

Semi-Finished Engineering Plastic Products.

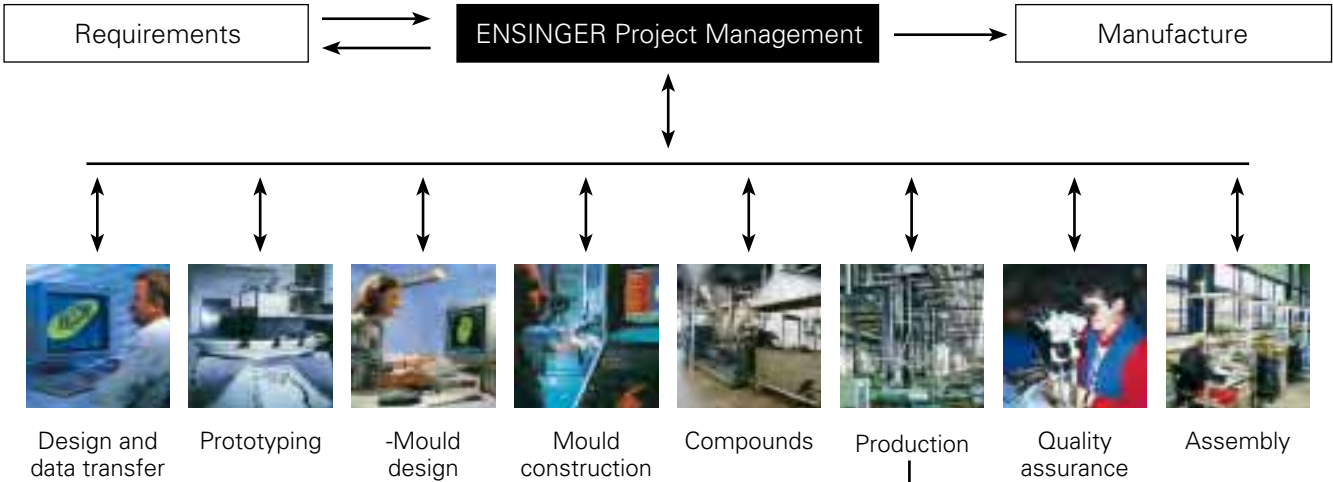


Plastic & Metal Center, Inc.
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ENSINGER Project Management.
Total expertise in engineering plastics.



Your project benefits from our know-how. We can call on our many years of experience in a vast array of industrial sectors to find the optimum solution for your specific application. We design and manufacture semi-finished and finished products as well as complete assemblies tailored exactly to your individual requirements.

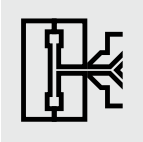
Our experts combine the optimum material for your application with the most suitable manufacturing method, selecting from a whole range of process technologies.

Reliable functionality, environmental compatibility and cost-effectiveness are the key factors which decide the success of your project. They are all taken fully into consideration in every development from ENSINGER. Sectors which profit from our project work range from automotive engineering and medical technology, aviation and aerospace engineering through to mechanical engineering and electronics.

Semi-finished products



Injection moulding



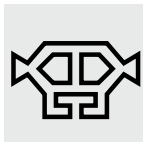
Machining



Custom cast



Profiles



**Quality products are a matter of course.
ENSINGER offers you more.**

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I Service

ENSINGER service begins with comprehensive advice on the intended application. The ENSINGER experts then select the ideal material and the appropriate production technique to take account of all the requirements. Semi-finished products are adapted exactly and individually to suit the application. Close tolerances are guaranteed. We employ sawing, planing, grinding and contour planing to achieve a wide range of precise solutions.



I Quality

Any company with successful worldwide activities has to offer the highest quality standards. We invest continuously in research and development in order to meet the latest demands with new high-tech materials and processing techniques. This enables us to be a decisive step ahead in the market. Stringent CAQ guidelines cover every individual process starting with receipt of raw materials and continuing through to the finished product. It goes without saying that we are certified in accordance with DIN EN ISO 9001.



I Delivery reliability

Whether semi-finished products in standard basic versions or individually modified – our products reach you on time. Our subsidiaries and trading partners make use of the worldwide ENSINGER distribution network and its electronic planning systems. This, together with our highly efficient stock management system, ensures very large quantities or special requirements are delivered in the shortest possible time or 'just-in-time' – exactly when you need them.

