140	188	325	45	235	35	260	146	14.8/8.3	22.7/12.7
250-160	188	325	45	235	35	260	167	14.8/9.5	22.7/14.6
▲ 250-180	188	325	-	-	-	-	-	14.8/10.7	22.7/16.4
250-200	188	325	45	235	35	260	208	14.8/11.9	22.7/18.2
250-225	188	325	45	235	40	260	235	14.8/13.4	22.7/20.5
* 280-140	230	440	-	-	-	-	-	16.6/8.3	25.4/12.7
* 280-160	240	460	-	-	-	-	-	16.6/9.5	25.4/14.6
* 280-180	240	480	-	-	-	-	-	16.6/10.7	25.4/16.4
* 280-200	250	500	-	-	-	-	-	16.6/11.9	25.4/18.2
* 280-225	260	525	-	-	-	-	-	16.6/13.4	25.4/20.5
* 280-250	275	550	-	-	-	-	-	16.6/14.8	25.4/22.7
* 315-160	257.5	500	-	-	-	-	-	18.7/9.5	28.6/14.6
* 315-180	257.5	520	-	-	-	-	-	18.7/10.7	28.6/16.4
* 315-200	267.5	540	-	-	-	-	-	18.7/11.9	28.6/18.2
* 315-225	277.5	565	-	-	-	-	-	18.7/13.4	28.6/20.5
* 315-250	292.5	595	-	-	-	-	-	18.7/14.8	28.6/22.7
* 315-280	307.5	620	-	-	-	-	-	18.7/16.6	28.6/25.4

▲ 转接品 (Transition) * 手工制品 (Fabricated)

HD-PE 90° BEND

for butt welding molded from HD-PE

对接90°弯头



(Ø20~Ø110 , 140 , 160 , 225 , 280) (Ø125 , 180 , 200 , 250 , 315)

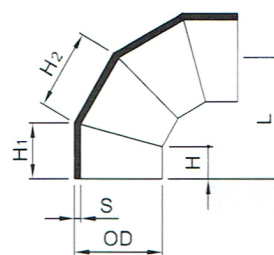
OD (mm)	H (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
			S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
20	15.5	37.0	-	2.0
25	15.5	42.5	-	2.3
32	17.5	48.0	2.0	2.9
40	12.0	49.0	2.4	3.7
50	14.0	56.0	3.0	4.6
63	18.0	72.6	3.8	5.8
75	15.0	80.5	4.5	6.8
90	38.5	111.0	5.4	8.2
110	49.0	130.0	6.6	10.0
125	102.0	164.5	7.4	11.4
140	90.0	185.0	8.3	12.7
160	92.0	190.0	9.5	14.6
180	136.5	226.5	10.7	16.4
200	119.5	219.5	11.9	18.2
225	100.0	240.0	13.4	20.5
250	148.0	402.5	14.8	22.7
280	196.0	336.0	16.6	25.4
315	214.5	372	18.7	28.6
355	152.2	348.3	21.1	32.2

HD-PE 90° ELBOW

(Fabricated)

for butt welding molded from HD-PE

手工90°弯头



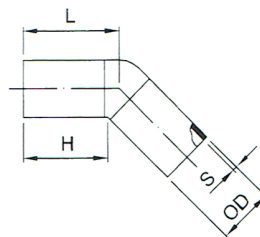
OD (mm)	H (mm)	H ₁ (mm)	H ₂ (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
					S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
355	185	280	375	615	21.1	32.2
400	210	317	424	697	23.7	36.3
450	235	356	476	781	26.7	40.9
500	260	394	528	865	29.7	45.4
560	290	440	589	966	33.2	50.8
630	325	494	663	1084	37.4	57.2
710	365	555	745	1219	42.1	64.5
800	410	625	838	1370	47.4	72.8
900	460	701	942	1539	53.3	81.8
1000	520	788	1058	1731	59.3	-
1200	620	942	1263	2067	70.6	-



HD-PE 45° ELBOW

for butt welding molded from HD-PE

对接45°弯头



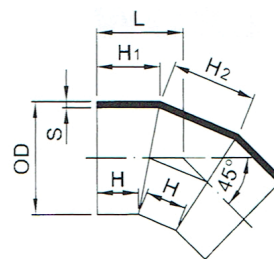
OD (mm)	H (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
			S (mm)	S (mm)
20	15.5	36	1.8	2.0
25	15.5	41	1.9	2.3
32	17.5	47	2.0	2.9
40	12	46	2.4	3.7
50	14	53	3.0	4.6
63	18	68	3.8	5.8
75	15	78.5	4.5	6.8
90	38.5	108	5.4	8.2
110	28	123	6.6	10.0
125	35	97.5	7.4	11.4
140	35	130	8.3	12.7
160	35	133	9.5	14.6
180	46	136	10.7	16.4
200	38	138	11.9	18.2
225	40	180	13.4	20.5
250	45	299.5	14.8	22.7
280	90	230	16.6	25.4
315	90	247.5	18.7	28.6

HD-PE 45° ELBOW

(Fabricated)

for butt welding molded from HD-PE

手工对接45°弯头



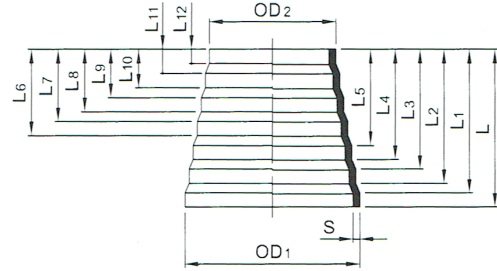
OD (mm)	H (mm)	H ₁ (mm)	H ₂ (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
					S (mm)	S (mm)
355	185	256	326	359	21.1	32.2
400	210	289	370	407	23.7	36.3
450	235	325	413	455	26.7	40.9
500	260	360	458	504	29.7	45.4
560	290	402	512	563	33.2	50.8
630	325	450	576	631	37.4	57.2
710	365	506	648	710	42.1	64.5
800	410	569	729	798	47.4	72.8
900	460	639	818	895	53.3	81.8
1000	520	719	918	1009	59.3	-
1200	620	858	1099	1204	70.6	-

