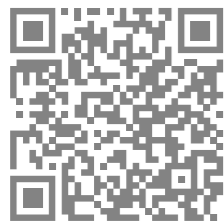


热塑性聚氨酯弹性体 产品说明书

Instructions Of
Thermoplastic Polyurethane Elastomers



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THERMOPLASTIC POLYURETHANE ELASTOMERS

浙江华峰热塑性聚氨酯有限公司
Zhejiang Huafon Thermoplastic Polyurethane Co., Ltd.

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Group Profile

集团简介

华峰集团创办于1991年5月，是一家以化工新材料为主，以金属、金融、新能源、港口物流等产业为辅的大型民营股份制企业。现辖40余家全资及控股公司，拥有两家上市公司，七家国家高新技术企业。在浙江、上海、重庆、辽宁、江苏、广东等地建有产业基地。

华峰集团主要生产聚氨酯鞋革树脂、聚氨酯纤维（氨纶）、超细纤维革、尼龙66、保温材料、热塑性材料、铝热传输复合材料、己二酸、环己酮等320多个品种、1000多种规格的产品。系中国聚氨酯鞋革树脂行业最大产销企业。

综合实力连续多年名列“中国大企业集团竞争力500强”、“中国民营制造企业百强”、“中国民营企业纳税百强”、“中国石油和化学工业百强”。

Huafon Group, established in May 1991, is a large private enterprise which mainly involves in chemical new materials as well as finance, metal, new energy, logistics, and trading. Huafon Group administers more than 40 wholly-owned or holding companies, seven listed companies and four national hi-tech companies. The group has set up production sites in 11 provinces and cities such as Zhejiang, Shanghai, Chongqing, Liaoning, Jiangsu, Guangdong, et al.

Huafon Group produces over 320 varieties of products with more than 1000 specifications. The core products are polyurethane (PU) resin for shoe soles and synthetic leather, polyurethane fiber (spandex), microfiber leather, nylon 66, PU thermal insulating material, aluminum foil ,TPU, adipic acid and cyclohexanone and so on. It is the largest manufacturing and sales enterprise of polyurethane shoe sole and synthetic leather resin in China.

Huafon Group has been awarded for years as "Top 500 Competitive Enterprise Groups of China", "Top 100 Enterprises of China Petroleum and Chemical Industry", "Top 100 Private Manufacturing Enterprises of China" and "Top 100 Private Enterprises Tax-payer of China".

Finally, welcome domestic and international clients sincerely contract with Huafon Group to look for business cooperation and strategic development.

huafon 华峰

1991

华峰集团创办于1991年5月

Huafon Group, established in May 1991

40+

现辖40余家全资及控股公司

拥有两家上市公司，七家国家高新技术企业

Huafon Group administers more than 40 wholly-owned or holding companies, seven listed companies and four national hi-tech companies



Company Profile

公司简介



浙江华峰热塑性聚氨酯有限公司专业从事热塑性聚氨酯(TPU)的生产、销售和技术开发。公司成立以来，不断推进技术创新、管理创新，推进清洁生产和节能减排，承诺并践行责任关怀，努力创建自主创新型、资源节约型、环境友好型企业。公司TPU能逐年提高，目前年产能能力达到10万吨以上。Huafon TPU 以其优异的物理性能、操作性能、环保性能，广泛应用于鞋材、电子、运动器具、机械设备及汽车零部件、管材、电线电缆、薄膜等个人消费品及工业领域。公司通过了ISO9001:2008, ISO14001:2004 以及OHSAS 18001:2007等认证体系，并且严格控制工艺条件及管理，使得Huafon TPU 产品质量稳定。未来，公司将以集团公司作为依托，凭借卓越的研发、管理能力更大地满足国内外客户需求，并为客户提供良好的解决方案。

Zhejiang Huafon Thermoplastic Polyurethane Co., LTD. is specialized in TPU's production and technical service. since founded, Huafon TPU is adhere to the technology and management innovation, and development continuously advance management innovation, and advance energy conservation and emissions reduction. At present, the annual output capacity is over 100,000 tons. Hoafon TPU is known for its excellent physical properties, easy-process and environmental protection. Now Huafon TPU is widely used in electronic field, sports equipment and mechanical engineering parts. The company is certified by the ISO9001:2008, ISO14001:2004 and OHSAS 18001:2007 certification system. With advanced technology and efficient management, the quality is excellent and stable. In the future, the company will grow up with the support of Huafon's group and excellent innovation / management ability. Huafon TPU will provide not only the qualified manufacture but also solution of customers' technical requirements.