| High-temperature plastics | | | |
|----------------------------------|-------------------------|----------------|-------------|
| | Name | DIN Abbr. | Page |
| 150°C | TECAFLON PVDF | PVDF | 33-35 |
| | TECAFLON ETFE | E/TFE | 33/34/36 |
| | TECAFLON PVDF CF 8 | PVDF CF 8 | 33 |
| | TECAFLON PVDF AS | PVDF | 57 |
| 160°C | TECASON S | PSU | 36-38/40 |
| 170°C | TECASON P MT black | PPSU | 36-38/40 |
| | TECAPEI | PEI | 36-38 |
| | TECAPEI GF 30 | PEI GF 30 | 36 |
| | TECAPEI MT | PEI | 57 |
| 180°C | TECASON E | PES | 36-38/40 |
| 230°C | TECATRON | PPS | 39/40 |
| | TECATRON GF 40 | PPS GF 40 | 39/40 |
| | TECATRON PVX black | PPS | 39/40 |
| | TECATRON GF 40 black | PPS | 40 |
| 260°C | TECAFLON PTFE | PTFE | 33-35 |
| | TECAFLON PTFE GF 30 | PTFE GF 30 | 33 |
| | TECAPEEK | PEEK | 41-45 |
| | TECAPEEK GF 30 | PEEK GF 30 | 41-43 |
| | TECAPEEK CF 30 black | PEEK C F 30 | 41-43 |
| | TECAPEEK PVX black | PEEK | 41-43/46/47 |
| | TECAPEEK MT black | PEEK | 41-43/62/63 |
| | TECAPEEK MT coloured | PEEK | 62/63 |
| | TECAPEEK TF 10 | PEEK | 41-43 |
| | TECAPEEK HT | PEK black | 41-43 |
| 300°C | SINTIMID 8000 | PTFE + PI | 50-52 |
| | SINTIMID PUR HT black | PI | 50-52 |
| | SINTIMID 15G anthracite | PI CS 15 | 50-52 |
| | SINTIMID 40G anthracite | PI CS 40 | 50-52 |
| | SINTIMID 30P | PI + PTFE | 50-52 |
| | SINTIMID PVX black | PI | 50-52 |
| | VESPEL® SP1 | PI | 53-55 |
| | VESPEL® SP21 | PI CS 15 | 53-55 |
| | VESPEL® SP22 | PI CS 40 | 53-55 |
| | VESPEL® SP211 | PI CS 15, PTFE | 53-55 |
| | VESPEL® SP3 | PI | 53-55 |

TECAFORM **Page 10**

| | | |
|--------|-------------------|-------------|
| Rods | Diameter: | 3 – 250 mm |
| Plates | Thicknesses: | 1 – 100 mm |
| Tubes | Outside diameter: | 25 – 505 mm |

TECAMID/TECAST **Page 15**

| | | |
|--------|-------------------|-------------|
| Rods | Diameter: | 4 – 800 mm |
| Plates | Thicknesses: | 1 – 200 mm |
| Tubes | Outside diameter: | 25 – 710 mm |

TECADUR/TECAPET **Page 26**

| | | |
|--------|-------------------|-------------|
| Rods | Diameter: | 4 – 200 mm |
| Plates | Thicknesses: | 1 – 100 mm |
| Tubes | Outside diameter: | 25 – 300 mm |

TECANAT **Page 31**

| | | |
|--------|--------------|------------|
| Rods | Diameter: | 4 – 250 mm |
| Plates | Thicknesses: | 1 – 100 mm |

TECAFLON **Page 33**

| | | |
|--------|--------------|------------|
| Rods | Diameter: | 4 – 300 mm |
| Plates | Thicknesses: | 1 – 100 mm |

TECASON/TECAPEI **Page 36**

| | | |
|--------|--------------|------------|
| Rods | Diameter: | 4 – 200 mm |
| Plates | Thicknesses: | 5 – 80 mm |

TECATRON **Page 39**

| | | |
|--------|--------------|-----------|
| Rods | Diameter: | 4 – 60 mm |
| Plates | Thicknesses: | 5 – 60 mm |

TECAPEEK **Page 41**

| | | |
|--------|-------------------|-------------|
| Rods | Diameter: | 5 – 200 mm |
| Plates | Thicknesses: | 5 – 100 mm |
| Tubes | Outside diameter: | 40 – 300 mm |

TECATOR **Page 48**

| | | |
|--------|--------------|-----------|
| Rods | Diameter: | 5 – 50 mm |
| Plates | Thicknesses: | 5 – 40 mm |

SINTIMID/VESPEL® **Page 50/53**

| | | |
|--------|--------------|-----------|
| Rods | Diameter: | 6 – 70 mm |
| Plates | Thicknesses: | 5 – 80 mm |

COMPRESSION MOULDING **Page 56**

TECAFINE/TECARAN/TECANYL **Page 57**

| | | |
|--------|--------------|------------|
| Rods | Diameter: | 4 – 300 mm |
| Plates | Thicknesses: | 1 – 100 mm |

Special Materials **Page 62**

| | |
|-----------------------------------|----------------|
| Medicine Technology | Page 62 |
| Semicon and Electronics | Page 67 |
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Material standard values **Page 78**