HD-PE REDUCER

CONCENTRIC

for butt welding molded from HD-PE

对接塔型大小头



OD ₁ /OD ₂ (mm)	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	L ₄ (mm)	L ₅ (mm)	L ₆ (mm)	L ₇ (mm)	L ₈ (mm)	L ₉ (mm)	L ₁₀ (mm)	L ₁₁ (mm)	L ₁₂ (mm)
50/20	30.8	27.3	21.5	18.5	13.5	11.0	6.0	4.0	-	-	-	-
63/16	70.5	62.5	53.5	46.5	38.5	33.0	25.0	21	15	12	7	5
75/32	62.5	54.5	45.5	37.5	28.5	21.5	13.5	8	-	-	-	-
110/50	60.8	51.6	41.6	35.1	25.6	21.1	10.6	6.3	-	-	-	-
110/63	57.0	47.0	36.0	28.0	17.0	9.0	-	-	-	-	-	-
125/75	63.0	53.0	40.0	30.0	19.0	11.0	-	-	-	-	-	-
160/110	74.0	62.0	48.0	37.0	23.0	13.0	-	-	-	-	-	-
180/110	101.5	90.5	75.5	65	50	39.5	24.5	15	-	-	-	-
225/160	87.0	71.0	55.0	42.0	26.0	14.0	-	-	-	-	-	-
315/180	112.5	101.5	86	65	50	39.5	24.5	15	-	-	-	-
315/225	109.0	89.0	70.0	54.0	35.0	19.0	-	-	-	-	-	-
450/315	148.0	118.0	92.0	68.0	44.0	24.0	-	-	-	-	-	-
630/450	214.0	178.0	132.0	100.0	62.0	32.0	-	-	-	-	-	-

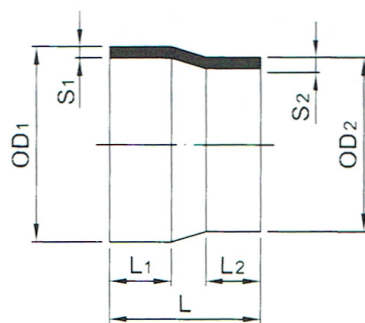
PN10	16	20	25	32	40	50	63	75	90	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630
S	-	1.8	1.8	2.0	2.4	3.0	3.8	4.5	5.4	6.6	7.4	8.3	9.5	10.7	11.9	13.4	14.8	16.6	18.7	21.1	23.7	26.7	29.7	32.2	37.4
PN16	16	20	25	32	40	50	63	75	90	110	125	140	160	180	200	225	250	280	315	355	400	450	500	560	630
S	2.0	2.0	2.3	2.9	3.7	4.6	5.8	6.8	8.2	10.0	11.4	12.7	14.6	16.4	18.2	20.5	22.7	25.4	28.6	32.2	36.3	40.9	45.4	50.8	57.2

OD ₁ /OD ₂ (mm)	L (mm)
50/20	37.1+0.2
63/16	79.5+2
75/32	73.5+2
110/50	72.8+0.2
110/63	70.0+2
125/75	77.0+2
160/110	88.0+2
180/110	116.5+1
225/160	106.0+3
315/180	128+1
315/225	133.0+3
450/315	180.0+4
630/450	276.0+4



HD-PE REDUCER

concentric, elongated
for butt welding molded from HD-PE
对接大小头

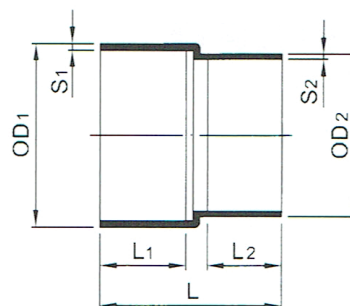


OD ₁ /OD ₂ (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
				S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
25-20	50	20	20	1.8/1.8	2.7/2.5
32-20	50	20	20	2.1/1.8	3.0/2.5
32-25	50	20	20	2.1/1.8	3.0/2.7
40-20	55	20	20	2.4/1.8	3.7/2.5
40-25	55	20	20	2.4/1.8	3.7/2.7
40-32	55	20	20	2.4/2	3.7/3.0
50-20	60	24	20	2.9/1.8	4.6/2.5
50-25	60	24	20	2.9/1.8	4.6/2.7
50-32	60	24	20	2.9/1.9	4.6/3.0
50-40	60	24	20	2.9/2.3	4.6/3.7
63-25	65	25	20	3.6/1.8	5.8/2.7
63-32	65	25	22	3.6/1.9	5.8/3.0
63-40	65	25	22	3.6/2.3	5.8/3.7
63-50	65	25	22	3.6/2.9	5.8/4.6
75-40	68	25	24	4.3/2.3	6.9/3.7
75-50	68	25	24	4.3/2.9	6.9/4.6
75-63	68	25	24	4.3/3.6	6.9/5.8
90-50	75	30	26	5.1/2.9	8.2/4.6
90-63	75	30	26	5.1/3.6	8.2/5.8
90-75	75	30	26	5.1/4.3	8.2/6.9
110-63	90	35	30	6.3/3.6	10.0/5.8
110-75	90	35	30	6.3/4.3	10.0/6.9
110-90	90	35	30	6.3/5.1	10.0/8.2
125-110	100	40	35	7.1/6.3	11.4/10.0
140-125	110	45	40	8.0/7.1	12.7/11.4
160-110	130	60	40	9.1/6.3	14.6/12.8
160-140	130	60	40	9.1/8.0	14.6/12.7
180-160	130	60	40	10.2/9.1	16.4/14.6
200-160	140	60	40	11.4/9.1	18.2/14.6
225-160	150	60	40	12.8/9.1	20.5/14.6
225-200	150	60	50	12.8/11.4	20.5/18.2
250-225	170	70	60	14.2/12.8	22.8/20.5
280-250	180	80	60	15.9/14.2	25.5/22.8
315-280	220	90	80	17.9/15.9	28.7/25.5

