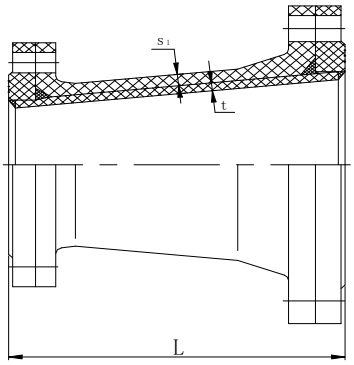

Figure 5 — Shape of flange-type composite reducers

Table 5 — Specifications and dimensions of flange-type composite reducers

(The unit is mm)

Big end *DN*	Small end *DN*	s_1	t	L	Big end *DN*	Small end *DN*	s_1	t	L
32	25	6	5	150	400	200	12	10	450
40	25	6	6	200		250			400
	32			150		300			350
50	25	7	7	200		350			300
	32			200	450	200	14	11	650
	40			150		250			550
65	25	7	5	200		300			450
	32			200		350			350
	40			200		400			250
	50			150	500	250	15.5	13	650
80	50	7	6	200		300			550
100	50	7	7	250		350			450
	80			200		400			350
125	50	9	7.5	300		450			250
	80			250	600	250	16	15	650
	100			200		300			550
150	80	9	8	300		350			400
	100			250		400			350
	125			200		450			300
200	80	9	8	400		500			250
	100			350	700	300	17.5	18	650
	125			300		350			550
	150			250		400			450
250	100	11	7.5	450		450			400
	125			400		500			350
	150			350		600			300

Table 5 (*continued*) (The unit is mm)

Big end *DN*	Small end *DN*	s_1	*t*	*L*	Big end *DN*	Small end *DN*	s_1	*t*	*L*
250	200	11	7.5	250	800	300	20	20	650
300	125	12	7.5	300		350			550
	150			350		400			500
	200			350		450			450
	250			300		500			400
350	150	12	8.5	400		600			350
	200			350		700			300
	250			350					
	300			300					

4.6 Dimensional tolerances shall be in accordance with Table 6.

Table 6 — Dimensional tolerances (The unit is mm)

Marks of dimension	Tolerances	Dimensions	Tolerances
s、s_1、*d*、*b*	+2	$L \leqslant 1\ 000$	±2
L_1、*H*、*e*、*c*	±3	$1\ 000 < L \leqslant 3\ 000$	±3
D、D_1、D_2、*t*	±2	$L > 3\ 000$	±5

4.7 The technical properties of unsaturated polyester resin used in composite pipe and fittings shall be consistent with the provisions of GB/T 8237.

4.8 The glass fiber roving used in composite pipe and fittings shall be consistent with the provisions of GB/T 18369.

4.9 The glass fiber woven roving used in composite pipe and fittings shall be consistent with the provisions of GB/T 18370.

4.10 The technical properties of polyvinyl chloride liner pipes as liner used in composite pipe and fittings shall be consistent with the provisions of GB/T 4219.

4.11 Polyvinyl chloride liner of pipe and fittings require a smooth and firm weld, and does not leak while stand 0.2 MPa hydrostatic pressure inspections.

4.12 The visual of composite pipe and fittings require a uniform color, no fiber exposed, no resin agglomeration, no spots, etc.

4.13 Composite pipe and fittings shall be able to withstand the inspections pressure with 1.5 times of the maximum working pressure.

4.14 Composite pipe and fittings shall be able to withstand short-time hydraulic failure inspections pressure which 4 times of the maximum working pressure.

4.15 Corrosion degree of composite pipe and fittings (hydrochloric acid, nitric acid, sulfuric acid, sodium hydroxide) is not more than 1.5 g/m^2.

4.16 The physical and mechanical properties of composite pipe and fittings shall be in accordance with Table 7.

Table 7 — Physical and mechanical properties

Item	Properties	Item	Properties
Density, g/cm^3	(1.55—1.65)	Compressive strength, MPa≥	56
Water absorption, %≤	0.2	Flexural strength, MPa ≥	28
Insoluble matter content of resin, %≥	80	Short-time hydraulic failure test pressure, MPa	>4 when *DN*≤400
Resin content in composite pipe, %	(45±5)		
Resin content in composite fittings, %	(55±5)		>2.4 MPa when *DN*>400
Tensile strength, MPa≥	35	Bonding strength, MPa >	4

5 Test methods

5.1 Tensile strength shall be tested according to GB/T 5349.

5.2 Compressive strength shall be tested according to GB/T 5350.

5.3 Flexural strength shall be tested according to GB/T 1449.

5.4 Bonding strength between polyvinyl chloride and glass-fiber shall be tested according to GB/T 1450.1.

5.5 Density shall be tested according to GB/T 1033.

5.6 Water absorption shall be tested according to GB/T 1034.

5.7 Resin insoluble matter content of glass-fiber shall be tested according to GB/T 2576.

5.8 Resin content in glass-fiber shall be tested according to GB/T 2577.

5.9 Leak inspection shall be keeping the pressure more than 1 min at room temperature and 1.5 times of the maximum working pressure and.