Machining guidelines **Page 84**

Important processing instructions **Page 85**

Index

| DIN-Abbreviation | Works-nomenclature | Raw material group | Trade Name |  |  |  |
|--------------------|-----------------------|--|---|---|---|---|
| ABS | TECARAN ABS | Acrylonitrile-butadiene-styrene-graft copolymer | Terluran, Novodur | 59 | 61 | |
| E/CTFE | TECAFLON ECTFE | Ethylene/Chlorotrifluoroethylene | Halar | | | |
| E/TFE | TECAFLON ETFE | Ethylene Tetrafluoroethylen copolymer | Tefzel, Hostaflon ET | 36 | | |
| E/TFE GF 25 | TECAFLON ETFE GF 25 | Ethylene Tetrafluoroethylen copol., glass fibre | Tefzel | | | |
| FEP | TECAFLON FEP | Tetrafluoroethylen/Hexafluoropropylene, copol. | Teflon FEP | | | |
| PA 6 | TECAM 6 MO | Polyamide 6, with MoS ₂ (black) | Grilon | 17 | 19 | |
| PA 6 | TECAMID 6 | Polyamide 6 | Ultramid B, Akulon F, Durethan B | 17 | 19 | 20/21 |
| PA 6 GF 30 | TECAMID 6 GF 30 | Polyamide 6, glass fibre (black) | Akulon K, Ultramid B | 17 | 19 | |
| PA 6-3-TR | TECAMID TR | Polyamide 6 (transparent) | Trogamid T | 17 | 19 | |
| PA 6 G | TECAST HI | Cast Polyamide 6, heat-stabilized | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST R | Cast Polyamide 6 | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST R blue | Cast Polyamide 6 (blue) | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST T | Cast Polyamide 6, tough | Ultralon, Caprolactam | 22 | 23 | 25 |
| PA 6 G | TECAST T blue | Cast Polyamide 6, tough (blue) | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST ST | Cast Polyamide 6, super tough | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST M | Cast Polyamide 6, with MoS ₂ (charcoal-grey) | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST TM | Cast Polyamide 6, MoS ₂ , tough (black) | Ultralon, Caprolactam | 22 | 23 | 25 |
| PA 6 G | TECAST L | Cast Polyamide 6, lubricated | Ultralon, Caprolactam | | | 25 |
| PA 6 G | TECAST L black | Cast Polyamide 6, lubricated (black) | Ultralon, Caprolactam | | | 25 |
| PA 11 | TECAMID 11 | Polyamide 11 – also with MoS ₂ | Rilsan B | 15 | 15 | 15 |
| PA 11 GF 30 | TECAMID 11 GF 30 | Polyamide 11, glass fibre | Rilsan B | | | |
| PA 12 | TECAMID 12 | Polyamide 12 | Rilsan A, Vestamid | 17 | 19 | |
| PA 12 | TECAMID 12 MO | Polyamide 12 (black) | Rilsan A, Vestamid | | | |
| PA 12 GF 30 | TECAMID 12 GF 30 | Polyamide 12, glass fibre | Vestamid GF | | | |
| PA 46 | TECAMID 46 | Polyamide 46 | Stanyl | 57 | 57 | |
| PA 66 | TECAMID 66 | Polyamide 66 | Ultramid A, Zytel, Akulon S, Durethan A | 16 | 18 | |
| PA 66 | TECAMID 66 HI | Polyamide 66, heat-stabilized | Ultramid A, Akulon S | 16 | 18 | |
| PA 66 GF 30 | TECAMID 66 GF 30 | Polyamide 66, glass fibre (black) | Akulon S, Ultramid A, Durethan A | 16 | 18 | |
| PA 66 CF 20 | TECAMID 66 CF 20 | Polyamide 66, carbon fibre (black) | Akulon S, Ultramid A, Durethan A | 16 | 18 | |
| PA 66 SF 20 | TECAMID 66 SF 20 | Polyamide 66, aramide fibre (black) | Zytel | | | |
| PA 66 | TECAMID 66 LA | Polyamide 66, PE, high pv-value | Ultramid A, Zytel, Akulon S, Durethan A | 16 | 18 | |
| PA 66 | TECAMID 66 MH | Polyamide 66, with MoS ₂ (black) | Ultramid A | 16 | 18 | |
| PA 66+63/6T | TECAMID 66/XGF50black | Polyamide -copolymer, amorphous | Grivory | | 18 | |
| PA 610 | TECAMID 610 | Polyamide 610 | Ultramid S | | | |
| PA 612 | TECAMID 612 | Polyamide 612 | Zytel | | | |
| PAI | TECATOR | Polyamide-imide | Torlon | 49 | 49 | |
| PBT | TECADUR PBT | Polybutylene terephthalate | Ultradur, Pocan | | | |
| PBT GF 30 | TECADUR PBT GF 30 | Polybutylene terephthalate, glass fibre | Ultradur, Arnite | 29 | 32 | |
| PC | TECANAT | Polycarbonate (transparent) | Lexan, Makrolon | 32 | 32 | |
| PC GF 30 | TECANAT GF 30 | Polycarbonate, glass fibre | Lexan GF, Makrolon GF | 32 | 32 | |
| PCTFE | TECAFLON PCTFE | Polychloro-trifluoroethylene | Daikin, Voltalef | | | |
| PE-HD | TECAFINE PE | High density polyethylene (natural) | Hostalen, Lupolen | 58 | 60 | |
| PE-HD | TECAFINE PE black | High density polyethylene (black) | Hostalen, Lupolen | 58 | | |
| PEK | TECAPEEK HT | Polyetheretherketone | Victrex PEEK HT | 42 | 47 | |
| PEEK | TECAPEEK | Polyetheretherketone | Victrex PEEK | 42 | 43 | 44/45 |
| PEEK GF 30 | TECAPEEK GF 30 | Polyetheretherketone, glass fibre | Victrex PEEK | 42 | 43 | |
| PEEK CF 30 | TECAPEEK CF 30 | Polyetheretherketone, carbon fibre (black) | Victrex PEEK | 42 | 43 | |
| PEEK CF | TECAPEEK ELS | Polyetheretherketone, carbon fibre (black) | Victrex PEEK | 42 | 43 | |
| PEEK | TECAPEEK PVX | Polyetheretherketone with carbon fibre, PTFE, graphite (black) | Victrex PEEK | 42 | 43 | 46/47 |
| PEEK | TECAPEEK MT black | Polyetheretherketone (black) approved for medical engineering | Victrex PEEK | 42 | 43 | |
| PEEK TF 10 | TECAPEEK TF 10 | Polyetheretherketone, PTFE | Victrex PEEK | | | |
| PE-HMW | TECAFINE PE 5 | High-molecular weight polyethylene | Hostalen, Lupolen | 58 | 60 | |