100,000+

目前年产能能力达到10万吨以上

The annual output capacity is over 100,000 tons

Category

产品分类

硬度 Hardness	聚酯 Polyester							聚醚 Polyether		聚己内酯 PCL	
	HF-10XX	HF-11XX	HF-23XX	HF-30XX	HF-33XX	HF-34XX	HF-36XX	HF-38XX	HF-40XX	HF-43XX	HF-60XX
65-70A	HF-1265AP	1170AP		HF-3065AP							
	HF-1070AP	1173AP		HF-3070AP							
75-80A	HF-1075AP							HF-4075A			
	HF-1080A	HF-1175AP	HF-1380A	HF-3080A	HF-3380A			HF-4080A			
85-90A	HF-1085A	HF-1180AP	HF-1385A	HF-3085A	HF-3385A		HF-3685A	HF-3885AE	HF-4085A	HF-4385A	HF-6085A
	HF-1090A	HF-1185A	HF-1388A	HF-3090A	HF-3390A		HF-3690A	HF-3890AE	HF-4090A	HF-4390A	HF-6090A
92-98A	HF-1095A		HF-2395A	HF-3095A	HF-3395A	HF-3492A	HF-3695AT				
	HF-1098A		HF-2398A	HF-3098A	HF-3398A	HF-3495A	HF-3698A	HF-3895AE	HF-4095A	HF-4395A	HF-6095A
60-65D	HF-1060D			HF-3060DS			HF-3660D				
	HF-1065D	HF-2060DS		HF-3065D			HF-3665D				
70-85D	HF-1071D			HF-3071D			HF-3680D		HF-4080D		
种类 Type	X, S, U, P, N, ST	P, U, S	C, U	U, P, M	U, ST	T, X	T, U, X	U, ST	T, ST	U, M	U

Nomenclature

命名规则

	1	1、2、3 聚酯 Polyester Based	7 脂肪族 Aliphatic Based
		4、5 聚醚 Polyether Based	8 特殊类型 Special Product
		6 聚己内酯 PCL Based	
HF	0	0、1、2 普通注塑 Injection	4 吹塑 Blow Molding
		3、7 挤出成型 Extrusion	6 高透明 High Transparency
	95A	A Shore A (35-98)	D Shore D (47-83)
	U	U 紫外稳定 UV Resistance	S 耐磨 Abrasion Resistance
		P 增塑剂 Plasticizer	ST 耐水解 Hydrolysis Resistance
		FR 阻燃 Flame Retardant	N 低滑剂 Less Lubricants
			T 高透明 Transparency
			C 易裁切 Easy Cutting
			M 雾面 Matt Surface



Polyester-Based TPU

聚酯型TPU



硬度 Shore A 55 - Shore D 73

Hardness Shore A 55 - Shore D 73

操作 注塑

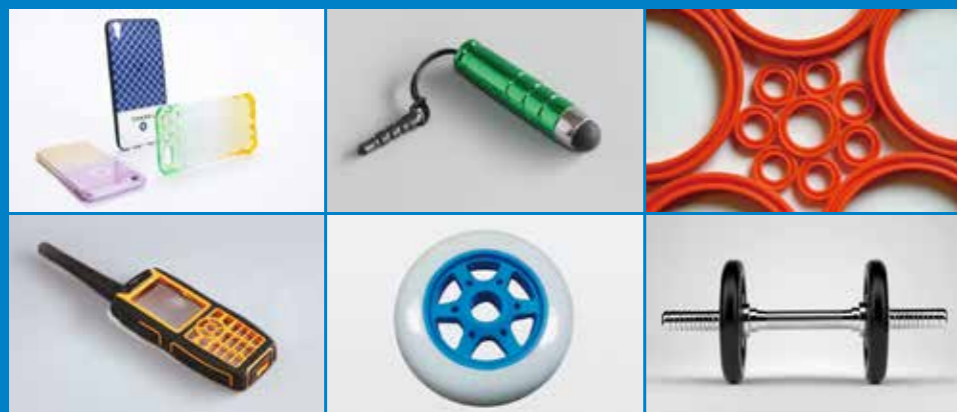
Operation Injection molding.

特性 优异的力学性能、耐磨防滑、良好的低温柔韧性、良好的加工流动性及快速成型

Characteristics Excellent physical properties, Abrasion resistance, Low temperature flexibility.

应用 安全鞋底、鞋材配件、包胶、共混改性、足球鞋大底、配件、手机护套、射出轮、运动护具及机械零配件

Applications Safety shoe sole, Accessories, Over-molding, Compounding, Footwear, Cell-phone cover, Caster wheel, Protective gear, Automotive etc.



项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	耐磨 Abrasion
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624	ASTM D5963
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	mm ³
HF-1055AP-2	53A	17	1	1300	57	/
HF-1060APU-1	63A	15	2	1300	67	80A
HF-1065APU-1	70A	18	3	900	90	70A
HF-1065D	68D	50	25	400	240	60B
HF-1070AP	74A	31	3	1300	82	40A
HF-1070AX-1	75A	35	4	1100	94	/
HF-1071D	71D	48	26	400	267	60B
HF-1075AP	78A	37	3	1400	90	50B
HF-1080AP	80A	41	4	1300	98	80A
HF-1085A	88A	45	7	800	120	/
HF-1090AH-1	92A	40	10	700	145	/
HF-1095A	55D	47	11	700	156	/
HF-1098A	60D	41	17	500	173	50A
HF-1265AP	73A	30	3	1500	75	/
HF-1275AP	77A	31	4	1300	90	/
HF-1280AX	82A	41	5	900	102	/
HF-1285AX	84A	25	5	900	95	/
HF-1085AS-2	87A	37	8	700	120	40A
HF-1085AS-3	88A	41	7	900	119	30A
HF-1090AS	92A	40	9	700	142	40B
HF-1098AS	59D	44	15	500	211	60B
HF-1060DS	68D	53	23	500	214	80B

表中展示数据均为典型值，不可视为产品标准

The above values are shown as typical values and should not be used as specifications.

