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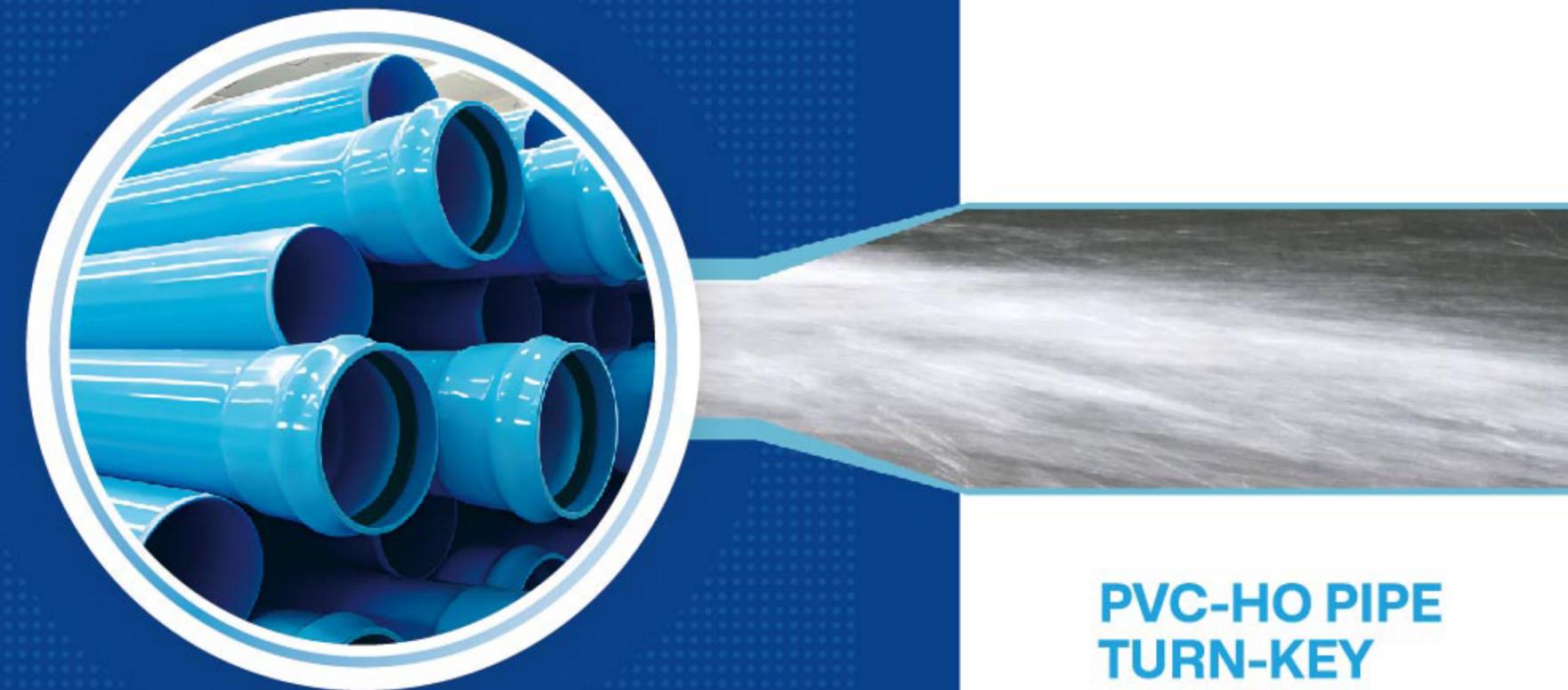
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BE BEIER BE GREENER



PVC-HO PIPE TURN-KEY SOLUTION

www.beierpm.com

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25
years of experience

500+
Personnel

160+
Country

COMPANY BRIEF

THE GLOBAL PLASTIC MACHINERY BRAND STRIVING FOR A BALANCE BETWEEN LIFE QUALITY AND EARTH SUSTAINABILITY

Jiangsu Beier Machinery is an integrated equipment supplier that advances plastic extrusion to recycling technology for green recycling. Committed to sustainability, Jiangsu Beier Machinery integrates three business units of plastic extrusion, compounding, and recycling systems to offer the global market a comprehensive solution that balances life quality with earth sustainability.

Since 1998, Beier's highly efficient and energy-saving European-style PE/PP/P-PR/PVC pipe, sheet and profile production lines, PVC blending and dosing systems and plastic solid waste recycling lines have served more than 125 countries and regions worldwide, creating value for more than 600 plastics companies with stable and sustainable production benefits and forming partnerships to develop a circular economy in various industries, including public works construction, construction markets and plastic recycling.

Innovation is one of Beier's core values that guides Beier's continuous evolution and growth, building its reputation through further technological upgrades, product service, customer satisfaction, and giving back to the community. Importantly, it is used to achieve the brand's mission, "Innovation for sustainability, pride in customer success".



BEIER HEADQUARTER (Zhangjiagang)

DEVELOPMENT OF PLASTIC MACHINERY BUSINESS GROUP TO IMPROVE THE QUALITY OF HUMAN LIFE

Beier is conveniently located in Zhangjiagang National Economic and Technological Development District, Jiangsu Province, and is a national high-tech enterprise, a national torch plan enterprise, a provincial famous trademark, a provincial export base enterprise for plastic machinery products, and a provincial contract-abiding and credible enterprise.