Index

| DIN-Abbreviation | Works-nomenclature | Raw material group | Trade Name |  |  |  |
|------------------------|-----------------------------------|---|-------------------------------|---|---|---|
| PEI | TECAPEI | Polyetherimide | Ultem | | 38 | |
| PEI | TECAPEI MT | Polyetherimide, approved for medical engineering | Ultem | 37 | 38 | 36 |
| PEI GF 30 | TECAPEI GF 30 | Polyetherimide, glass fibre | Ultem | | | |
| PES | TECASON E | Polyethersulphone | Radel A, Ultrason E | 37 | 38 | |
| PES GF 30 | TECASON E GF 30 | Polyethersulphone, glass fibre | Radel A, Ultrason E | | | |
| PET | TECADUR PET | Polyethylene terephthalate | Arnite, Crastin | 27 | 31 | |
| PET | TECADUR PET black | Polyethylene terephthalate, black | Arnite, Crastin | 27 | 31 | |
| PET | TECAPET | Polyethylene terephthalate | Arnite, Crastin | 27 | 31 | |
| PET | TECAPET black | Polyethylene terephthalate, black | Arnite, Crastin | 27 | 31 | |
| PET | TECAPET TF | Polyethylene terephthalate, PTFE | Arnite, Crastin | 27 | 31 | |
| PE-UHMW | TECAFINE PE 10 | Ultra-high-molecular weight polyethylene | Hostalen GUR | 58 | 60 | |
| PI | SINTIMID H black | Polyimide | P84 | | | |
| PI CS 15 | SINTIMID 15 G | Polyimide, graphite (charcoal grey) | P84 | 51 | 52 | |
| PI | SINTIMID PVX | Polyimide, graphite + PTFE | P84 | 51 | 52 | |
| PI | VESPEL® SP1 | Polyimide | | 54 | 54 | 55 |
| PI CS 15 | VESPEL® SP21 | Polyimide, graphite | | | | |
| PI CS 40 | VESPEL® SP22 | Polyimide, graphite | | | | |
| PI CS 15, PTFE | VESPEL® SP211 | Polyimide, graphite + PTFE | | | | |
| PI | VESPEL® SP3 | Polyimide, MoS ₂ | | | | |
| PMMA | TECACRYL | Polymethyl methacrylate (transparent) | Plexiglas, Resarit | | | |
| PMP | TECAFINE PMP | Polymethyl pentene (transparent) | TPX | 58 | | |
| POM Copolymer | TECAFORM AH black | Polyoxymethylene copolymer (black) | Hostaform C, Ultraform | 11 | 14 | |
| POM Copolymer | TECAFORM AH | Polyoxymethylene copolymer | Hostaform C, Ultraform | 11 | 14 | 12/13 |
| POM Copolymer | TECAFORM AH GF 30 | Polyoxymethylene copolymer, glass fibre | Hostaform C, Ultraform | 11 | 14 | |
| POM Copolymer | TECAFORM AH LA | Polyoxymethylene copol., polyethylene blue | Hostaform C, Ultraform | 11 | 14 | |
| POM Copolymer | TECAFORM AH ELS | Polyoxymethylene copolymer (black) | Hostaform C, Ultraform | 11 | 14 | |
| POM Copolymer | TECAFORM AH TF | Polyoxymethylene copolymer, PTFE | Hostaform C, Ultraform | 57 | 57 | 57 |
| POM Copolymer | TECAFORM AH MT ^{colours} | Polyoxymethylene copolymer, colour | Hostaform C, Ultraform | 57 | 57 | 57 |
| POM Homopolymer | TECAFORM AD | Polyoxymethylene homopolymer | Delrin | 11 | 14 | |
| POM Homopolymer | TECAFORM AD GF 20 | Polyoxymethylene homopolymer, glass fibre | Delrin | 57 | 57 | 57 |
| POM Homopolymer | TECAFORM AD AF | Polyoxymethylene homopolymer, PTFE | Delrin AF | 11 | 14 | |
| POM Homopolymer | TECAFORM AD CL | Polyoxymethylene homopolymer, lubricated | Delrin | 57 | 57 | 57 |
| PP-H | TECAFINE PPH | Polypropylene homopolymer (natural, grey) | Hostalen PPH | 58 | | |
| PP-H GF 30 | TECAFINE PPH GF 30 | Polypropylene homopolymer, glass fibre | Hostalen PPH | | 60 | |
| PP | TECAPRO MT | Polypropylene homopolymer | PP | | 64 | |
| PPE | TECANYL | Polyphenylene ether | Noryl | 59 | 61 | |
| PPE GF 30 | TECANYL GF 30 | Polyphenylene ether, glass fibre | Noryl GF | 59 | 61 | |
| PPS | TECATRON | Polyphenylene sulphide | Fortron | 39 | 39 | |
| PPS GF 40 | TECATRON GF 40 | Polyphenylene sulphide, glass fibre | Fortron | 39 | 39 | |
| PPS | TECATRON PVX | Polyphenylene sulphide, with carbon fibre, PTFE, graphite (black) | Fortron | 39 | 39 | |
| PPSU | TECASON P | Polyphenylene sulphone | Radel R | | | |
| PPSU | TECASON P MT | Polyphenylene sulphone, approved for medical engineering | Radel R | 39 | 40 | |
| PSU | TECASON S | Polysulphone | Udel, Ultrason S | 37 | 37 | |
| PSU GF 30 | TECASON S GF 30 | Polysulphone, glass fibre | Udel, Ultrason S | | | |
| PTFE | TECAFLON PTFE | Polytetrafluoroethylene | Hostaflon TF, Teflon PTFE | 34 | 35 | |
| PTFE + PI | SINTIMID 8000 | Polytetrafluoroethylene + Polyimide | Hostaflon TF, Teflon PTFE+P84 | 51 | 52 | |
| PVDF | TECAFLON PVDF | Polyvinylidene fluoride | Solef, Kynar | 33 | | |
| PVDF CF 8 | TECAFLON PVDF CF 8 | Polyvinylidene fluoride, carbon fibre (black) | Solef, Kynar | 33 | | |
| PVDF | TECAFLON PVDF AS | Polyvinylidene fluoride (black) | Solef, Kynar | 33 | | |
| TPE | TECAPUR | Polyester elastomer | Hytrel, Arnitel | 57 | 57 | |