Polyester-Based TPU

聚酯型TPU



硬度 Shore A 70 - Shore D 63

Hardness Shore A 70 - Shore D 63

操作 注塑

Operation Injection molding.

特性 良好的流动性及快速成型、易脱模

Characteristics Easy processing, Fast de-molding.

应用 园艺鞋、鞋材配件、时装鞋底、天皮

Applications Gardening shoes, Accessories, Fashion shoes, Heel lift etc.



项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	耐磨 Abrasion
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624	ASTM D5963
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	mm ³
HF-1165AP	72A	13	3	700	60	73.56 (A)
HF-1170AP	74A	28	3	1300	80	/
HF-1175AP	78A	23	5	1000	80	/
HF-1180AP	81A	19	5	800	90	/
HF-1185A	86A	19	6	600	90	/
HF-2060D	65D	46	20	500	200	66.69 (B)

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Polyester-Based TPU

聚酯型TPU



硬度 Shore A 65 - Shore D 73

Hardness Shore A 65 - Shore D 73

操作 注塑

Operation Injection molding.

特性 优异的力学性能、耐磨、良好的流动性及快速成型、耐寒耐热、透明度好

Characteristics Excellent physical properties, Abrasion resistance, Easy processing, Fast de-molding cold / heat resistance, Great Transparency.

应用 足球鞋底、鞋材配件、密封件、运动护具、手机套、机械零配件、共混改性

Applications (Transparent) Footwear, Sealing ring, Accessories, Protective gear, Cell-phone cover, Automotive, Compounding.



项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	耐磨 Abrasion
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624	ASTM D5963
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	mm ³
HF-3070AP	72A	26	3	1300	80	80B
HF-3080AST-2	82A	45	4	1000	110	/
HF-3085AST-2	86A	37	5	700	100	/
HF-3090AST-4	92A	41	9	600	140	
HF-3090ASTU-1	93A	28	9	700	140	
HF-3095AST-3	56D	46	13	600	170	
HF-3098A	57D	41	15	500	180	/
HF-3098ASTU	57D	30	14	500	170	
HF-3665D	66D	46	24	400	220	/
HF-3670APU-5	76A	29	4	1200	80	140A
HF-3680A-3	81A	28	5	800	80	80A
HF-3685A	89A	33	6	900	100	/
HF-3695AT	56D	37	14	500	180	/
HF-3698AYL	59D	51	15	600	180	/

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Polyester-Based TPU

聚酯型TPU



硬度 Shore A 80 - Shore D 60

Hardness Shore A 80 - Shore D 60

操作 挤出、吹塑、吹膜

Operation Extrusion, Blow molding, Blowing film etc.

特性 优异的力学性能、优异的透明度、易加工及稳定的挤出性能、熔点稳定

Characteristics Excellent physical property, Good Transparency, Easy & stable process, Stable melting point.

应用 薄膜、管材、电线电缆、传送带、松紧带、肩带、气垫、鞋饰片

Applications Film, Cable, Tube, Conveyor belts, Elastic tape, Straps, Air-Cushion, Accessories etc.



项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-3485A	88A	51	7	700	110
HF-3492A	92A	56	8	800	140
HF-3492A-4	92A	40	10	500	140
HF-3495A-6	93A	45	11	600	150
HF-3495AT	57D	46	14	500	150
HF-3495AT-1	56D	41	13	500	160

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-1370A-1	71A	27	3	1200	60
HF-1380A	82A	34	5	1100	100
HF-1380AC-1	82A	20	5	900	100
HF-1385AC-5	86A	22	5	900	90
HF-1385AC-6	87A	23	6	800	100
HF-1388A-1	90A	44	8	900	120
HF-1398A-1	61D	33	14	500	180
HF-2385A-1	87A	39	6	1000	110
HF-2385A-2	86A	47	6	1000	100
HF-2395A	56D	42	14	600	180
HF-2395A-1	53D	44	10	700	150
HF-2398A-1	60D	38	15	500	190
HF-3380A	81A	34	4	1100	80
HF-3385A-3	87A	37	5	900	110
HF-3385A-6	89A	33	7	800	110
HF-3385AU	88A	35	6	800	120
HF-3390AE-2	92A	50	10	700	150
HF-3395AX-2	58D	45	12	500	170
HF-3395AX-3	58D	36	13	500	170
HF-3395AX-5	57D	45	12	600	150
HF-3398AN	63D	38	16	500	190
HF-3795AX	62D	27	17	400	190
HF-3885AE-5	87A	33	6	800	100
HF-3890AN	91A	43	10	600	140

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Polyether-Based TPU

聚醚型TPU



硬度 Shore A 80 - Shore D 55

Hardness Shore A 80 - Shore D 55

操作 注塑、挤出、流延、压延

Operation Injection molding, Extrusion, Calender.

特性 优异的耐水解耐霉菌性、低温柔韧性及弹性、耐老化

Characteristics Excellent hydrolysis resistance, Bacteria resistance, Low temperature elastic, Ageing resistance.

应用 管材、护套、共混改性、薄膜、消防水带、动物耳标、体育用品配件

Applications Tube&hose, Fabric coating, Compounding, Film, Fire hose, Animal ear tag, Accessories etc.