BEIER INTELLIGENT (Nantong)



For Beier and its global business partners, they will benefit from the Beier Machinery's vision to improve the quality of human life. In addition to plastic extrusion, compounding and recycling solutions, they will also have the professional resources and services of Bestar Blow Molding Machinery and Macquarie Import and Export Co., Ltd.

PROPOSING A PLASTIC RECYCLING STRATEGY IN ACCORDANCE WITH PROTECTING THE COEXISTENCE OF HUMAN BEINGS AND ALL THINGS

Beier has established R&D platforms such as the Engineering Technology Research Center for Waste Plastics Utilization Machinery, Postdoctoral Workstation, Thousand Talents Program Workstation, etc. It has more than 80 national patents and has been recognized as a demonstration unit for the introduction of overseas intelligence. Beier Machinery attracts high-end professional and technical talents from Europe and China to integrate the essence of industrial technology, meeting the needs of customers in different market segments.

Beier Machinery consistently considers how to enhance production efficiency and environmental friendliness, aiming to cultivate core competitiveness for sustainable development. It contributes to the global endeavor of energy conservation, emission reduction, and green economic development, striving to create a happier and better life.





ACQUIRING AND EXPLOITING INNOVATION IN THE PLASTIC INDUSTRIAL SPHERE

The sustainability we seek for is an innovative solution that allow us to live better and happier. To ensure this, we have continued to challenge and innovative ourselves with Beier Team and Clients. Beier will keep striving for our challenge and innovation toward future.

- 

40+
Are innovation patents
- 

60+
Patents for utility model
- 

40+
Authorized patents



CUSTOMER SITE

- 

120,000m²+ Facilities
- 

500+ Personnel
- 

1,500+ Solutions





BEIER'S EXCLUSIVE "H" IN PVC-HO

H = Hybrid (Hybrid Orientation)

PVC-HO = PVC-Hybrid-Orientation

Featuring the BEIER-exclusive Hybrid Orientation technology, this process integrates precision axial/radial stretching with circumferential stress optimization. It is specially tailored for the molding of $\phi 1000\text{mm}$ large-diameter pipes, effectively addressing the issues of deformation and uneven wall thickness common in conventional PVC-O large-diameter pipes, and achieving more uniform molecular orientation.



COST EFFICIENCY

- Half the thickness of PVC-U pipe
- Cost-effective raw material
- 4 times the impact resistance to external loads



ENERGY EFFICIENCY

- Smooth inner wall for higher water conveyance
- Increased hydraulic capacity, between 15-40% more than PVC-U and HDPE



OPTIMAL ENVIRONMENTAL PERFORMANCE

- Higher resource efficiency
- Better environmental footprint
- Optimized water resource utilization
- Full material recyclability



H = High-performance (High-spec Process)

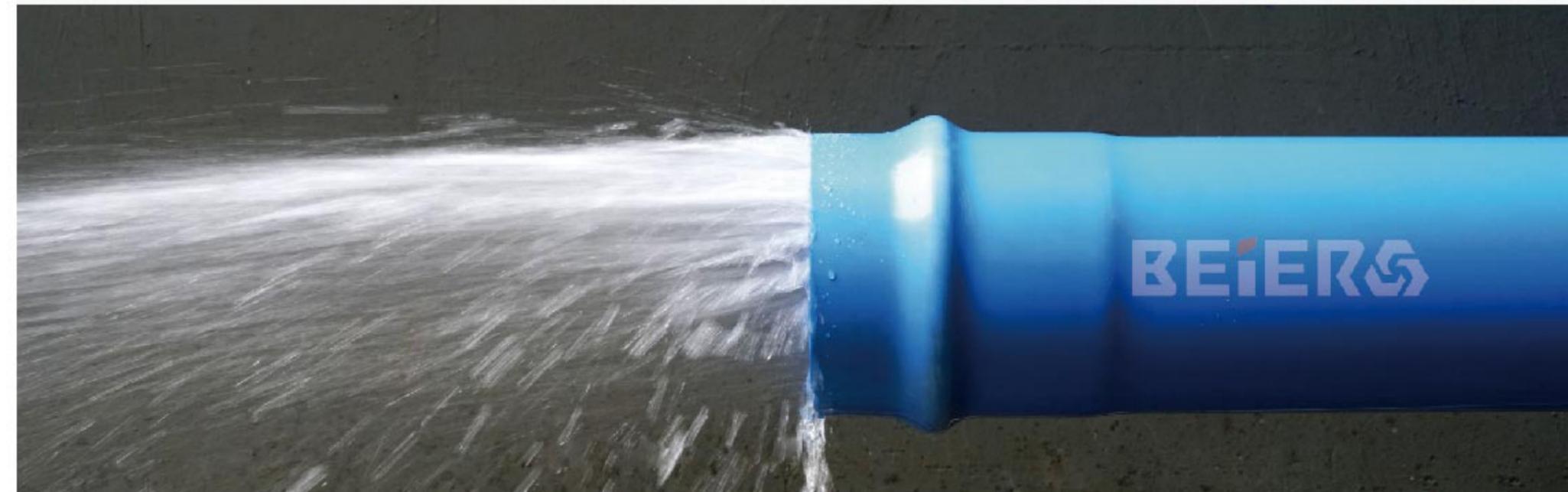
PVC-HO = PVC-High-performance-Orientation

BEIER's H-series high-spec process integrates smart modules such as an industrial-grade busbar system and aviation-grade connectors. It implements high-standard temperature and pressure control throughout the entire process, from material mixing and extrusion to shaping. As a result, both the MRS strength rating and PN pressure rating of the pipes are higher than those of conventional PVC-O pipes.