TECAFORM. The versatile engineering plastic with high strength and dimensional stability.



TECAFORM is suitable for a wide range of applications. It is characterised by its resistance to organic solvents and outstanding machinability.

TECAFORM has good sliding and abrasion behaviour and low water absorption properties.

- | High strength and hardness
- | Low water absorption
- | Very good machinability
- | Good UV resistance of black grades
- | Low adhesion forces for good sliding properties

TECAFORM AH black

Good UV stability.
Very good machinability.

TECAFORM AH

Good chemical resistance.
High resilience.

TECAFORM AH GF 30

Glassfibre-reinforced acetal with very high strength and high heat resistance.

TECAFORM AH LA blue

Very good sliding and abrasion values. Low water absorption.

TECAFORM AH ELS black

Adjusted electrical conductivity.
Good UV resistance.

TECAFORM AD

High mechanical strength.
Very good machinability.

TECAFORM AD AF

Very good sliding properties thanks to the PTFE content. Low water absorption.

On request:

TECAFORM AH TF

Very good sliding and abrasion properties. Stiff and rigid. Good resistance to detergents and solvents.

TECAFORM AD GF 20

Very abrasion resistant. Good weldability.

TECAFORM AD CL

Very good sliding properties.
Abrasion resistant.

Bearing block TECAFORM AH:

Very good sliding properties, high strength, very good machinability.



Belt guide bushing TECAFORM AD:

Low water absorption, high strength.



Cam guide TECAFORM AD:

High dimensional stability, good sliding friction values.



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www.plastic-metal.com



Please find the latest information at www.ensinger-online.com.