项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	耐磨 Abrasion
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624	ASTM D5963
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	mm ³
HF-4070A	71A	24	3	1200	70	100A
HF-4080A-1	84A	23	5	600	90	40A
HF-4088A	90A	30	7	700	110	/
HF-4098AU-3	56D	48	18	500	180	/
HF-4380AN-1	80A	34	4	900	70	/
HF-4385A-1	85A	33	6	900	90	/
HF-4385AH-4	91A	39	10	500	120	/
HF-4385AL-2	85A	25	6	500	100	/
HF-4385AN	85A	32	6	800	100	/
HF-4390A	90A	37	8	700	110	/
HF-4390A-2	91A	32	10	500	120	/
HF-4390AN-1	93A	37	11	500	120	/
HF-4395A-1	48D	37	10	600	130	/
HF-4395AN-2	56D	40	13	600	160	/

表中展示数据均为典型值，不可视为产品标准

The above values are shown as typical values and should not be used as specifications.

Hotmelt Film TPU

热熔胶膜系列TPU



特性 该产品是一种线性分子的聚酯型热塑性聚氨酯弹性体，与 TPU、PVC、Polyester、尼龙、布及真皮等材质有良好的粘结性，且在粘结后具有接着强度高、高韧性、耐磨及良好的弹力等特点

Characteristics This series is a special kind of linear thermoplastic Polyurethane Elastomer, which is designed for TPU Hotmelt film. It exhibits good toughness, wear resistance, elasticity and excellent bonding strength for TPU, PVC, Nylon, Polyester, fabrics, leather etc.

应用 适用于热熔胶膜、纺织贴合、鞋材、止水胶条、汽车工业等

Applications Hotmelt adhesive film, Fabric lamination, Shoes materials, seam sealing tapes and automobile industry.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	软化点 Softening Point	起始流动温度 Flow Beginning Temperature	表干时间 Tack Free Time	贴合温度 Lamination Temperature
测试方法 Standard	ASTM D2240	ASTM D412	ASTM D36	Huafon Method	Huafon Method	Huafon Method
单位 Unit	Shore A/D	MPa	°C	°C	min	°C
HF-3H95	97A	18	75±5	30	3	70-80
HF-3H95A-3	97A	16	75±5	30	5	70-80
HF-3H95AL-1	97A	17	80±5	40	7	80-90
HF-3H95SL	97A	13	75±5	30	12	70-80
HF-3H95A-4	97A	15	90±5	60	5	80-100
HF-3H95AL-2	97A	22	90±5	60	8	80-100
HF-4003LH-2	97A	22	85±5	60	2	90-110
HF-3002E-1	97A	19	110±5	90	10	110-120
HF-3002EH-2	97A	18	133±5	100	15	110-140
HF-3002EH-5	97A	25	/	90	20	120-140

表中展示数据均为典型值，不可视为产品标准
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项目 Items	硬度 Hardness	抗张强度 Tensile Strength	熔体流动速率 MVR	起始流动温度 Flow Beginning Temperature	贴合温度 Lamination Temperature
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D1238	Huafon Method	Huafon Method
单位 Unit	Shore A/D	MPa	150°C, 5kg	°C	°C
HF-3H70A	72A	15	15-20	90	90-110
HF-3H70A-1	76A	13	35-40	100	100-120
HF-3H75A	75A	15	18-26	90	115-125
HF-3H75A-1	75A	14	39-52	90	110-120
HF-3H75AH-2	76A	16	25-30	120	140-150
HF-3H75AH-3	73A	10	10-15	110	130-150
HF-3H75AU-2	72A	15	35-40	90	115-125
HF-3H80A	80A	27	21-30 (180°C)	120	145-155
HF-3H80A-3	86A	20	24-31	130	145-155
HF-3H80A-5	79A	22	8-14	120	145-155
HF-3H80A-8	76A	25	12-17	130	125-155
HF-3H80A-10	80A	25	8-12	130	135-155
HF-3H80AL-1	78A	18	22-29 (180°C, 2.16KG)	110	135-145
HF-3H85A-1	86A	20	24-33	130	150-160
HF-3H85A-3	85A	25	6-14 (180°C)	100	100-150
HF-3H90A-3	90A	18	18-27	110	110-120
HF-8H60A-1	59A	7	35-70	155	180-190

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Hotmelt Adhesive Web Film TPU

网状热熔胶膜 TPU



操作 熔喷工艺

Operation Meltblown.

特性 透气性佳、克重范围宽、成型快、且不含溶剂、操作时无毒性、不产生环境污染

Characteristics Good breathability and wide range of weight, fast forming, solvent free, non-toxicity, and environmental-friendly.

应用 适用于纺织贴合、鞋材和服装等

Applications Fabric lamination, Shoes materials, Apparels etc.

项目 Items	硬度 Hardness	熔体体积流动速率 MVR (150°C/2.16kg)	抗张强度 Tensile Strength	伸长率 Elongation	100% 模量 100% Modulus	软化点 Softening point	表干时间 Tack Free Time
检测标准 Standard	ASTM D2240	ASTM D1238	ASTM D412	ASTM D412	ASTM D412	ASTM D36	Huafon Method
单位 Unit	Shore A	cm³/10min	MPa	%	MPa	°C	°C
HF-3H80AL-5	82A	50-80	9	700	4	130-140	2min
HF-3H80AL-6	82A	55-75	7	700	3	120-130	2min
HF-3H90ALU	92A	50-80 (5kg)	14	700	7	120-130	2min

表中展示数据均为典型值，不可视为产品标准

The above values are shown as typical values and should not be used as specifications.