H = Homogeneous (Homogeneous Melt Molding)

PVC-HO = PVC-Homogeneous-Orientation

Conventional PVC-O pipes are prone to problems such as melt stagnation and weld lines. BEIER's H-series boasts exclusive homogeneous melt molding technology, which optimizes die head flow channels and screw internal circulation thermal balance. This enables zero melt stagnation throughout the process and uniform pressure distribution, completely eliminating weld lines. The pipes deliver far superior inner wall smoothness and dimensional accuracy compared to conventional PVC-O pipes, making them ideal for manufacturing high-precision pressure pipes.



SUPERIOR SHEAR RESISTANCE



BEIER Inline Biaxial Orientation vs. Competitors' Offline Uniaxial Orientation

When it comes to shear resistance, BEIER's inline biaxial orientation delivers far better performance than competitors' offline uniaxial orientation. The inline process adopts advanced biaxial stretching technology, which realizes synchronous stretching in both the circumferential and axial directions. On the contrary, the offline process only focuses on circumferential stretching, with no stretching applied in the axial direction at all.



Precise Inline Socket Control for Dependable Pipeline Connections

BEIER's inline sockets feature precise, stable control over both shape and dimensions, ensuring highly reliable pipeline connections. Precision calibration of the internal diameter of inline sockets guarantees consistent socket geometry and sizing, which further boosts the reliability of joint connections.

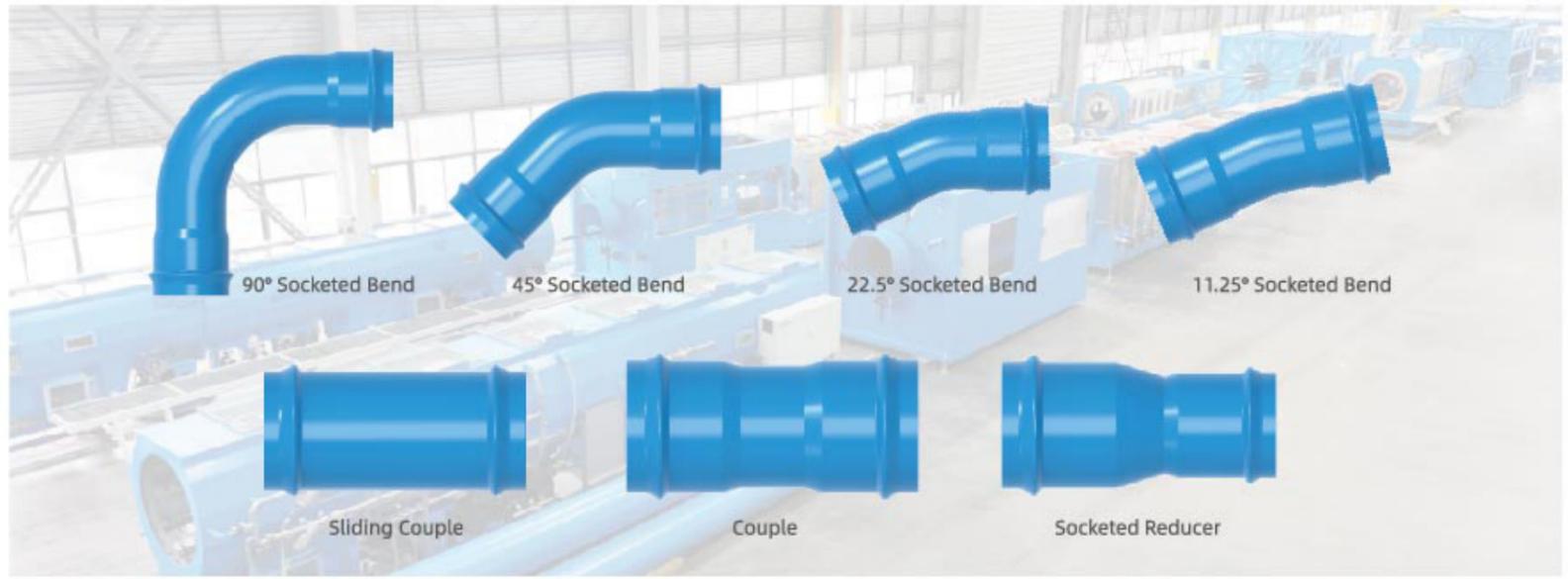
Smooth Inner Pipe Walls: Biofilm Prevention & Reduced Hydraulic Resistance

Our pipes boast ultra-smooth inner walls, crafted via mandrel-assisted stretching and orientation technology. This smooth surface effectively inhibits biofilm formation and significantly lowers hydraulic resistance, delivering dual benefits of improved hygienic performance and energy conservation.