Rods



| | Tolerance to DIN (mm) | TECAFORM AH | TECAFORM AH black | TECAFORM AH GF 25* | TECAFORM AH LA blue | TECAFORM AH ELS | TECAFORM AD | TECAFORM AD AF |
|-----------------------------------|-----------------------|-------------|-------------------|--------------------|---------------------|-----------------|-------------|----------------|
| DIN-Abbreviation | | POM-C | POM-C | POM-C GF 25 | POM-C | POM-C | POM-H | POM-H |
| Density (g/cm³) | | 1,41 | 1,41 | 1,58 | 1,35 | 1,45 | 1,42 | 1,54 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 3 | + 0,1 | 0,012 | 0,012 | | 0,011 | | 0,012 | 0,013 |
| 4 | + 0,3 | 0,020 | 0,020 | 0,022 | 0,019 | 0,020 | 0,020 | 0,022 |
| 5 | + 0,1 | 0,031 | 0,031 | 0,035 | 0,030 | 0,032 | 0,031 | 0,034 |
| 6 | + 0,4 | 0,044 | 0,044 | 0,049 | 0,042 | 0,045 | 0,044 | 0,048 |
| 8 | | 0,078 | 0,078 | 0,087 | 0,075 | 0,080 | 0,078 | 0,085 |
| 9 | + 0,1 | 0,098 | 0,098 | 0,109 | 0,094 | 0,100 | 0,098 | 0,107 |
| 10 | + 0,5 | 0,120 | 0,120 | 0,134 | 0,115 | 0,123 | 0,121 | 0,131 |
| 11 | | 0,148 | 0,148 | 0,166 | 0,142 | 0,152 | 0,149 | 0,162 |
| 12 | | 0,175 | 0,175 | 0,196 | 0,168 | 0,180 | 0,176 | 0,191 |
| 13 | | 0,204 | 0,204 | 0,229 | 0,196 | 0,210 | 0,206 | 0,223 |
| 14 | | 0,236 | 0,236 | 0,264 | 0,226 | 0,243 | 0,238 | 0,258 |
| 15 | + 0,2 | 0,270 | 0,270 | 0,302 | 0,258 | 0,277 | 0,272 | 0,294 |
| 16 | + 0,7 | 0,306 | 0,306 | 0,343 | 0,293 | 0,314 | 0,308 | 0,334 |
| 18 | | 0,384 | 0,384 | 0,431 | 0,368 | 0,395 | 0,387 | 0,42 |
| 19 | | 0,427 | 0,427 | 0,479 | 0,409 | 0,439 | 0,430 | 0,467 |
| 20 | | 0,472 | 0,472 | 0,529 | 0,452 | 0,486 | 0,476 | 0,516 |
| 22 | | 0,574 | 0,574 | 0,644 | 0,550 | 0,591 | 0,578 | 0,627 |
| 25 | + 0,2 | 0,737 | 0,737 | 0,826 | 0,706 | 0,758 | 0,743 | 0,805 |
| 28 | + 0,9 | 0,921 | 0,921 | 1,03 | 0,882 | 0,947 | 0,927 | 1,01 |
| 30 | | 1,05 | 1,05 | 1,18 | 1,01 | 1,08 | 1,06 | 1,15 |
| 32 | | 1,20 | 1,20 | 1,35 | 1,15 | 1,24 | 1,21 | 1,32 |
| 36 | + 0,2 | 1,52 | 1,52 | 1,70 | 1,45 | 1,56 | 1,53 | 1,66 |
| 40 | + 1,1 | 1,87 | 1,87 | 2,09 | 1,79 | 1,92 | 1,88 | 2,04 |
| 45 | | 2,37 | 2,37 | 2,66 | 2,27 | 2,44 | 2,39 | 2,59 |
| 50 | + 0,3 | 2,91 | 2,91 | 3,27 | 2,79 | 3,00 | 2,94 | 3,18 |
| 56 | + 1,3 | 3,64 | 3,64 | 4,08 | 3,49 | 3,75 | 3,67 | 3,98 |
| 60 | | 4,20 | 4,20 | 4,70 | 4,02 | 4,32 | 4,23 | 4,58 |
| 65 | + 0,3 | 4,91 | 4,91 | 5,51 | 4,70 | 5,05 | 4,95 | 5,37 |
| 70 | + 1,6 | 5,69 | 5,69 | 6,37 | 5,44 | 5,85 | 5,73 | 6,21 |
| 75 | + 0,4 | 6,56 | 6,56 | 7,35 | 6,28 | 6,74 | 6,61 | 7,16 |
| 80 | + 2 | 7,45 | 7,45 | 8,35 | 7,13 | 7,66 | 7,50 | 8,13 |
| 85 | + 0,5 | 8,42 | 8,42 | 9,44 | | | 8,48 | |
| 90 | + 2,2 | 9,43 | 9,43 | 10,56 | 9,02 | 9,69 | 9,49 | 10,29 |
| 95 | + 0,6 | 10,53 | 10,53 | | 10,08 | | 10,60 | 11,5 |
| 100 | + 2,5 | 11,65 | 11,65 | 13,05 | 11,15 | 11,98 | 11,73 | 12,72 |
| 110 | + 0,7 + 3 | 14,13 | 14,13 | 15,83 | 13,53 | | 14,23 | 15,43 |
| 120 | + 0,8 | 16,85 | 16,85 | 18,89 | 16,14 | | 16,97 | 18,41 |
| 125 | + 3,5 | 18,26 | 18,26 | 20,46 | 17,48 | | 18,39 | 19,94 |
| 130 | | 19,79 | 19,79 | | 18,94 | | 19,93 | 21,61 |
| 135 | + 0,9 | 21,31 | 21,31 | 23,88 | 20,40 | | 21,46 | 23,27 |
| 140 | + 3,8 | 22,89 | 22,89 | 25,6 | 21,91 | | 23,05 | 25,0 |
| 150 | + 1 + 4,2 | 26,3 | 26,3 | 29,5 | 25,2 | | 26,5 | 28,7 |
| 165 | + 1,2 | 31,9 | 31,9 | 35,8 | 30,6 | | 32,1 | |
| 180 | + 5 | 37,9 | 37,9 | 42,4 | 36,3 | | 38,1 | |
| 200 | + 1,3 + 5,5 | 46,7 | 46,7 | 52,4 | 44,7 | | 47,1 | |
| 210 | + 1,3 + 5,8 | 51,5 | 51,5 | | 49,3 | | | |
| 230 | + 1,5 | 61,8 | 61,8 | | 59,1 | | | |
| 250 | + 6,2 | 72,8 | 72,8 | | 69,7 | | | |

* From 110 mm diameter, 20% glassfibre content
 Tolerances according to DIN: length $\pm \frac{3}{100}$ %.
 TECAFORM AH and TECAFORM AH MT coloured available. Colours and dimensions on request.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground.
 All figures given without obligation.

 = Stock item
 = Non-stock item – special production

Plastic & Metal Center, Inc.