Solvent Adhesive TPU

溶剂型胶黏剂 TPU



特性 该产品是一种线性分子的聚酯型热塑性聚氨酯弹性体，具有初始粘接力强，溶解速度快等特点，与TPU、PVC、涤纶、尼龙、布及真皮等材质有良好的粘接力。可单独使用，也可与交联剂共同使用

Characteristics This series is a special kind of linear thermoplastic Polyurethane Elastomer, which is designed for Solvent-based TPU adhesive. It exhibits excellent initial bonding strength, good solvent solubility and excellent bonding strength for TPU, PVC, Nylon, PET, fabrics, leather etc. It can be used as a mono-component adhesive or with crosslinking agents.

This series is a special kind of linear thermoplastic Polyurethane Elastomer, which is designed for Solvent-based TPU adhesive. It exhibits excellent initial bonding strength, good solvent solubility and excellent bonding strength for TPU, PVC, Nylon, PET, fabrics, leather etc. It can be used as a mono-component adhesive or with crosslinking agents.

应用 该系列产品适用于鞋材、纺织品、家具（MDF板）及消防水带共挤出、溶剂型湿网印油墨等

Applications Shoes, Textile laminations, Furniture products (MDF board) and Fire house co-extrusion, Ink etc.

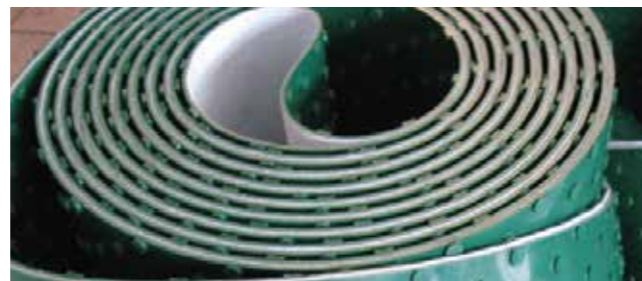
项目 Item	硬度 Hardness	起始流动温度 Flow Beginning Temperature	溶剂粘度 Solution Viscosity
检测标准 Standard	ASTM D2240	Huafon Method	15% in Mek
单位 Unit	Shore A/D	°C	mPa · s 23°C
HF-3750Y-1	97A	120	1200-2600
HF-SI85A	85A	90	0-100
HF-SI65D	65D	100	50-100
HF-3002EH-5	97A	100	700-1200

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Calendering TPU

压延级TPU



特性 该产品是一种线性分子的聚酯型热塑性聚氨酯弹性体，具有机械性能高、操作温度宽、流动性好等优点，尤其适用于压延或烧结加工。若是烧结加工，可将粒料低温碾磨成粉，调整适当温度，以便加工

Characteristics

This series is a special kind of linear thermoplastic Polyurethane Elastomer, which is designed for Calendering processing and sintering processing. It exhibits high mechanical properties, wide operating temperature window and easy to process etc. It can be milled to powder with different size depending on sintering process.

应用 该系列产品应用于充气垫、保护套、传送带、输送带等织物衬底的熔融涂布；压延薄膜及低熔点TPU 母粒载体

Applications Air-Cushion, protective wire, convey belt, calendaring film and powder slushing.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100%模量 100% modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-3885AC-7	85A	46.6	5.8	1050	100
HF-3890AC-7	92A	24	7.5	715	135
HF-4380AC	80A	19.5	4.8	910	100
HF-4385AC	85A	25	5.8	930	100
HF-4385AC-1	84A	30	5.3	810	97
HF-MB8001	85A	/	/	/	/
HF-MB8006	92A	/	/	/	/
HF-MB8007	85A	/	/	/	/

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Conveyor Belt TPU

输送带用TPU

操作 挤出、磨粉

Operation Extrusion, Milling, etc.

特性 易加工、低析出、高粘接强度，符合FDA (21 CFR 177.1680, 177.2600) , EU10/2011, GB31604.2-2016的要求

Characteristics Wide Processing Windows, Low wax, High bonding, Compliance with FDA (21 CFR 177.1680,177.2600), EU10/2011, GB31604.2-2016 requirements.

应用 食品传送带、工业传送带

Applications Food conveyor belt, Industrial conveyor belt etc.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	抗静电 Antistatic
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D624	/
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	MΩ
HF-3380ASD	80A	9	4	700	60	10
HF-3385ASD	85A	24	6	600	100	100
HF-3385ASTU	85A	31	6	800	110	/
HF-3390ASTU	93A	45	10	600	150	/
HF-3885AC	85A	28	6	700	110	/
HF-3890AC	92A	31	9	700	130	/

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Aliphatic TPU

脂肪族TPU



操作 用于注塑、挤出和磨粉工艺

Operation Injection Moulding, Extrusion & Milling, etc.

特性 永不黄变、机械强度高、耐磨优、耐水解性能优异、耐刮擦性好

Characteristics Non-yellowish, high tensile strength, good abrasion resistance, excellent hydrolytic stability, fungus resistance, low temperature flexibility.