HD-PE REDUCER

(Fabricated) concentric, elongated
for butt welding molded from HD-PE

手工对接大小头

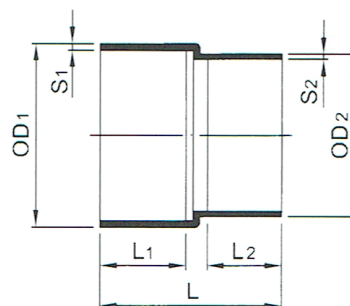


OD ₁ /OD ₂ (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
				S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
355-180	318	180	110	21.1/10.7	32.2/16.4
355-200	328	180	120	21.1/11.9	32.2/18.2
355-225	328	180	120	21.1/13.4	32.2/20.5
355-250	338	180	130	21.1/14.8	32.2/22.7
355-280	358	180	150	21.1/16.6	32.2/25.4
355-315	368	180	160	21.1/18.7	32.2/28.6
400-200	358	210	120	23.7/11.9	36.3/18.2
400-225	358	210	120	23.7/13.4	36.3/20.5
400-250	368	210	130	23.7/14.8	36.3/22.7
400-280	388	210	150	23.7/16.6	36.3/25.4
400-315	398	210	160	23.7/18.7	36.3/28.6
400-355	418	210	180	23.7/21.1	36.3/32.2
450-225	398	250	120	26.7/13.4	40.9/20.5
450-250	408	250	130	26.7/14.8	40.9/22.7
450-280	428	250	150	26.7/16.6	40.9/25.4
450-315	438	250	160	26.7/18.7	40.9/28.6
450-355	458	250	180	26.7/21.1	40.9/32.2
450-400	488	250	210	26.7/23.7	40.9/36.3
500-250	438	280	130	29.7/14.8	45.4/22.7
500-280	458	280	150	29.7/16.6	45.4/25.4
500-315	468	280	160	29.7/18.7	45.4/28.6
500-355	488	280	180	29.7/21.1	45.4/32.2
500-400	518	280	210	29.7/23.7	45.4/36.3
500-450	558	280	250	29.7/26.7	45.4/40.9
560-280	478	300	150	33.2/16.6	50.8/25.4
560-315	488	300	160	33.2/18.7	50.8/28.6
560-355	508	300	180	33.2/21.1	50.8/32.2
560-400	538	300	210	33.2/23.7	50.8/36.3
560-450	578	300	250	33.2/26.7	50.8/40.9
560-500	608	300	280	33.2/29.7	50.8/45.4
630-315	538	350	160	37.4/18.7	57.2/28.6
630-355	558	350	180	37.4/21.1	57.2/32.2
630-400	588	350	210	37.4/23.7	57.2/36.3

HD-PE REDUCER

(Fabricated) concentric, elongated
for butt welding molded from HD-PE

手工对接大小头



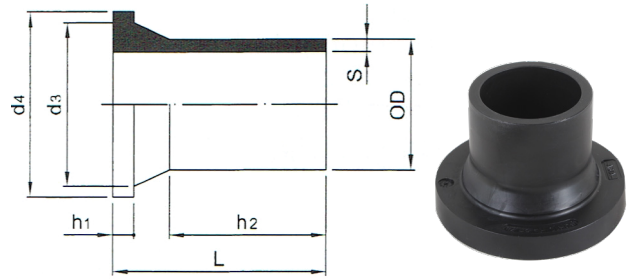
OD ₁ /OD ₂ (mm)	L (mm)	L ₁ (mm)	L ₂ (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
				S ₁ /S ₂ (mm)	S ₁ /S ₂ (mm)
630-450	628	350	250	37.4/26.7	57.2/40.9
630-500	658	350	280	37.4/29.7	57.2/45.4
630-560	678	350	300	37.4/33.2	57.2/50.8
710-355	608	400	180	42.1/21.1	64.5/32.2
710-400	638	400	210	42.1/23.7	64.5/36.3
710-450	678	400	250	42.1/26.7	64.5/40.9
710-500	708	400	280	42.1/29.7	64.5/45.4
710-560	728	400	300	42.1/33.2	64.5/50.8
710-630	778	400	350	42.1/37.4	64.5/57.2
800-400	688	450	210	47.4/23.7	72.8/36.3
800-450	728	450	250	47.4/23.7	72.8/40.9
800-500	758	450	280	47.4/29.7	72.8/45.4
800-560	778	450	300	47.4/33.2	72.8/50.8
800-630	828	450	350	47.4/37.4	72.8/57.2
800-710	878	450	400	47.4/42.1	72.8/64.5
900-450	778	500	250	53.3/26.2	81.8/40.9
900-500	808	500	280	53.3/29.7	81.8/45.4
900-560	828	500	300	53.3/33.2	81.8/50.8
900-630	878	500	350	53.3/37.4	81.8/57.2
900-710	928	500	400	53.3/42.1	81.8/64.5
900-800	978	500	450	53.3/47.4	81.8/72.8
1000-500	858	550	280	59.3/29.7	-
1000-560	878	550	300	59.3/33.2	-
1000-630	928	550	350	59.3/37.4	-
1000-710	978	550	400	59.3/42.1	-
1000-800	1028	550	450	59.3/47.4	-
1000-900	1078	550	500	59.3/29.7	-
1200-560	928	600	300	70.6/33.2	-
1200-630	978	600	350	70.6/37.4	-
1200-710	1028	600	400	70.6/42.1	-
1200-800	1078	600	450	70.6/47.4	-
1200-900	1128	600	500	70.6/53.3	-
1200-1000	1178	600	550	70.6/59.3	-