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Tubes



TECAFORM AH

| DIN-Abbreviation | | POM-C | | | | | | | | | | | | | | | | |
|------------------------------|-----------------------------|-----------------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Density (g/cm ³) | | 1,41 | | | | | | | | | | | | | | | | |
| Tolerance to DIN (mm) | | Diameter Ø (mm) | 10 | 15 | 18 | 20 | 22 | 25 | 30 | 32 | 35 | 36 | 40 | 45 | 50 | 54 | 60 | |
| + 0,4 + 1,1 | - 0,4 - 1,1 | 20 | 0,390 | | | | | | | | | | | | | | | |
| | | 25 | 0,652 | 0,520 | 0,413 | | | | | | | | | | | | | |
| | | 30 | | 0,839 | | 0,649 | | | | | | | | | | | | |
| + 0,6 + 2 | - 0,6 - 2 | 32 | | | | | 0,769 | 0,618 | | | | | | | | | | |
| | | 36 | | | | 1,18 | | 0,937 | | | | | | | | | | |
| | | 40 | | | | 1,53 | | 1,29 | 1,00 | | | | | | | | | |
| | | 45 | | | | | | | | | | 1,06 | | | | | | |
| | | 50 | | | | 2,58 | | 2,34 | 2,04 | | | | 1,61 | 1,28 | | | | |
| + 0,8 + 2,5 | - 0,8 - 2,5 | 56 | | | | | | 3,14 | 2,85 | | 2,50 | 2,42 | 2,09 | 1,63 | | | | |
| | | 60 | | | | | | 3,68 | 3,39 | 3,25 | | 2,96 | 2,63 | | 1,65 | | | |
| | | 65 | | | | | | 4,45 | 4,16 | | | 3,74 | 3,42 | 2,96 | 2,44 | | | |
| + 0,8 + 3,0 | - 0,8 - 3 | 70 | | | | | | 5,24 | 4,95 | 4,82 | | 4,53 | 4,20 | 3,74 | 3,23 | | | |
| | | 75 | | | | | | 6,08 | 5,79 | 5,66 | | 5,37 | 5,04 | 4,58 | 4,07 | 3,61 | | |
| | | 80 | | | | | | 6,97 | 6,68 | 6,55 | | 6,26 | 5,94 | 5,48 | 4,96 | 4,51 | 3,76 | |
| + 1,2 + 3,6 | - 1,6 - 5 | 85 | | | | | | | 7,82 | | | 7,42 | 7,11 | 6,66 | 6,16 | 5,72 | 5,00 | |
| | | 90 | | | | | | | 8,84 | 8,71 | | 8,44 | 8,12 | 7,68 | 7,18 | | 6,01 | |
| | | 100 | | | | | | | | 10,91 | | 10,64 | 10,32 | 9,88 | 9,38 | 8,94 | 8,21 | |
| | | 110 | | | | | | | | 13,34 | | 13,06 | 12,75 | 12,31 | 11,81 | 11,37 | 10,64 | |
| | | 120 | | | | | | | | | | | 15,64 | | 14,72 | | 13,58 | |
| + 1,5 + 4,5 | - 2 - 6,5 | 125 | | | | | | | | | | 17,37 | 17,06 | 16,63 | 16,14 | 15,71 | 15,00 | |
| | | 130 | | | | | | | | | | | 18,54 | 18,10 | 17,62 | | 16,47 | |
| | | 135 | | | | | | | | | | | | | 19,15 | 18,72 | 18,00 | |
| | | 140 | | | | | | | | | | | | 21,65 | 21,22 | 20,73 | 20,30 | 19,59 |
| | | 150 | | | | | | | | | | | | 25,0 | 24,57 | 24,08 | 23,65 | 22,93 |
| + 1,8 + 5,4 | - 2,2 - 7,5 | 165 | | | | | | | | | | | | | | | | |
| | | 180 | | | | | | | | | | | | | | | | |
| + 2 + 6 | - 2,5 - 8,5 | 200 | | | | | | | | | | | | | | | | |
| | | 210 | | | | | | | | | | | | | | | | |
| + 3 + 9 | - 3 - 12 | 230 | | | | | | | | | | | | | | | | |
| | | 250 | | | | | | | | | | | | | | | | |
| | | 280 | | | | | | | | | | | | | | | | |
| | | 300 | | | | | | | | | | | | | | | | |
| + 3 + 11 + 3 + 13 | - 3,5 - 14 - 3,5 - 16 | 320 | | | | | | | | | | | | | | | | |
| | | 435 | | | | | | | | | | | | | | | | |
| | | 505 | | | | | | | | | | | | | | | | |
| | | | 10 | 15 | 18 | 20 | 22 | 25 | 30 | 32 | 35 | 36 | 40 | 45 | 50 | 54 | 60 | |

= Outside
 = Inside

= Stock item
 = Non-stock item – special production

Tolerances according to DIN: length $\pm \frac{3}{100}$ %.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

TECAFORM AD tubes are available on request

Plastic & Metal Center, Inc.
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USA