应用 适用于汽车、医疗和电子等行业

Applications Automotive parts, Film & Sheet, Watch belt, Medical & Electronic etc.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-7075A	76A	10	3	1064	66
HF-7080A	82A	15	4	988	83
HF-7085A	86A	19	6	834	100
HF-7090A	92A	28	9	725	126
HF-7095A	95A	32	16	445	175
HF-7685A	87A	17	6	1034	108
HF-7690A	91A	20	7	889	122
HF-7385A3	85A	6	5	550	85
HF-7390A3	90A	29	5	680	90
HF-7395A3	95A	31	9	550	130
HF-7375A4	75A	5	3	580	55
HF-7390A6	90A	30	7	550	100
HF-7395A6	94A	23	8	530	120
HF-7365D3	65D	31	14	400	155

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Moisture Vapor Transmission (MVT) TPU

防水透湿TPU



操作 挤出、吹膜等

Operation Extrusion, Blowing etc.

特性 高湿气透过率、耐水解、抗菌、良好的生物相容性、防水

Characteristics High moisture vapor transmission, excellent hydrolysis resistance, biocompatibility properties, antibacterium properties, waterproof properties and wide processing window for extrusion.

应用 手术服、登山服、医用床单、隔离服、雨衣、防水透气面料、皮革涂层等

Applications Surgical gown, Clothes of hill-climbing, Medical bed sheet, Insulating clothes, Raincoats, Waterproof and Ventilate materials.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	透湿率 Permeability Moisture Vapor Transmission
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642	ASTM E-96B (Inverted Cup)
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	g/(m ² ×24h)
HF-3890AE-2	92	43	8	800	130	<2000
HF-3890AE-3	92	36	8	600	130	<2000
HF-3895AE	56D	42	13	600	170	<2000
HF-3090AE	88	42	7	700	110	<2000
HF-3195AE	54D	39	11	600	160	<2000
HF-3095AE	51D	48	10	700	150	<2000
HF-90MVT-4	90A	31	7	800	110	≥6000
HF-90MVT-7	90A	36	8	800	120	≥6000
HF-80MVT	82A	25	5	900	90	≥9000

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Super-Hard TPU

高硬度TPU



硬度 Shore D 60 - Shore D 80

Hardness Shore D 60 - Shore D 80

特性 高硬度、高透明度、良好的加工性能

Characteristics Super-Hard TPU, High transparency, Good processing performance.

操作 挤出、注塑

Operation Injection molding, extrusion, etc.

应用 板材、油杯、3D打印耗材

Applications Film, Oil Cup, 3D Printing Materials, etc.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-3665D	63D	39	20	420	250
HF-3670D	71D	44	32	300	300
HF-3675D	74D	46	\	60	350
HF-3680D	80D	66	\	10	380
HF-4370D	68D	49	30	300	250
HF-4375D	77D	50	43	60	300
HF-4380D	80D	71	\	10	380

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Matt Surface TPU

哑光系列TPU

硬度 Shore A 78 - Shore A 92

Hardness Shore A 78 - Shore A 92

特性 雾面效果可调节，表面均匀细腻

Characteristics Specular gloss can be adjustable; Silky and smooth matt surface.

操作 挤出

Operation Extrusion etc.

应用 汽车线缆、消费电子线缆等

Applications Automotive cable, electronic cable, etc.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642
单位 Unit	Shore A/D	MPa	MPa	%	kN/m
HF-4375AFR	78A	36	5	1000	100
HF-4380AM	82A	38	6	900	100
HF-4385ANM	88A	42	7	800	110
HF-4390ANM	92A	44	8	700	120
HF-4395ANM	95A	41	13	500	150
HF-3085AM	88A	43	7	800	120
HF-3090AM	92A	45	9	700	120

表中展示数据均为典型值，不可视为产品标准

The above values are shown as typical values and should not be used as specifications.

High Temperature Resistance TPU

耐热老化TPU



硬度 Shore A 80-Shore A 95

Hardness Shore A 80-Shore A 95

操作 注塑、挤出和吹膜等

Operation Injection moulding, Extrusion and Blowing etc.

特性 低压缩永久变形、优异的耐油性和水解稳定性、耐老化性能好、优异的耐磨性和低温柔韧性

Characteristics Low Compression Set, Good Oil resistance & Hydrolytic Stability, High temperature resistance, Good Abrasion Resistance, low temperature flexibility.

应用 适用于高档密封件、电梯轮、矿山筛网、线缆护套、鞋材、密封件、薄膜、气动管等领域

Applications High grade seal, wheel, mine sieve, cable Sheath, etc.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	维卡软化点 Vicat Softening Point
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642	ISO 306
单位 Unit	Shore A/D	MPa	MPa	%	kN/m	°C
HF-1085AE	87A	32	6	900	100	/
HF-1090AE	92A	33	8	800	120	/
HF-1095AE	52D	35	12	700	160	/
HF-6085A	85A	35	750	110	6.0	/
HF-6090A	90A	40	800	135	7.6	/
HF-6095A	95A	45	850	153	10.5	/
HF-RH8175A	78A	24	3	1200	80	≥100°C
HF-RH8185A	85A	35	5	1000	100	≥100°C
HF-RH6085A	86A	26	6	800	100	≥100°C

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Bio-Based TPU

生物基TPU

特性 生物基含量在25%以上*，与普通TPU具有类似的性能

Characteristics Bio-based content more than ca.25%*, Properties similar to standard TPU of same hardness.