HD-PE STUB FLANGE

acc. DIN 16962/16963

for butt welding molded from PE100

对接法兰头

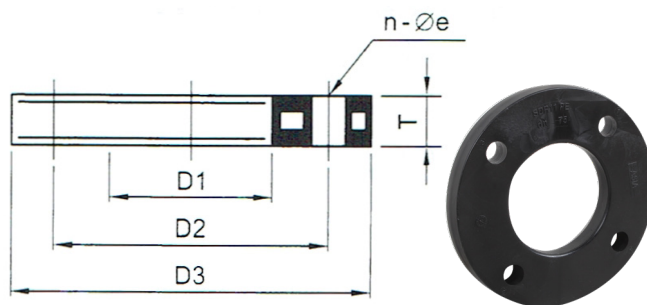


OD (mm)	L (mm)	d ₃ (mm)	d ₄ (mm)	h ₂ (mm)	SDR17 ISO S8 PN10		SDR11 ISO S5 PN16	
					S (mm)	h ₁ (mm)	S (mm)	h ₁ (mm)
20	50	26	45	29	1.8	7.2	1.9	7.0
25	52	32	58	27	1.8	9.2	2.3	9.0
32	54	40	68.0	28	1.9	10.0	2.9	10.0
40	56	49	78	25	2.3	11.0	3.7	11.0
50	62	60	88	32	4.3	12.2	4.6	12.0
63	68	75	102	38	3.6	14.0	5.8	14.0
75	80	88	122	43	4.3	16.1	6.9	16.1
90	80.0	104.0	138	41.0	5.1	17.0	8.2	17.0
110	80.0	124	158.0	40	6.3	18.2	10.0	18.0
125	175.0	135.0	158	102.0	7.1	25.5	11.4	25.5
140	89	155.0	188	39	8.0	27.4	12.7	25.0
160	90	175.0	212.0	45	9.1	26.2	14.6	25.0
180	180.0	186.0	217.0	127.0	10.2	26.5	16.4	26.5
200	213.0	229.0	268.0	144.0	11.4	31.5	18.2	31.5
225	100	235.0	268.0	35	12.8	33.0	20.5	32.0
250	273.0	275.0	320.0	205.0	14.2	34.0	22.7	34.0
280	110.0	291.0	320.0	35	15.9	32.0	25.5	35.0
315	379.0	334.0	371.0	35	17.9	35.0	28.7	35.0
355	175.0	373.0	430.0	-	21.1	40.0	32.3	40.0



BACKING RING

With steel insert for steel beadings
acc.to DIN PN10 mold
from PP grey PP black
法兰铁片



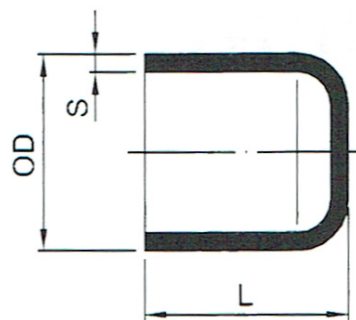
OD (mm)	D1 (mm)	D2 (mm)	D3 (mm)	T (mm)	e (mm)	n Number
20	28	65	95	12	14	4
25	34	75	105	12	14	4
32	42	85	115	16	14	4
40	51	100	140	20	18	4
50	62	110	150	20	18	4
63	78	125	165	20	18	4
75	92	145	185	20	18	4
90	108	160	200	20	18	8
110	128	180	220	20	18	8
140	158	210	250	24	18	8
160	178	240	285	24	22	8
180	188	240	285	22	23	8
200	235	295	340	24	23	8
225	238	295	340	27	22	8
250	288	350	390	26	23	12
280	294	350	395	30	22	12
315	338	400	445	34	22	12
▲ 355	376	460	505	28	30	16
▲ 400	430	515	565	28	30	16
▲ 450	517	620	670	30	30	20
▲ 500	533	620	670	30	30	20
▲ 560	618	725	780	30	30	20
▲ 630	645	725	780	30	30	20
▲ 710	740	840	895	30	30	24
▲ 800	840	950	1015	36	33	24
▲ 900	950	1050	1115	38	33	28
▲ 1000	1050	1160	1230	40	36	28
▲ 1100	1155	-	1403	40	36	-
▲ 1200	1260	1380	1455	40	39	32

HD-PE END CAP

elongated

for butt welding molded from PE100

对接管帽



OD (mm)	L (mm)	SDR17 ISO S8 PN10	SDR11 ISO S5 PN16
		S (mm)	S (mm)
20	52.0	1.8	2.0
25	52.0	1.8	2.3
32	54.0	2.0	2.9
40	57.0	2.4	3.7
50	70.0	3.0	4.6
63	65.0	3.8	5.8
75	80.0	4.5	6.8
90	90.0	5.4	8.2
110	98.0	6.6	10.0
125	110.0	7.4	11.4
140	136.0	8.3	12.7
160	120.0	9.5	14.6
180	192.0	10.7	16.4
200	181.0	11.9	18.2
225	148.0	13.4	20.5
250	230.0	14.8	22.7
280	257.0	16.6	25.4
315	262.0	18.7	28.6
355	130.0	21.1	32.2
400	130.0	23.7	36.3
450	130.0	26.7	40.9
500	130.0	29.7	45.4
560	130.0	33.2	50.8
630	160.0	37.4	57.2
710	160.0	42.1	64.5
800	160.0	47.4	72.8
900	180.0	53.3	81.8
1000	180.0	59.3	-
1200	180.0	70.6	-



HD-PE (高密度聚乙烯管)性能特点综述：

- 1. 较长的使用寿命：依 ISO 12622 的使用温度、压力标准下，在正常使用下可耐用，50 年以上。
- 2. 优越的耐腐蚀特能：除少数强氧化剂之外，可以耐多种化学介质的侵蚀及无电化学腐蚀。
- 3. 优异的抗磨损特性：在输送矿砂泥浆时，HD-PE 的耐磨损性钢管的四倍以上，相同管径下其输送水量为金属管的 1.3 倍。
- 4. 优良的环保特性：HD-PE 在制作加工时，无任何重金属添加物与化学安定剂，材质无毒性无结垢层，不滋生细菌，可回收，避免管材的二次污染。
- 5. 较好的耐冲击特性：HD-PE 韧性好，拉伸率 PE80>700% PE100>600%、耐压力 25kg/cm2 以上，耐冲击性能高，重物压过管道亦不会导致管道破裂。
- 6. 可靠的连接特性：HD-PE 热熔或电熔时，介面的强度高于管体本体，接缝处不会因土壤移动或活载荷的作用而断裂。
- 7. 除透明无色管外，添加 2.5% 炭黑与其他色料 (Master-batch) 的 HD-PE，皆可抵抗紫外线的照射，延长使用寿命。
- 8. 良好的施工性能：HD-PE 管道质量轻，溶接及锁接工艺简单，搬运施工快速简便。
- 9. 经济快捷的盘卷方式：HD-PE 小口径管材可因需求长度卷绕成盘管，减少介面接点加快施作。