PROJECT CASES



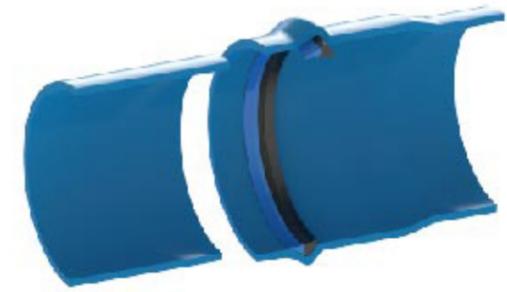
PVC-HO FITTING



PVC-HO fittings significantly enhance the mechanical properties of conventional PVC, resulting in superior performance across multiple aspects. These improvements enable a reduction in both raw material usage and energy consumption, while delivering higher hydrostatic pressure resistance and greater impact strength compared to fittings made from other materials. Moreover, PVC-O fittings exhibit excellent behaviour against water hammer, ensure complete watertight integrity, and offer outstanding chemical resistance and ductility.



PVC-HO GASKET



This series of thermoplastic rubber sealing rings is specially designed for PVC pipeline systems. Precision-manufactured for dimensional accuracy, it covers 63mm-500mm specifications and complies with EN681.1, GB/T10002.1, F477 and other international standards.

- Innovative Material:** TPV thermoplastic rubber (60° hardness) paired with modified polypropylene support rings for excellent weather resistance and long-term sealing performance.
- Precision Dimensional Control:** Outer diameter tolerance: $\pm 0.6\text{mm} - \pm 1.8\text{mm}$; wall thickness accuracy: $\pm 0.3\text{mm} - \pm 0.6\text{mm}$; full-spec dimensional deviation data available.
- Superior Performance:** 360° full-circle sealing, temperature-adaptive, easy to install with reliable sealing effect.

Ideal for water supply, drainage, municipal engineering and other pipeline connections, the product delivers trusted sealing solutions. Strict quality control ensures all units meet high engineering standards.

GPS-TYPE PIPE CRUSHER (SHREDDER)

Usage: PVC-O pipes PE/PP pipes Corrugated pipes Spiral-wound pipes.

Technical Parameter

Model	GPS1200	GPS1600	GPS2000
Maximum Crushing Pipe Diameter(mm)	315	450	630
Capacity(kg/h)	2800	3500	5500
Main motor power(KW)	55	90	132
feed inlet: (L/W)	340/340	500/500	660/710
Cutterhead diameter(mm)	Φ1200	Φ1600	Φ2000
Moving knife qty.(pcs)	4	6	12
Hydraulic power(KW)	1.5	1.5	1.5
Dimensions(LxWxH)	4000/1450/1800	5000/1640/2025	5720/2200/2580
Equipment weight (kg)	5500	7600	11000



PVC-HO PIPE EQUIPMENT PATENTS AND TEST REPORTS



BEIER Machinery boasts an exclusive in-house testing laboratory for PVC-HO pipes

committed to 100% batch-by-batch inspection and strict quality control! Comprehensive performance verification from raw materials to finished products safeguards every delivered production line, ensuring stable operation and compliance with standards right from the start of production!



China's Exclusive Supplier of $\Phi 1000\text{mm}$ PVC-O Pipe Extrusion Lines

BEIER Machinery pioneers large-diameter oriented PVC pipe production solutions, enabling the manufacturing of premium pressure pipes with exceptional strength and durability.



Proven Manufacturing Expertise

Nearly 30 years of pipe manufacturing heritage, 10+ years of specialized PVC-HO experience – BEIER Machinery delivers consistent premium quality backed by time-honed process optimization.

Systematic Technology

BEIER's PVC-HO production line offers a full-range technological package. We master the entire production process and provide seamless turnkey services for worry-free project execution.