操作 挤出、吹膜等

Operation Extrusion, Blowing etc.

应用 热熔胶膜、吹膜

Applications Hotmelt Adhesive Film, Blowing film.

项目 Items	硬度 Hardness	抗张强度 Tensile Strength	100% 模量 100% Modulus	伸长率 Elongation	撕裂强度 Tear Strength	Tfb Flow beginning temp
检测标准 Standard	ASTM D2240	ASTM D412	ASTM D412	ASTM D412	ASTM D642	
单位 Unit	Shore A	MPa	MPa	%	kN/m	°C
HF-ECO80A	85A	9	4	800	60	124
HF-ECO90A	87A	30	10	550	150	180

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The above values are shown as typical values and should not be used as specifications.

*生物基成分根据ASTM-D6866确定

*Bio-based content as determined according to ASTM-D6866.

Expanded TPU

E-TPU



特性 E-TPU是一种新型发泡TPU。封闭的泡孔结构结合TPU优良的特性，将两者优势完美地融为一体，使跑鞋更加轻盈与舒适，创造卓越的运动体验。主要特点如下：低密度、高弹性、韧性好、高拉伸强度、耐化学腐蚀、耐久性

Characteristics E-TPU is a new kind of foamed TPU. The closed-cell, elastic particle foam combines the properties of TPU with the advantages of foams, making amazing sports experience. The Key features are: Low density, High elasticity, Outstanding resilience, High tensile strength, Good chemical resistance, Good long-term durability in a wide temperature range.

操作 水蒸气模具成型或者胶黏成型

Operation Steam Moulding & Adhesive Processing.

应用 鞋材、包装、汽车内饰、跑道

Applications Shoe sole, Packing, Automotive, Runway.



项目 Items	标准 Standard	单位 Unit	数值 Numerical
成型密度 Density	ASTM D792	g/cm ³	0.20-0.25
硬度 Hardness	ASTM D2240	Shore C	35-45
拉伸强度 Tensile strength	ASTM D412	MPa	1.5
断裂伸长率 Elongation	ASTM D412	%	150
100%模量 100% modulus	ASTM D412	MPa	1.1
回弹性 Resilience	DIN EN ISO 8307	kN/m	60
压缩变形 Compression set (50°C, 24h)	DIN EN ISO 1856 (Method C)	%	< 6

表中展示数据均为典型值，不可视为产品标准
The above values are shown as typical values and should not be used as specifications.

Foamed TPU

F-TPU



介绍 Introduction F-TPU是一种线性分子的聚酯型热塑性聚氨酯弹性体，为TPU发泡注塑特别设计，在本司指定发泡剂的配合下，最低成品密度可达0.38g/cm³。该类产品硬度低、柔软性好、成型快、操作温度低，具有很好的流动性及较高的操作稳定性，主要应用于鞋底、运动器材配件等

F-TPU is a special kind of linear Thermoplastic Polyurethane Elastomer, which is developed for foam injection molding. The manufacture density of 0.38g/cm³ can be achieved, with Huafoan foamed TPU agent and certain processing technology. The low hardness, good softness, short cycle time and good stability of operation can be used for shoe soles, sports equipment accessories etc.

加工工艺 Processing 本产品特别适合于发泡注塑成型，只需普通三段式单螺杆，通常长径比(L/D) 在16-20:1，压缩比在2.0-2.5:1 之间。因TPU 熔体粘度较高，且在料管里容易产生高剪切力而破坏TPU 的物性，应避免采用压缩比过高的螺杆。建议加工温度130-180 度，模切温度一般在25℃到45℃之间，为了达到最佳的发泡密度，应对模具结构做特殊设计。经发泡后边角料可回收使用，在使用前请干燥再粉碎，最高添加比例可达30%

HF-65F is suitable for foam injection molding. L/D of the ordinary injection machine is 16~20:1, while compression ratio is 2.0~2.5:1 and Processing temp is 130~180 °C . The lower density could achieve with special mold design. Offcut of manufacture could be used but less than 30% into the fresh after drying.

后处理 After Treatment 发泡成品与其他材料组合使用性能优异，可通过多种组合方式，制成鞋底或其他制品。使用标准胶黏剂时，鞋底只需要进行最基本的表面处理可达到较强的粘接力

The foamed manufacture could adhere easily to varied materials with normal adhesive after surface treatment. Several multilayers with foamed TPU and other materials provide easily design and performance.

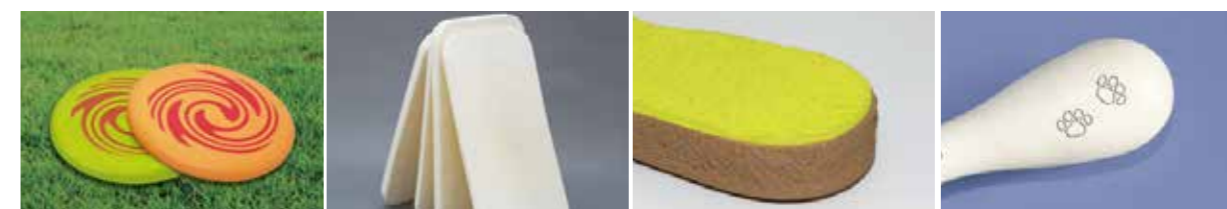
安全与环保 Safety & Environment 人体对TPU 一般不会出现过敏反应，如接触TPU 原料及产品感到不适，请立刻停止接触，严重情况请就医。TPU 在塑化熔融及操作加工过程中，会发生降解及氧化反应，可能释放少量有害气体，因此加工场地需做好通风。依环保法规规定，TPU 为正常废弃物，如允许可进行掩埋、焚烧处理

Generally, there will be not allergies caused by TPU. If there was uncomfortable during contacting with TPU, please stop and see the doctor. During melting and processing of TPU, a small amount of harmful gases may be released because of some degaration, so the ventilation is necessary. According environmental protection regulations, TPU can be treated as normal wastes, such as landfill and incineration.