适用场所：

- 自来水用管路系统
 - 电力、潜钻用管
 - 海水输送管路
 - 雨、污水排水用管
- 瓦斯输送管路
 - 电信、电力用管中管
 - 污水下水道用管
 - 光纤仪控用管

本公司HD-PE产品通过的认证如下：

标准 CNS 2456 CNS 12835 CNS 2458	产品名称 自来水用聚乙烯塑胶管 (HD-PE 100) 天然气用聚乙烯塑胶管 (HD-PE 80) 化学工业及一般用高密度聚乙烯塑胶管
环保标章认证	产品名称 自来水用聚乙烯塑胶管 (DFP-103) 化学工业及一般用高密度聚乙烯管 (DFP-102)

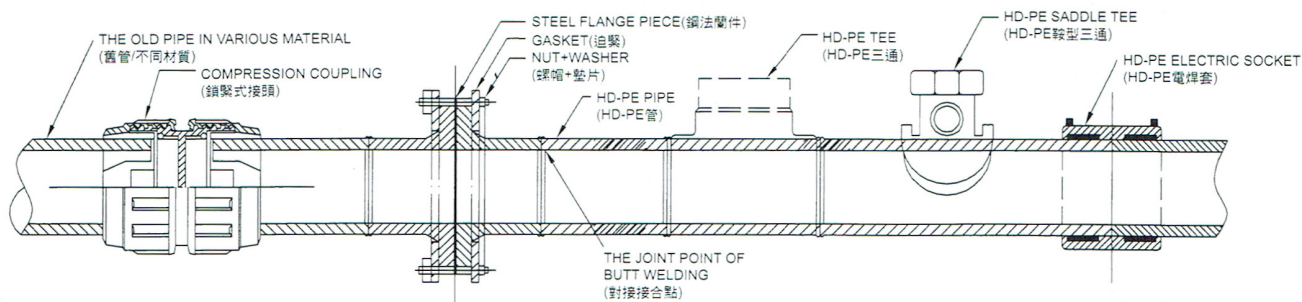
HD-PE (高密度聚乙烯) 物性表

Specific properties (technical data sheet) for polyethylene (reference values)

	Property (特性)	Standard (标准)	Unit (单位)	PE 80	PE 100
	Density at 23°C (密度)	DIN 53 479 ISO/R 1183	g/cm ³	0.953	0.96
	Melt flow index (熔融指数) MFM 90/5 Code T MFI 230/5 Code V MFI range	DIN 53 735 ISO 1133	g/10 min	0.4-0.5 11-17 T005	0.3-0.55 12-18 T005
Mechanical Properties (机械特性)	Tensile stress at yield (变形拉伸强度)	DIN 53 455 ISO/R 527	N/mm ²	21	24-25
	Elongation at yield (变形拉伸率)	DIN 53 455 ISO/R 527	%	10	8
	Tensile stress at break (断裂拉伸强度)	DIN 53 495 ISO/R 527	N/mm ²	30-33	37
	Elongation at break (断裂拉伸率)	DIN 53 455 ISO/R 527	%	>600	>600
	Flexural stress at 3.5% strain (挠曲强度)	DIN 53 452 ISO/R 178	N/mm ²	19	23
	Modulus of elasticity (弹性系数) (tensile test 拉力测试)	DIN 53 457 ISO/R 178	N/mm ²	800	1000
	Modulus in shear (剪力系数)	DIN 53 455 ISO/R 537	N/mm ²	500-600	-
	Ball indentation hardness (球压硬度)	DIN 53 456 ISO 2039	N/mm ²	40	46
	Charpy impact strength at 23°C notched (夏比冲击强度/有缺口)	DIN 53 453 ISO 179/2C	kJ/m ²	10	17-26
	Charpy impact strength at -30°C (夏比冲击强度)	DIN 53 453 ISO 179/2D	kJ/m ²	16	9-13
Thermal Properties (热性)	Cristallinity melting temperate (熔点)	DIN 53 736	°C	128-133	128-135
	Vicat softening point (维卡软化点) VST-A/50 VST-B/50	DIN 53 460 ISO/R 306	°C	67	127 68-77
	Deflection temperature under load (变开多温度) Methode A Methode B	DIN 53 461 ISO 75	°C	42 73	41 61
	Thermal conductivity (at 20°C) (热传导性)	DIN 53 612	W/mk	0.43	0.43
	Thermal expansion coefficient (热膨胀系数)	DIN 53 752	1/°C	2.0*10 ⁻⁴	2.0*10 ⁻⁴
	Flammability (易燃性)	DIN 4102 part 1 ONORM B 3800 part 1 UL94	-	B2 B2	B2 B2
Electrical Properties (电性)	Specific volume resistivity (比容电阻)	DIN 53 482, part 1 IEC Publ. 243	Ohm cm	10 ¹⁵	10 ¹⁵
	Dielectric strength (绝缘强度)	DIN 53 481 IEC Publ. 93	KV/mm	53	22-53
	Surface resistivity (表面电阻系数)	DIN 53 482 IEC Publ. 167	Ohm	>10 ¹⁵	>10 ¹⁵
	colour (颜色)	-	-	black	black

The flange connecting type for HD-PE pipe with different material of fittings, electric sockets flanges.

HD-PE法兰、锁紧式接合法与不同物料配件、电焊套与法兰之接合



Flange welding connection type

The flange welding connection type is used to connect with different material convey pipeline, valves, pumps, compressors, etc equipment's with HD-PE pipes, or use on pipeline is designed for the future dismantling purpose.

Prepare a backing ring and a HD-PE stub flange for joint with steel flange.

Welding HD-PE stub flange on the HD-PE pipe end, please align the two pipelines which are going to connect with each other, put gasket between the backing rings, use bolt/ nuts to connect the flanges. Please be noted the bolts are not circular alignment, should be the corresponding alignment to tighten the bolts. Please be careful not to drag the pipeline when tighten the bolts to avoid the big electric charge occurrence.