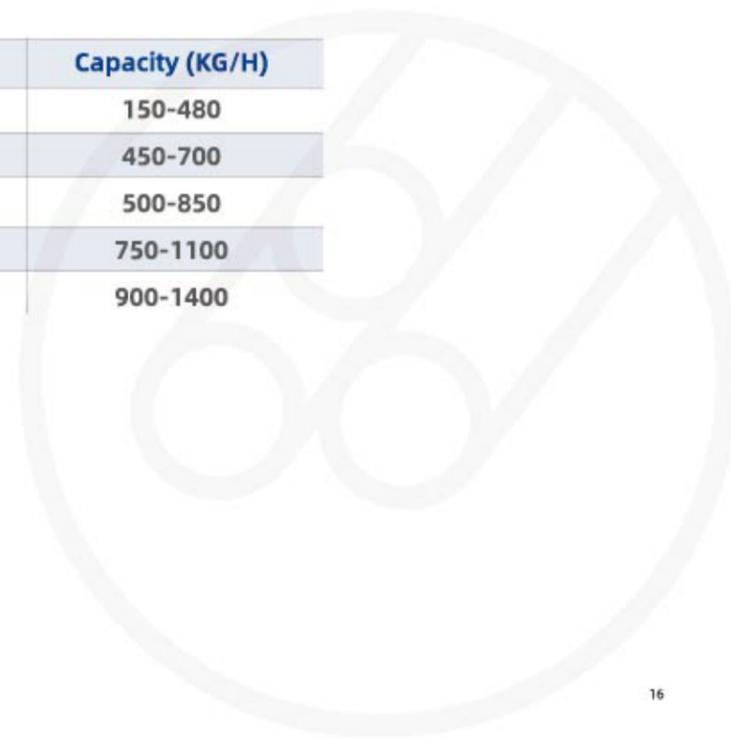


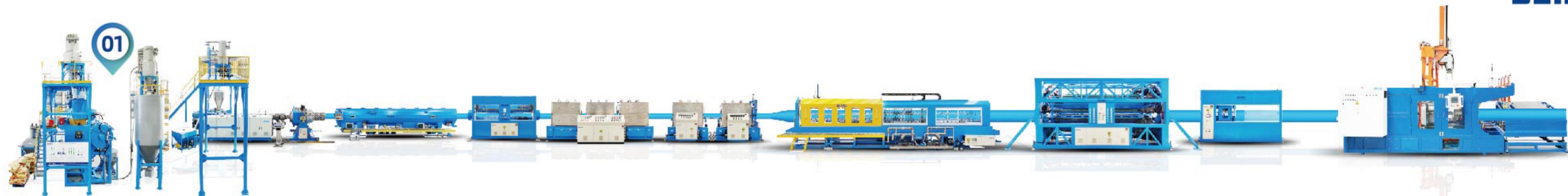


1	AUTOMATIC PVC MIXING AND CONVEYING SYSTEM
2	EXTRUDER
3	DIE HEAD
4	VACUUM CALIBRATING COOLING TANK
5	HAUL OFF
6	HEATING OVEN WITH CONTROL SYSTEM
7	SPRAYING COOLING TANK
8	HAUL OFF
9	CUTTING MACHINE
10	BELLING MACHINE & MOLD
11	THICKNESS MEASUREMENT SYSTEM

Technical Parameter

Diameter range (mm)	Extruder model	Extruder Power(kw)	Capacity (KG/H)
Φ 90~250	80-156 (conical)	55	150-480
Φ 315~400	114-28	75	450-700
Φ 450~630	114-34	110	500-850
Φ 500~800	133-34	160	750-1100
Φ 710~1000	156-34	200	900-1400





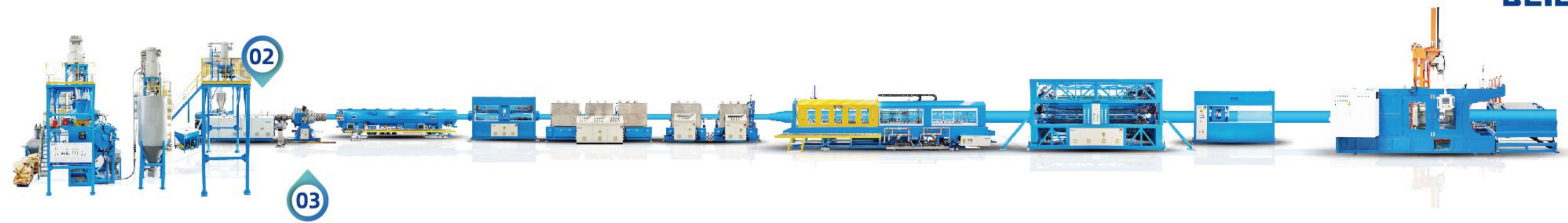
01 AUTOMATIC PVC MIXING AND CONVEYING SYSTEM

1. Centralized touchscreen control for simple operation.
2. Feeding, mixing and conveying processes operate automatically and coordinately, reducing manual intervention while improving production efficiency and stability.
3. Equipped with temperature over-limit, equipment overload, and valve position monitoring. Alarm information is displayed in real-time on the touchscreen with historical records for easy fault tracing and maintenance.

Main Technical Parameter

BRL-WN	Heat/cool	Heat/cool	Heat/cool
Total volume(L)	500/1250	800/2500	1000/3000
Effective capacity(L)	330/750	600/1750	700/2100
Stirring speed(rpm)	430/860/70	370/740/60	300/600/50
Mixing time (min)	8-12	8-15	8-15
Motor power(kW)	75/15	110/30	160/30
Weight(kg)	5000	7500	8500
Output(kg/h)	825	1320	1650





02 EXTRUDER

1. Featuring a precision internal circulation thermal balance design, the screw guarantees superior melt uniformity for consistent plastic extrusion quality.
2. Its integrated internal heating and cooling circulation system eliminates thermal imbalances, curbing polymer degradation and cutting energy consumption significantly.
3. Specifically tailored for PVC-HO and other rigid plastic extrusion applications, this screw design delivers stable performance even during long-duration continuous production runs.



GRAVIMETRIC WEIGHING SYSTEM



Special hopper geometry for optimum flow behavior of powder with up to 20% CaCO₃ content.
 A consistent extrusion rate results in a 5% reduction in raw material consumption.
 Dead-space-free feeding, weighing & metering.

03 DIE HEAD

1. The die head features optimized melt flow channels and spreader structure, which ensures smooth, uniform melt distribution and zero stagnation.
2. This design directly translates into high-quality pipes with consistent wall thickness, flawless surface finish, and reliable structural integrity.





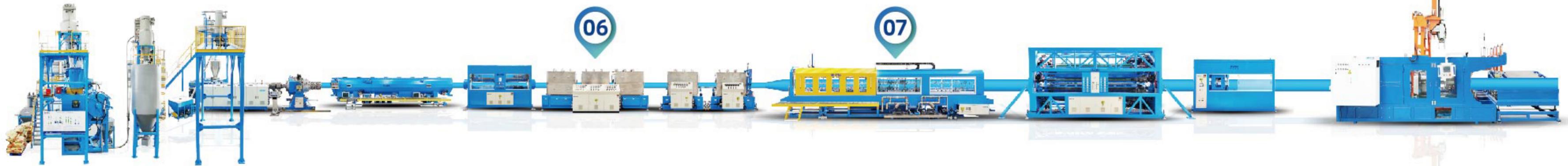
04 VACUUM CALIBRATING COOLING TANK

1. Equipped with a closed-loop VFC vacuum pressure control system, the device achieves stepless pressure regulation via a frequency converter.
2. It maintains stable vacuum pressure throughout the production process, laying a solid foundation for high-quality pipe manufacturing.