如需得到更详细信息，请与浙江华峰热塑性聚氨酯有限公司联系！

检测项目 Item (s)	标准 Method (s)	单位 Unit	数值1 Numerical	数值2 Numerical 2	数值3 Numerical	数值4 Numerical 4
密度 Specific Gravity	ASTM D792	g/cm³	0.3	0.4	0.5	0.6
硬度 Shore Hardness	ASTM D2240	Shore C	66	71	73	76
抗拉强度 Tensile Strength	ASTM D412 (Die C)	MPa	1.3	1.8	2.5	2.8
伸长率 Ultimate Elongation	ASTM D412	%	482	526	588	596
100% 模量 Tensile Stress at 100% Elongation	ASTM D412	MPa	0.6	0.7	0.8	0.9
撕裂强度 Tear Strength	ASTM D624 (Die C)	kN/m	8	11	12	16
磨擦损耗 Abrasion	ASTM D5963 (MethodA: non-rotate)	mm³	603.6	512.19	433.49	374.49

所有测试数据均在室温条件下对标准式样所以进行的测试，该数据作为参考性，数值2/3为发泡后物性
The above values are shown as average value and should not be used as specification.



Huafon TPU Products Recommendations

华峰TPU产品注意事项



包装及储存 华峰TPU系列产品基本包装规格为25kg 纸塑袋/ 铝箔袋包装。

Package & Storage Huafon TPU products packaging specifications is for 25kg plastic bag / aluminum foil bag.

由于TPU 是一种吸湿性较强的材料，水分含量较高的TPU 对加工成型以及最终产品物性等有利影响，因此TPU 成品应该在阴凉干燥且避免阳光直射的环境中储存。

Because of the high moisture absorbing property, the process and properties of final manufacture could be influenced. For this reason, TPU products should be well stored in a dry, cool and shady area.

打开包装的TPU粒子严禁长时间暴露于空气当中，请尽快使用。TPU产品在使用前需进行干燥，建议干燥温度及时间为90-110℃ x 2-4h。建议使用除湿干燥机以达到最佳的干燥效果。

Never put opened packages exposed in open air for prolonged periods of time during molding and processing. Pre-drying is necessary, and recommended conditions is 90-110℃ x 2-4h. Recommend the use of dehumidifier in order to achieve the best effect of drying.

安全与环保 人体对TPU 一般不会出现过敏反应，如接触TPU 原料及产品感到不适，请立刻停止接触，严重情况请就医。

Safety & Environment Generally, there will be not allergies caused by TPU. If there was uncomfortable during contacting with TPU, please stop and go to the doctor.

TPU 在塑化熔融及操作加工过程中，会发生降解及氧化反应，可能释放少量有害气体，因此加工场地需做好通风。

During melting and processing of TPU, a small amount of harmful gases may be released because of some degaration, so the ven tilation is neccessary.

依环保法规规定，TPU 为正常废弃物，如允许可进行掩埋、焚烧处理。

According environmental protection regulations, TPU can be treated as normal wastes, such as landfill and incineration.

测试及条件 华峰TPU产品测试数据如无特殊说明则均在23±2℃，55±5% 湿度的条件下测试获得，其他测试条约及标准规定除外。

Tests & Conditions The values of Huafon TPU product if no special instructions are obtained in the conditions of 23 ± 2 °C 55 ± 5% humidity,except for the other treaty and standard test.

华峰TPU产品测试数据如无特殊说明均在90℃条件下静置12h 后测试获得。

The values of Huafon TPU product if no special instructions are aged in the condition of 90 °C x 12h.

华峰TPU 产品，硬度测试试片为厚度6mm 裁切圆形试片，抗张强度测试试片为厚度2mm 裁切标准试片，并在多次测试下取其平均值。

The specimens of hardness test is 6mm thickness cut circular pieces, and of tensile strength test is 2mm.

免责声明 本说明书中所提供的物性测试指标仅供客户参考使用，由于测试条件、加工设备等不同，建议在加工前务必对原物料进行检测再生产。客户具体保证指标均需双方共识以保证书或合同规定为准。

Legal Disclaimer

The information and data described in this booklet are for reference only. Because of different test standards and equipment, double-check of the value is recommended before using. Any warranty will be based on exclusive agreement with the customer.

本公司的技术服务团队有义务协助客户解决在使用本公司产品过程中遇到的技术问题，但技术建议及调整所造成的客户任何形式的间接损失均不在本公司的赔偿范围之内。

Huafon TPU and its employees are committed to solve problems during using Huafon TPU products. However, under no circumstances will Huafon TPU and its employees be liable for any claim for any loss or damage.

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