法兰焊接接合法

法兰焊接接合法用于HD-PE管与不同物料之运送管、阀门、泵浦、及压缩机等物件之接合，或使用于未来有卸除目的之管件接合上。

准备一垫环及HD-PE塔型法兰头与钢法兰接合，将HD-PE塔型法兰头焊接于HD-PE管之一端，请将欲接合之二管排成一直线，并将紧迫置于垫环之间，而后使用螺栓与螺帽连接二法兰。请注意螺栓并非环型排列一致，应是相对排列以使螺栓能锁紧二法兰。另外，在锁紧螺栓时，应特别慎勿拉动管件以避免引起大电荷之发生。

WELDING INSTRUCTIONS

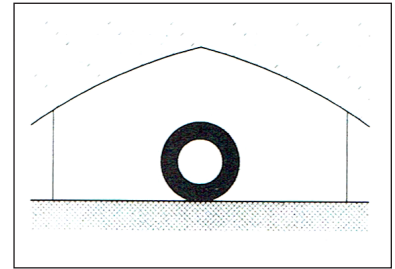
Processing guidelines-heating element socket welding

Preparation of welding place (焊接地点的准备)

Assemble welding equipment (Prepare tools and machinery), control welding device. Install welding tent or similar device

组装焊接设备 (工具及机器) , 控制冶金具

安装焊接帐篷或类似的装备



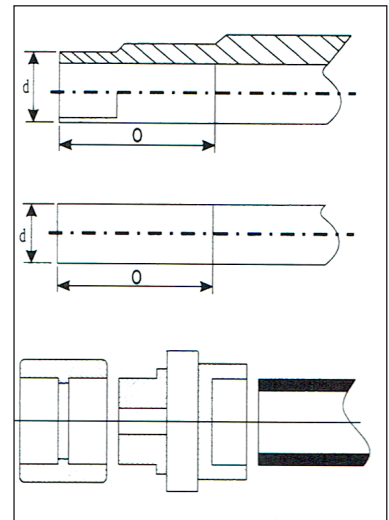
Preparation of welding seam

(at any rate immediately before starting the welding process) 焊接间隙的准备 (可以立即焊接动作)

Cut off pipe faces at right angles and remove flashes on the inside with a knife. Work the pipe faces with a scraper until the blades of the scraper flush with the pipe face. Thoroughly clean welding area of pipe and fittings with fluffless paper and cleansing agents (acetone or similar). If peeling is not necessary, work pipe surface with a scraper knife and mark the depth (t) on pipe.

将管子正面角度切下, 用刀将管内的屑片清除, 用刮刀将管子表面刮除。

管子及配件表面用没有绒毛的纸清洁, 如果不需刮除表面, 用刮刀再管子表面做深度记号 (T)。



Preparations before welding (焊接前的准备)

Check temperature of heating element (on heating spigot and on heating socket). Thoroughly clean heating spigot and heating socket immediately before each welding process (with fluffless paper). At any rate be careful that possibly clogging melt residues are removed.

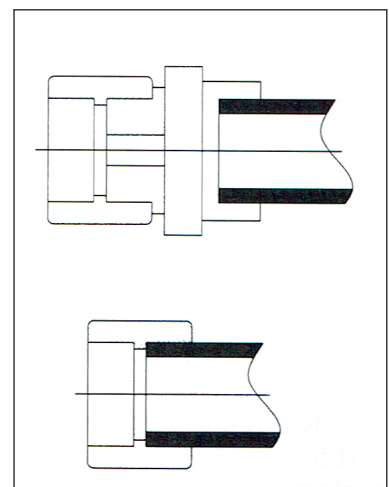
检查电热板的温度 (在内插口、及外插口) , 在每管口焊完后要立即用无绒毛纸清洁内插口及外插口。注意可能黏住的焊残余要清除。

Performing of welding process (焊接过程的操作)

Quickly push fitting and pipe in axial direction onto the heating spigot or into the heating socket until the end stop (or marking). Let pass by pre-heating time according to table values. After the pre-heating time, pull fitting and pipe off the heating element with one heave and immediately fit them into each other without twisting them until both welding beads meet. Let the joint cool down, than remove clamps. Only after the cooling time, the joint may be stressed by further laying processes. On manual welding, adjust the parts and hold them fast under pressure for at least one minute.

尽快的将管子和配件以向轴的方向推进内套或外套口直到停止处 (或记号) 。

依据表的数据经过预热时间后将配件, 管子移开电热板立即将管及配件相互合在一起, 直到互相产生焊珠, 让熔接温度冷却后, 移开夹具, 冷却后, 熔点有可能受随后铺设, 手工焊接的应力。调整另件并压力下至少保持住一分钟。



Heating element socket welding (following to DVS 2207, Part 1 for HD-PE)

Welding method (焊接方法)

On heating element socket welding, pipe and fittings are lap-welded. The pipe end and fitting socket are heated up to welding temperature by means of a socket-like or a spigot-like heating element and afterwards, they are joined.

在热插套焊中，管子和配件是交叠式焊法，管端和配件插口用内套及外套电热板加热到焊接温度使管子和配件相熔接。

The dimensions of pipe end, heating element and fitting socket are coordinated so that a joining pressure builds up on joining (see schematic sketch).

管端尺寸、电热板和配件插口是互相同等的，所以熔接压力在熔接时建立起来（参考草图）。

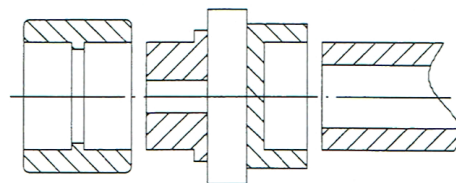
Heating element socket weldings may be manually performed up to pipe outside diameters of 40mm. Above that, use a welding device because of increasing joining forces.

热插套焊可以用手动式操做到管子外径 40mm，以上尺寸使用焊接工具 来增加熔接力量。

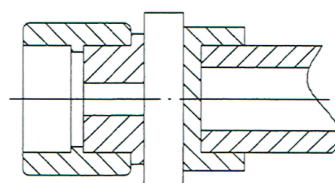
The guidelines of the DVS are be adhered to during the whole welding process!