05 08 HAUL OFF

The number of circumferentially distributed tracks is greater than that of a standard PE pipe haul-off, and the effective contact length of the tracks is longer. The haul-off utilizes servo control, providing stronger load capacity, higher work efficiency, and superior control precision. By monitoring the rotational speed and torque of each jaw during operation, the machine's running status can be clearly understood. The minimal output torque error among individual tracks ensures a uniform orientation process for the preform pipe, guaranteeing the production of PVC-HO finished pipes with optimal performance.





06 HEATING OVEN WITH CONTROL SYSTEM

The temperature of the heaters can be controlled at any point between room temperature and the maximum temperature during normal operation. The heaters are designed for high temperature resistance, rapid heat transfer, and minimal temperature fluctuation. The temperature of each heating zone in the oven can be precisely controlled within $\pm 1^{\circ}\text{C}$. Integrated with the PLC, a schematic diagram allows for faster and more accurate setting and monitoring of the temperature status of each zone in every oven.

07 SPRAYING COOLING TANK

The cooling tank has adjustable cooling pipelines, enabling targeted cooling and point-to-point cooling for high efficiency and energy conservation, quickly maintaining the PVC-HO pipe's orientation level.





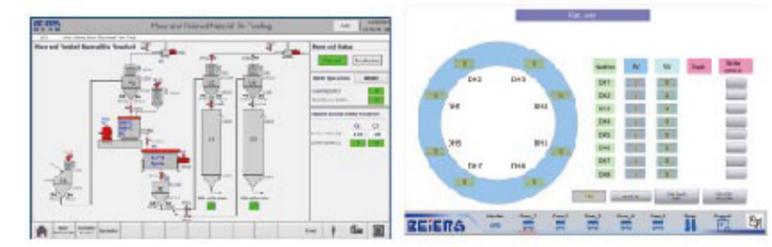
09 CUTTING MACHINE

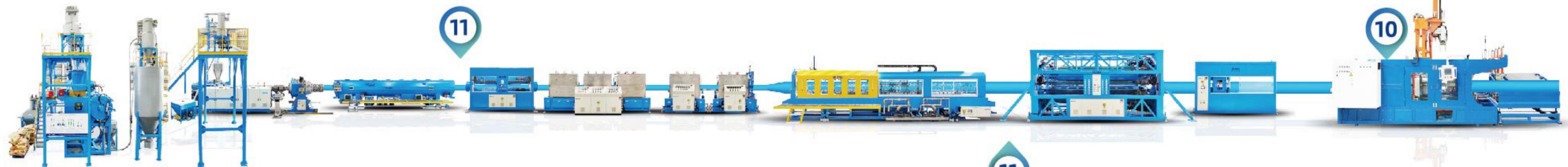
The pipe cuts and chamfers are smooth and aesthetically pleasing. The static eliminator and chip-blowing air knife in the cutting chamber prevent cutting chips from adhering to the surface or accumulating inside. Additionally, multiple chip suction outlets have been added to resolve the issue of chip blockage at the air outlets.



BEIER SMART ELECTRIC SYSTEM

Packed with a complete set of smart industrial modules – industrial-grade busbar system, aviation-grade connectors, real-time energy monitoring, remote debugging, precision auto-heating, and centralized recipe management – the system powers seamless, intelligent PVC-HO pipe production, maximizing efficiency and slashing downtime.





10 BELLING MACHINE & MOLD

1. The all-new UI interface comes with station-specific independent display zones for clear, real-time process monitoring.
2. The added virtual sensor function enables material-free testing, slashing debugging costs.
3. Intuitive alarm displays allow instant fault identification and precise location, ensuring uninterrupted, efficient production.



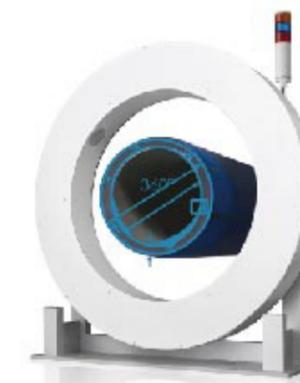
11 THICKNESS MEASUREMENT SYSTEM

A non-contact measurement system for oriented PVC pipe production employs microwave technology to achieve comprehensive quality monitoring. This solution utilizes high-frequency electromagnetic waves to perform 360° scanning of pipes, enabling simultaneous detection of the following key parameters:

- Wall thickness distribution (including monitoring of minimum and maximum points)
- Inner and outer diameter dimensions
- Ovality variation
- Pipe alignment

Technical features in PVC-HO production include:

- Coupling medium-free design: Adaptable to various polyvinyl chloride formulations and multiple engineering plastics
- Automatic calibration and closed-loop control: Ensures consistent quality and reduces material waste
- Full-process data acquisition: Provides comprehensive data support for process optimization and quality traceability.



PVC-HO INTERNATIONAL STANDARD



APPLICABLE REGION: EUROPE

Nominal outside diameters d_n and nominal wall thickness e_n .

