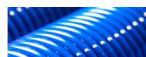
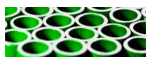


TECHNICAL DATASHEET

PA 11 HA

Material	Non-plasticized Polyamide 11 (PA11)																			
Product code	PA02																			
Product type	<ul style="list-style-type: none"> - Hoses - Spirals - Tubes 																			
Application	Hoses and tubes for pneumatic applications with high pressure																			
Characteristics	<p>High quality rigid pneumatic hose with very good mechanical and chemical properties, which can be used in applications with high working pressure.</p> <p>PA 11 is produced from a 100% renewable feedstock (castor oil).</p> <table> <tr> <td>Chemical:</td> <td>Generally good resistance to oil products, petrol, fatty substances, lubricants and solvents such as alcohol, ketones, esters and ether. Limited/poor resistance to many acids, strong bases, oxidizing agents and chlorine-based products <i>Please see separate chemical resistance chart for details</i></td> </tr> <tr> <td>Pressure:</td> <td>Excellent</td> </tr> <tr> <td>UV- & weather:</td> <td>Excellent</td> </tr> <tr> <td>Working temperature:</td> <td>-40°C to +100°C</td> </tr> <tr> <td>Flame resistance:</td> <td>V2 (UL 94)</td> </tr> <tr> <td>Surface hardness:</td> <td>Shore D 72</td> </tr> <tr> <td>Flexural modulus:</td> <td>1.000 MPa</td> </tr> <tr> <td>Moisture absorption:</td> <td>< 1,9 %</td> </tr> <tr> <td>Remarks:</td> <td>-</td> </tr> </table>		Chemical:	Generally good resistance to oil products, petrol, fatty substances, lubricants and solvents such as alcohol, ketones, esters and ether. Limited/poor resistance to many acids, strong bases, oxidizing agents and chlorine-based products <i>Please see separate chemical resistance chart for details</i>	Pressure:	Excellent	UV- & weather:	Excellent	Working temperature:	-40°C to +100°C	Flame resistance:	V2 (UL 94)	Surface hardness:	Shore D 72	Flexural modulus:	1.000 MPa	Moisture absorption:	< 1,9 %	Remarks:	-
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Flame resistance:	V2 (UL 94)																			
Surface hardness:	Shore D 72																			
Flexural modulus:	1.000 MPa																			
Moisture absorption:	< 1,9 %																			
Remarks:	-																			
Standard/Norms	Fulfil DIN 73378: PA11-H																			
Compliance	<ul style="list-style-type: none"> - EC Regulation 1907/2006 (REACH) - Directive 2011/65/EU (ROHS) - Do not contain dual use additives 																			
Approval	Not approved for food contact																			
Color	Standard:	Natural, white, black, grey, red, orange, yellow, green and blue																		
	Specialties:	Special colors at an additional charge																		
Print	Black and white printing at an additional charge																			



TECHNICAL DATASHEET

Packaging

Free coils, coils in carton boxes or plastic bags and on spools
Please see separate data sheet for packaging options

Data overview

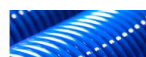
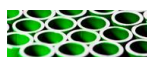
Specification of tolerances, bending radius and working pressure for standard dimensions

Tolerance: Produced in accordance with DIN 16982
Bending radius: 90° bending with min. deformation at 20°C
Working pressure: Theoretical value based on hoop stress data and a safety factor of 2,5 of burst pressure. Working pressure is stated for air only.

Dimension mm	Tolerance mm		Weight g/m	Bending mm	Working pressure bar				
	OD	ID			20°C	30°C	50°C	60°C	80°C
4,0/2,0	+/-0,1	+/-0,1	9,90	30	109	91	66	59	48
4,0/2,5	+/-0,1	+/-0,1	8,04	35	76	63	46	41	33
4,0/2,7	+/-0,1	+/-0,1	7,19	40	64	53	38	34	28
5,0/2,0	+/-0,1	+/-0,1	17,33	40	140	116	84	75	61
5,0/3,0	+/-0,1	+/-0,1	13,20	45	82	68	49	44	36
5,0/3,15	+/-0,1	+/-0,1	12,44	45	74	62	45	40	33
6,0/3,0	+/-0,1	+/-0,1	22,28	35	109	90	65	58	48
6,0/4,0	+/-0,1	+/-0,1	16,50	35	66	54	40	35	29
6,0/4,5	+/-0,1	+/-0,1	12,99	40	47	39	28	25	21
7,0/5,0	+/-0,1	+/-0,1	19,80	50	55	45	33	29	24
8,0/5,0	+/-0,1	+/-0,1	32,18	50	76	63	46	41	33
8,0/5,5	+/-0,1	+/-0,1	27,84	60	61	50	37	33	27
8,0/6,0	+/-0,1	+/-0,1	23,10	60	47	39	28	25	21
9,0/7,0	+/-0,1	+/-0,1	26,40	-	41	34	25	22	18
10,0/6,0	+/-0,1	+/-0,1	52,80	80	82	68	49	44	36
10,0/7,0	+/-0,1	+/-0,1	42,08	85	58	48	35	31	25
10,0/7,5	+/-0,1	+/-0,1	36,09	85	47	39	28	25	21
10,0/8,0	+/-0,1	+/-0,1	29,70	90	36	30	22	20	16
12,0/8,0	+/-0,1	+/-0,1	66,00	120	66	54	40	35	29
12,0/9,0	+/-0,1	+/-0,1	51,98	125	47	39	28	25	21
12,0/9,5	+/-0,1	+/-0,1	44,34	-	38	32	23	20	17
12,0/10,0	+/-0,1	+/-0,1	36,30	135	30	25	18	16	13
14,0/12,0	+/-0,1	+/-0,1	42,90	140	25	21	15	14	11
16,0/12,0	+/-0,15	+/-0,15	92,40	130	47	39	28	25	21
16,0/13,0	+/-0,15	+/-0,15	71,78	140	34	28	20	18	15
18,0/16,0	+/-0,15	+/-0,15	56,10	-	19	16	12	10	8
20,0/16,0	+/-0,15	+/-0,15	118,80	-	36	30	22	20	16
20,0/18,0	+/-0,15	+/-0,15	62,70	-	17	14	10	9	8
22,0/18,0	+/-0,15	+/-0,15	132,00	-	33	27	20	18	14
24,0/20,0	+/-0,15	+/-0,15	145,20	-	30	25	18	16	13
26,0/22,0	+/-0,15	+/-0,15	158,40	-	27	23	16	15	12

Origin

Products are "Made in Denmark" and raw material for the products originates from EU or EFTA countries



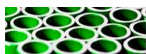
TECHNICAL DATASHEET

Documentation

Specific documentation is available for:

- chemical resistance
- permeability
- antistatic classification
- standard tolerances
- packaging
- regulatory status

The information contained in this document is based on information obtain from raw material suppliers, data selected from the literature and specific testing, but shall in no event be held to constitute or imply any warranty, undertaking, express or implied commitment from our part. Our formal specifications define the limit of our commitment. No liability whatsoever can be accepted by Knudsen Extrusion ApS regarding the handling or use of the product or products concerned which must in all cases be employed in accordance with all relevant laws and/or regulations in force in the country or countries concerned.



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2020-01-14

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