在整个套焊接过程中需依据 DVS 的规范。

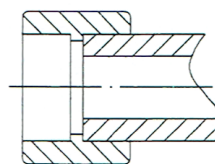
Schematic sketch of the welding process



PREPARATION OF THE WELDING



ALIGNMENT AND PRE-HEATING



JOINING AND COOLING

Welding temperature (T)
(焊接温度)

HD-PE 80

250 / 270°C

Pre-heating time AW
(sec)
PN6

Welding parameters(焊接系数)

Reference values for the heating element socket welding of PP-H pipes and fittings at an outside temperature of about 20°C and low airspeed rates

以下数据为 HD-PE 管、配件在室外温度 20°C 以上的套焊参考数据

Pipe outside diameter (管外径) (mm)	Welding temperature (焊接温度) (°C)	Pre-heating time tAW(预热时间) (sec)(秒)		Adjusting time (调整时间) tu (sec)	Cooling time tAK (冷却时间) (min)
		PN6	PN10		
16			5		
20	250/270		5	4	2
25			7		
32			8		
40	250/270		12	6	4
50			18		
63			24		
75	250/270	15	30	8	6
90		22	40		
110	250/270	30	50	10	8

* not recommended because of too low wall thickness (不建议，因为管壁太薄)

WELDING INSTRUCTIONS Requirements on the welding device use for heating element butt welding (following do DVS 2208: Part!)(使用焊接设备进行物件加热对接之注意事项)

Clamping device

In order avoid high local stresses in the pipe and deformations, the clamping devices should surround at least the pipe casing as parallel as possible to the welding plane. By their high stability, it must be provided that the geometric circular form of the pipes will be maintained. They must not change their position in relation to the guide elements, even under the highest working force. For fittings, such as stub flanges and welding neck flanges, special clamping devices which prevent deformations of the workpiece have to be used.

The pipe clamped at the mobile machine side has eventually to be supported and exactly adjusted by means of easy-running dollies so that the working pressures and conditions required for welding can be maintained.

It is recommendable to use clamp elements adjustable in height to allow a better centering of the workpieces.

Guide elements

Together with the clamping devices, the guide elements have to ensure that the following maximum values for gap width (measured on cold joining surfaces) are not surpassed due to bending or beaming at the least favourable point in the respective working area of the machine at max. operating pressure and with wide pipe diameters:

Pipe outside diameter da[mm]	Gap width a[mm]
≤355	0.5
400 ÷ <630	1.0
630 ÷ <800	1.3
800 ÷ ≤1400	1.5

The gap width is measured by inserting a spacer at the point opposite to the guide while the plane-worked pipes are clamped. Guide elements have to be protected against corrosion at the sliding surfaces, e.g. by means of hard chrome plating.

Heating elements

The heating element has to be plan-parallel with its effective area. Permissible deviations from plane-parallelity (measured at room temperature after heating the elements to maximum operating temperature at least once):

Pipe outside resp. Edge length	Permissible deviation
÷ 250mm	≤0.2 mm
÷ 500mm	≤0.4 mm
>500 mm	≤0.8 mm

For processing in a workshop, the heating element is in general permanently mounted to the device. In case of a not permanently attached heating element, adequate devices have to be provided for its insertion (e.g. handles, hocks links).

If size and nature of the heating elements necessitates its machine-driven removal from the joining surfaces, adequate equipment has to be provided too. The power supply has to be protected against thermal damage within the range of heating elements. Likewise, the effective surface of the heating element has to be protected against damage.

Protecting devices are to be used for keeping the heating element during the intervals between the welding processes.

夾緊裝置

为了避免管内高压与变形应力的产生，夹紧装置应至少与焊接表面贴合。而借由夹紧装置的高稳定性，管口焊接表面将可维持几何正圆。在焊接时即使承受高作业压力，绝不可让管子、配件、与阀门等物件改变与引导元件的相对位置：就配件而言，如塔型法兰头与焊接颈法兰的接合作业中，夹紧装置必须用来避免焊接元件的变形。安装并夹紧于工作机器的管件最后将利用易于移动之滑车支撑与精密调整使焊接所需之工作压力与条件能维持在一定范围内。建议使用可调整高度之夹紧装置使工作物件能得到精准之定位。

引导元件

与夹紧装置同时产生功用，当机器作业区域处于最高温度与加工大尺寸管子时，引导元件用来确保最大间隙容忍宽度（于接合表面冷却时测量）于焊接物件弯曲或辐射时不会被超过。

管口外径 da[mm]	容许间隙宽度 a[mm]
≤355	0.5
400 ÷ <630	1.0
630 ÷ <800	1.3
800 ÷ ≤1400	1.5

间隙宽度是在引导元件与管件之间置入一间距量测器所测量出来，引导元件之滑动平面必须能够抗腐蚀，如在该表面上镀铬抗氧化与抗腐蚀。

加熱元件

加热元件必须与其有效区域的平面平行，容许误差间距是判断平面平行度的依据（将加热元件加热至最大工作温度至少一次后，待温度回复至室温下测量）。

熔接边长相当与管口径	可允许误差
÷ 250mm	≤ 0.2 mm
÷ 500mm	≤ 0.4 mm
>500mm	≤ 0.8 mm
>500 mm	≤0.8 mm

而在工作站的处理作业中，加热元件通常持续与加热设备安装在一起，如果不是持续安装在一起的加热元件，则必须有足够的设备来提供嵌入作业（如把手、勾链等）。

如果因电热板尺寸其他原因需要用机器驱动离开焊接表面，需要有充分的设备。电源供应应避免被破坏，电热板的表面也需予以保护免于损坏。

而在焊接过程中需使用对加热板的保护工具。

Processing guidelines-HS-Heating element butt welding(焊接过程的操作)

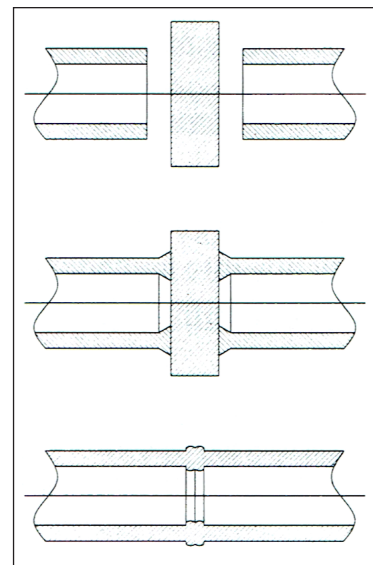
Performing of welding process(置入加热板)

Insert heating element.(置入加热板)

Impose required alignment pressure. The alignment pressure is maintained until the joining faces completely align onto the heating element. By this moment, a bead must have been created surrounding the whole circumference of both parts to be welded. Reduce adjusting pressure $p=0.01$ N/mm² and let pass by the pre-heating time according to reference values table.