Material class	Nominal PN for design coefficient C=1.6												
	6.3	8	10	12.5	16	20	25	31.5	35.5	40	45	50	
315	6.3		8		10		12.5		16		20		25
355		8		10		12.5		16		20		25	
400	8		10		12.5		16		20		25		
450		10		12.5		16		20		25			
500	10		12.5		16		20		25				
Nominal PN for design coefficient C=1.4													
450	10		12.5		16		20		12.5		25		
500		12.5		16		20		12.5		25			
Preferred and calculated values for tube series numbers S (ISO 3) and standardized dimension ratios (SDR)													
S	32.0	28.0	25.0	22.4	20.0	18.0	16.0	14.0	12.5	11.2	10.0	9.0	8.0
S_n	31.623	28.184	25.119	22.387	19.953	17.783	15.849	14.125	12.589	11.220	10.000	8.9125	7.9433
SDR	65.0	57.0	51.0	45.8	41.0	37.0	33.0	29.0	26.0	23.4	21.0	19.0	17.0
n	e _n , mm												
63				1.6	1.8	2.0	2.2	2.5	2.7	3.0	3.4	3.8	
75			1.5	1.7	1.9	2.1	2.3	2.6	2.9	3.2	3.6	4.0	4.5
90		1.6	1.8	2.0	2.2	2.5	2.8	3.1	3.5	3.9	4.3	4.8	5.4
110	1.8	2.0	2.2	2.4	2.7	3.1	3.4	3.8	4.2	4.7	5.3	5.9	6.6
125	2.0	2.2	2.5	2.8	3.1	3.5	3.9	4.3	4.8	5.4	6.0	6.7	7.4
140	2.2	2.5	2.8	3.1	3.5	3.9	4.3	4.8	5.4	6.0	6.7	7.5	8.3
160	2.5	2.8	3.2	3.5	4.0	4.4	4.9	5.5	6.2	6.9	7.7	8.5	9.5
180	2.8	3.2	3.6	4.0	4.4	5.0	5.5	6.2	6.9	7.7	8.6	9.6	10.7
200	3.2	3.5	3.9	4.4	4.9	5.5	6.2	6.9	7.7	8.6	9.6	10.7	11.9
225	3.5	4.0	4.4	5.0	5.5	6.2	6.9	7.7	8.6	9.6	10.8	12.0	13.4
250	3.9	4.4	4.9	5.5	6.2	6.9	7.7	8.6	9.6	10.7	11.9	13.3	14.8
280	4.4	4.9	5.5	6.2	6.9	7.7	8.6	9.6	10.7	12.0	13.4	14.9	16.6
315	4.9	5.5	6.2	6.9	7.7	8.7	9.7	10.8	12.1	13.5	15.0	16.8	18.7
355	5.6	6.2	7.0	7.8	8.7	9.8	10.9	12.2	13.6	15.2	16.9	18.9	21.1
400	6.3	7.0	7.9	8.8	9.8	11.0	12.3	13.7	15.3	17.1	19.1	21.3	23.7
450	7.0	7.9	8.8	9.9	11.0	12.4	13.8	15.4	17.2	19.2	21.5	23.9	26.7
500	7.8	8.8	9.8	11.0	12.3	13.7	15.3	17.1	19.1	21.4	23.9	26.6	29.7
560	8.8	9.8	11.0	12.3	13.7	15.4	17.2	19.2	21.4	23.9	26.7	29.8	33.2
630	9.9	11.0	12.3	13.8	15.4	17.3	19.3	21.6	24.1	26.9	30.0	33.5	37.4
710	11.2	12.4	14.1	15.4	17.5	19.2	21.8	24.4	27.6	30.2	34.2	37.3	42.2
800	12.6	14.0	15.9	17.4	19.8	21.6	24.5	27.4	31.1	34.0	38.5	42.0	47.6
900	14.1	15.7	17.9	19.6	22.2	24.3	27.6	30.9	35.0	38.2	43.3	47.3	53.5
1000	15.7	17.5	19.9	21.7	24.7	27.0	30.6	34.3	38.9	42.5	48.1	52.5	59.4
1200	18.4	21.1	23.5	26.2	29.3	32.4	36.4	41.4	46.2	51.3	57.1	63.2	70.6

NOTE
Other pressure classes can be obtained using the specified SDR class and applying a higher design coefficient.
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APPLICABLE REGION: INDIA

Nominal Diameter, d_n , mm	Class 500/C = 1.6 (Clause 8.1.2)				
	Class 500/C = 1.6 Wall Thickness, e_n , mm				
	Nominal Pressure, PN				
	10	12.5	16	20	25
(1)	(2)	(3)	(4)	(5)	(6)
90	1.5	1.9	2.4	2.9	3.7
110	1.8	2.3	2.9	3.6	4.5
125	2.1	2.6	3.3	4.0	5.1
140	2.3	2.9	3.6	4.5	5.7
160	2.6	3.3	4.2	5.1	6.5
180	3.0	3.7	4.7	5.8	7.3
200	3.3	4.1	5.2	6.4	8.1
225	3.7	4.6	5.8	7.2	9.1
250	4.1	5.1	6.5	8.0	10.2
280	4.6	5.7	7.2	9.0	11.4
315	5.1	6.4	8.1	10.1	12.8
355	5.8	7.2	9.2	11.4	14.4
400	6.5	8.1	10.3	12.8	16.2
450	7.4	9.3	11.6	14.4	18.2
500	8.2	10.4	12.9	16.0	20.3
560	9.2	11.6	14.4	17.9	22.7
630	10.3	13.0	16.2	20.1	25.5
710	11.6	14.7	18.3	22.7	28.7
800	13.1	16.5	20.6	25.5	32.4
900	14.7	18.6	23.1	28.7	36.4
1000	16.4	20.7	25.7	31.9	40.5