5.10 Short-time hydraulic failure pressure inspections shall be tested according to GB/T 5351.

5.11 The technical performance test method of the reinforcing material shall be carried out according to JC 176.

5.12 Dimension L, L_1, H, e, c, D, D_1, D_2, t shall be measured with steel tape of 1mm precision, s, s_1, d measured with diameter micrometer, b checked with micro height gauge.

5.13 The technical performance test method of the polyvinyl chloride pipe material shall be carried out according to GB/T 4219.

5.14 Liner's corrosion of composite pipe and fittings shall be tested according to QB/T 3801.

5.15 The visual inspection shall be carried out in a well-lighted condition.

6 Inspection rules

6.1 Inspection classification

Inspection classification of composite pipe and fittings shall be classified two categories, ex-factory inspection and type testing.

6.2 Inspection items

6.2.1 Ex-factory inspection

Ex-factory inspection include visual, size and factory hydraulic pressure test. It'll be inspected before leaving the factory.

6.2.2 Type inspections

Type inspections shall be tested Insoluble matter content of resin, resin content in glass-fiber, tensile strength, compressive strength, flexural strength, short-time hydraulic failure pressure test, bonding strength between polyvinylchloride and glass-fiber.

Type inspections general shall be done once a year when didn't change the raw materials and process.

The type inspections is carried out in the following cases:

a) When the main raw materials and process methods change;

b) When supplier and purchaser dispute;

c) When national quality supervision agencies requires for quality checking;

d) When stop production for more than two years;

e) When the results between the ex-factory inspection and the previous type testing are quite different.

6.3 Batching and sampling

6.3.1 Batching rules

The overall product for the collection of the inspection is a inspection lot, referred to as the batch. A check lot may consist of a production batch or by several production lots that meet the following criteria:

a) These production batches are essentially the same material (i.e., not the same batch of material) and substantially the same equipment (i.e., not the same equipment) but

are manufactured under the same production process conditions;

b) Several batches of production lots shall not be more than one week, unless otherwise specified, but not more than one month.

6.3.2 Sampling rules

6.3.2.1 Samples for factory inspection

Visual: Full inspection.

Dimensions and size: 5 % of a batch, check one when a batch less than 20.

Ex-factory pressure inspection: 3 % of a batch, check 3 when a batch less than 30, check all when a batch less than 3.

6.3.3.2 Samples for type inspections

Sampling 3 for every items, inspections all when a batch less than 3.

6.4 Inspection judgment rules and re-check rules

6.4.1 Nonconforming product judgment

6.4.1.1 Ex-factory inspection

Visual: Meet the requirements of 4.12 when the qualified, fail to meet the requirements for nonconforming product processing.

Dimensions and size: It can be judged as qualified product when the inspection results meet paragraph 4.1 to 4.6, otherwise handled as nonconforming product.
Pressure test: Meet the requirements of paragraph 4.13 for the qualified, otherwise for nonconforming product processing.

6.4.1.2 Type inspections

Any result of inspections does not meet the requirements of Table 7, for non-conforming product processing.

6.4.2 Nonconforming batch judgment

It can be judged as conforming batch when nonconforming products are less than 20 %, otherwise for nonconforming batch processing.

It’s found unqualified when the number of samples less than 5, should be doubled sampling, if there are still non-conforming products, judged of nonconforming batch.

7 Sign, packaging, transportation and storage

7.1 Sign

Conforming products should be affixed with a certificate label; the label shall have the standard number, product trademark, product title, specifications, product number, manufacturer name, production date and so on..

7.2 Packaging

Composite pipes or fittings shall be individually packaged. The flange of the flanged pipe shall be coated with a soft material to prevent the sealing surface from being bumped. Fittings may be individually packaged with packaging materials such as sacks or nylon woven bags.

7.3 Transport

The composite pipe and fittings shall not be subject to strong bumps, throwing and trampling during transport.

7.4 Storage

Products shall not be stored in the open air, storage of the warehouse shall be dry and ventilated, shall be arranged orderly, the stack height shall not exceed 2 m. Composite pipes and fittings shall be redone ex-factory inspection when stored more than one year before delivery in factory. Composite pipe and fittings shall be redone pressure inspection while stored more than one year before delivery in user, it is qualified before used.

7.5 Product accompanying documents

It shall be accompanied by product installation and instruction manual when the product is delivery.

POSTSCRIPT

The translation work of this English version of HG/T 3731—2004 glass fiber reinforced polyvinyl chloride pipe and fittings is authorized by Standardization Administration of the People's Republic of China and organized by the National Technical Committee of Chemical Machinery and Equipment Standardization.

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