Remove heating element and join the surfaces to be welded-keep adjusting time as short as possible. Continuously increase adjusting pressure for the joining process until the required value is reached. Maintain the adjusting pressure until the welding seam has cooled down (sudden cooling with the help of cooling agents is not permitted). Remove clamps after the required cooling time.

推进平行的需要压力, 平行压力要保持到焊件表面完全和电热板成一线, 同时, 在所有焊件周围已产生焊珠。减少调整压力 ($p=0.01$ N/mm²), 依数据表经过预热时间。将电热移开焊件相熔后将调整时间尽量缩短, 持续增加调整压力直到焊道冷却 (不允许使用其它急速冷却媒介物质)。冷却时间过后移开夹具。



Visual control and finishing of welding joint (视觉控制及焊点表面)

After joining, a bead surrounding the whole circumference must have been created. Furthermore, the welding bead has to be inspected with a view to the following:

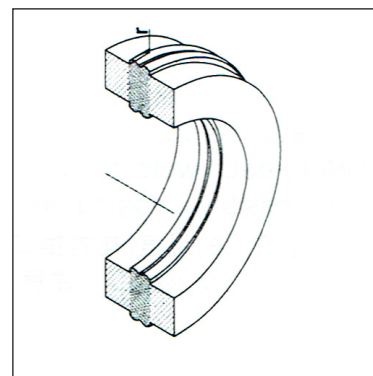
- * almost equally sized beads
- * smooth bead surface

Possible differences in the formation of the beads may be justified by different flow behaviour of the joined materials. If the welding bead has to be removed for special reasons, this has to be done without leaving notches.

相熔后周围必需产生焊珠。另外, 焊珠必须能以下列方式检查:

- * 焊珠大小几乎一样
- * 焊珠表面光滑

焊珠的成形的差别可以用来判定相熔物质不同的流动性。如果因特别原因焊珠需要去除, 不要留下凹点。



Performing of pressure test (压力测试)

Before the pressure testing, all welding joints have to be completely cooled down (as a rule, 1 hour after the last welding process). The pressure test has to be performed according to the relevant standard regulations (e.g. DVS 2210 Part 1, DVGW working sheet W210).

The hereby imposed maximum test pressure is $1.5 \times P_N$, whereby during the test period (10 minutes at least) no pressure drop is allowed. The piping system has to be protected against changes of the ambient temperature (UV-radiation).

压力测试前, 所有的焊点必需完全冷却 (规定来说, 最后焊点后 1 小时)。压力测试需依据相关标准(DVS2210 part 1,DVGW working sheet W210),至少须注入 $1.5 \times P_N$, 时间至少 10 分钟没有压力下降为核可。管路系统必须保护免于室温的变化 (紫外线)。



HD-PE 管支撐距离

Support distances for pipes out of HD-PE

Conversion factors for pipes out of HD-PE HD-PE 管支撐距离的计算如下：

The in the table stated support distances may be changed for other pressure ratings as follows: 本表会因压力等级、支撐距离将作改变：

PN3.2	-25%
PN6	-9%
PN16	+7%

The support distances have to be reduced by 4% for fluids with a density of 1.0g/cm^3 up to 1.25g/cm^3 支撐距离会因流体比重在 1.0g/cm^3 到 1.25g/cm^3 下减少 4%

At the transportation of gases with a density of $<0.01\text{g/cm}^3$, the support distances can be increased as stated below: 瓦斯运输上比重若小于 0.01g/cm^3 支撐距离可以增加如下：

PN3.2	+47%
PN6	+30%
PN16	+21%

Support distances for pipes out of HD-PE 80 (HD-PE 100) PN 10

HD-PE 80(HD-PE100)PN10管的支撐距离表

da (mm)	Support distances L in(cm) at °C				
	20°C	30°C	40°C	50°C	60°C
16	50	45	45	40	35
20	57	55	50	45	40
25	65	60	55	55	50
32	75	75	65	65	55
40	90	85	75	75	65
50	105	100	90	85	75
63	120	115	105	100	90
75	130	130	120	110	100
90	150	145	135	125	115
110	165	160	150	145	130
125	175	170	160	155	140
140	190	185	175	165	150
160	205	195	185	175	160
200	230	220	210	200	190
225	245	235	225	215	205
250	260	250	240	230	210
280	275	265	255	240	220
315	290	280	270	255	235
355	310	300	290	275	255
400	330	315	305	290	270



Support distances for pipes out of HD-PE 80 (HD-PE 100) PN 16
HD-PE 80(HD-PE100)PN16管的支撐距离表

da (mm)	Support distances L in(cm) at °C				
	20°C	30°C	40°C	50°C	60°C
16	53.5	48.15	48.15	42.8	37.45
20	60.99	58.85	53.5	48.15	42.8
25	69.55	64.2	58.85	58.85	53.5
32	80.25	80.25	69.55	69.55	58.85
40	96.3	90.95	80.25	80.25	69.55
50	112.35	107	96.3	90.95	80.25
63	128.4	123.05	112.35	107	96.3
75	139.1	139.1	128.4	117.7	107
90	160.5	155.15	144.45	133.75	123.05
110	176.55	171.2	160.5	155.15	139.1
125	187.25	181.9	171.2	165.85	149.8
140	203.3	197.95	187.25	176.55	160.5
160	219.35	208.65	197.95	187.25	171.2
200	246.1	235.4	224.7	214	203.3
225	262.15	251.45	240.75	230.05	219.35
250	278.2	267.5	256.8	246.1	224.7
280	294.25	283.55	272.85	256.8	235.4
315	310.3	299.6	288.9	272.85	251.45
355	331.7	321	310.3	294.25	272.85
400	353.1	337.05	326.35	310.3	288.9



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