APPLICABLE REGION: INDIA

Nominal Diameter, d_n , mm	Class 500/C = 1.4 (Clause 8.1.2)			
	Class 500/C = 1.4 Wall Thickness, e_n , mm			
	Nominal Pressure, PN			
	12.5	16	20	25
(1)	(2)	(3)	(4)	(5)
90	1.7	2.1	2.6	3.3
110	2.0	2.6	3.2	4.0
125	2.3	2.9	3.6	4.5
140	2.6	3.2	4.0	5.1
160	2.9	3.7	4.6	5.8
180	3.3	4.2	5.2	6.5
200	3.6	4.6	5.7	7.2
225	4.1	5.2	6.4	8.1
250	4.5	5.8	7.2	9.0
280	5.1	6.4	8.0	10.1
315	5.7	7.2	9.0	11.4
355	6.4	8.2	10.1	12.8
400	7.2	9.2	11.4	14.4
450	8.3	10.3	12.8	16.2
500	9.2	11.4	14.2	18.0
560	10.3	12.8	15.9	20.2
630	11.6	14.4	17.9	22.7
710	13.1	16.2	20.2	25.6
800	14.7	18.3	22.7	28.8
900	16.5	20.6	25.5	32.4
1000	18.4	22.8	28.4	36.0

APPLICABLE REGION: CHINA

Greatly increase the water-flow area of pipelines

公称外径 d_n , mm	公称壁厚 e_n (mm)			过水面积(mm ²)		
	HDPE	PVC-U	PVC-HO 500	HDPE	PVC-U	PVC-HO 500
110	10.0	6.6	2.4	6358.5	7355.6	8687.6
160	14.6	9.5	3.5	13430.3	15606.6	18376.1
200	18.2	11.9	4.4	21010.5	24371.5	28697.6
250	22.7	14.8	5.5	32861.0	38132.3	44840.0
315	28.6	18.7	6.9	52171.8	60493.5	71216.3
400	36.3	23.7	8.8	84144.7	97596.5	114790.4
500	45.4	29.7	11.0	131444.0	152390.8	179359.9
630	57.2		13.8	208687.0		284865.3
710	64.5		15.4	264985.4		362130.4
800	72.6		17.4	336579.0		459641.9
1000	90.2		21.7	527319.2		718340.6

Dimensions of PVC-HO 500 water supply

设计系数	C=1.6										C=1.4			
	65.0	51.0	41.0	33.0	26.0	57.0	45.8	37.0	29.0	2.5MPa	2.0MPa	1.6MPa	1.25MPa	
SDR	65.0	51.0	41.0	33.0	26.0	57.0	45.8	37.0	29.0	2.5MPa	2.0MPa	1.6MPa	1.25MPa	
压力等级	1.0MPa	1.25MPa	1.6MPa	2.0MPa	2.5MPa	1.25MPa	1.6MPa	2.0MPa	2.5MPa					
d_n (mm)	e _n (mm)													
90	2.0	2.0	2.2	2.8	3.5	2.0	2.0	2.5	3.1					
110	2.0	2.2	2.7	3.4	4.2	2.0	2.4	3.1	3.8					
125	2.0	2.5	3.1	3.9	4.8	2.2	2.8	3.5	4.3					
140	2.2	2.8	3.5	4.3	5.4	2.5	3.1	3.9	4.8					
160	2.5	3.2	4.0	4.9	6.2	2.8	3.5	4.4	5.5					
180	2.8	3.6	4.4	5.5	6.9	3.2	4.0	5.0	6.2					
200	3.2	3.9	4.9	6.2	7.7	3.5	4.4	5.5	6.9					
225	3.5	4.4	5.5	6.9	8.6	4.0	5.0	6.2	7.7					
250	3.9	4.9	6.2	7.7	9.6	4.4	5.5	6.9	8.6					
280	4.4	5.5	7.7	8.6	10.7	4.9	6.2	7.7	9.6					
315	4.9	6.2	7.9	9.7	12.1	5.5	6.9	8.7	10.8					
355	5.6	7.0	8.7	10.9	13.6	6.2	7.8	9.8	12.2					
400	6.3	7.9	9.8	12.3	15.3	7.0	8.8	11.0	13.7					
450	7.0	8.8	11.0	13.8	17.2	7.9	9.9	12.4	15.4					
500	7.8	9.8	12.3	15.3	19.1	8.8	11.0	13.7	17.1					
560	8.8	11.0	13.7	17.2	21.4	9.8	12.3	15.4	19.2					
630	9.9	12.3	15.4	19.3	24.1	11.0	13.8	17.3	21.6					
710	11.2	14.1	17.5	21.8	27.6	12.4	15.4	19.2	24.4					
800	12.6	15.9	19.8	24.5	31.1	14.0	17.4	21.6	27.4					
900	14.1	17.9	22.2	27.6	35.0	15.7	19.6	24.3	30.9					
1000	15.7	19.9	24.7	30.6	38.9	17.5	21.7	27.0	34.3					
1200	18.4	23.5	29.3	36.4	46.2	21.1	26.2	32.4	41.4					