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Fax: 949-770-8478

Email: sales@plastic-metal.com

www.plastic-metal.com

| | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | 240 | 270 | 300 | 390 | Diameter Ø (mm) |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|------|------|-------|-------|-----------------|
| | | | | | | | | | | | | | | | | | 20 |
| | | | | | | | | | | | | | | | | | 25 |
| | | | | | | | | | | | | | | | | | 30 |
| | | | | | | | | | | | | | | | | | 32 |
| | | | | | | | | | | | | | | | | | 36 |
| | | | | | | | | | | | | | | | | | 40 |
| | | | | | | | | | | | | | | | | | 45 |
| | | | | | | | | | | | | | | | | | 50 |
| | | | | | | | | | | | | | | | | | 56 |
| | | | | | | | | | | | | | | | | | 60 |
| | | | | | | | | | | | | | | | | | 65 |
| | | | | | | | | | | | | | | | | | 70 |
| | | | | | | | | | | | | | | | | | 75 |
| | | | | | | | | | | | | | | | | | 80 |
| | | | | | | | | | | | | | | | | | 85 |
| | 4,62 | | | | | | | | | | | | | | | | 90 |
| | 6,82 | 6,04 | 5,20 | | | | | | | | | | | | | | 100 |
| | 9,25 | 8,46 | 7,63 | 5,78 | | | | | | | | | | | | | 110 |
| | 12,21 | 11,43 | 10,61 | 8,78 | 6,73 | | | | | | | | | | | | 120 |
| | 13,62 | 12,85 | 12,02 | 10,20 | 8,15 | | | | | | | | | | | | 125 |
| | 15,10 | 14,33 | 13,50 | 11,67 | 9,62 | | | | | | | | | | | | 130 |
| | 16,63 | | 15,03 | 13,21 | 11,16 | 8,88 | | | | | | | | | | | 135 |
| | 18,21 | | 16,62 | 14,79 | 12,74 | 10,47 | | | | | | | | | | | 140 |
| | 21,56 | | 19,96 | 18,14 | 16,09 | 13,81 | 9,97 | 8,58 | | | | | | | | | 150 |
| | | | 25,7 | 23,92 | 21,88 | 19,62 | 15,80 | 14,42 | | | | | | | | | 165 |
| | | | 31,7 | 29,9 | 27,8 | 25,6 | 21,77 | 20,38 | 14,28 | | | | | | | | 180 |
| | | | 40,7 | 38,9 | 36,9 | 34,7 | 30,9 | 29,5 | 23,42 | 14,55 | | | | | | | 200 |
| | | | | | 41,6 | 39,4 | 35,6 | 34,2 | 28,1 | | | | | | | | 210 |
| | | | | 55,2 | 53,2 | 51,0 | 47,3 | | 40,0 | 29,3 | 21,05 | | | | | | 230 |
| | | | | 66,3 | 64,4 | 62,2 | 58,4 | | 51,1 | 40,4 | 32,2 | | | | | | 250 |
| | | | | | 82,7 | 80,5 | 76,8 | | 69,5 | 58,8 | 50,5 | | | | | | 280 |
| | | | | | 96,1 | 93,9 | 90,2 | | 82,8 | 72,2 | 63,9 | | | | | | 300 |
| | | | | | | | | | | | | | 60,4 | 40,7 | | | 320 |
| | | | | | | | | | | | | | | | 126,5 | | 435 |
| | | | | | | | | | | | | | | | | 133,9 | 505 |
| | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | 240 | 270 | 300 | 390 | Diameter Ø (mm) |

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 www.plastic-metal.com

Plates



| | Tolerance to DIN (mm) | TECAFORM AH | TECAFORM AH black | TECAFORM AH GF 25* | TECAFORM AH LA blue | TECAFORM AH ELS | TECAFORM AD | TECAFORM AD AF | |
|-----------------------------------|-----------------------|----------------|-------------------|--------------------|---------------------|-----------------|-------------|----------------|-------|
| DIN-Abbreviation | | POM-C | POM-C | POM-C GF 25 | POM-C | POM-C | POM-H | POM-H | |
| Density (g/cm³) | | 1,41 | 1,41 | 1,58 | 1,35 | 1,45 | 1,42 | 1,54 | |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | |
| 0,5 x 1000 *** | - 0,02 + 0,08 | 0,774 | | | | | | | |
| 1 x 1000 ** | - 0,1 + 0,1 | 1,46 | | | | | | | |
| 2 x 1000 ** | - 0,15 + 0,15 | 2,92 | | | | | | | |
| 3 x 1000 ** | - 0,2 + 0,2 | 4,38 | | | | | | | |
| 3 x 1200 ** | | 5,24 | | | | | | | |
| 4 x 1000 ** | | 5,84 | | | | | | | |
| 5 x 500 | + 0,2 + 0,5 | 3,96 | 3,96 | 4,44 | 3,79 | 4,08 | 3,99 | 4,33 | |
| 5 x 1000 ** | - 0,25 + 0,25 | 7,30 | | | | | | | |
| 6 x 500 | + 0,2 + 0,75 | 4,80 | 4,80 | 5,37 | 4,59 | 4,93 | 4,83 | 5,24 | |
| 6 x 1000 ** | - 0,3 + 0,3 | 8,76 | | | | | | | |
| 8 x 500 | + 0,2 + 0,9 | 6,33 | 6,33 | 7,10 | 6,06 | 6,51 | 6,38 | 6,92 | |
| 10 x 500 | | 7,81 | 7,81 | 8,76 | 7,48 | 8,04 | 7,87 | 8,53 | |
| 10 x 610 | | 9,48 | | | | | | | |
| 10 x 1000 ** | | 15,40 | 15,40 | | 14,75 | 15,84 | | | |
| 12 x 500 | + 0,3 + 1,5 | 9,55 | 9,55 | 10,71 | 9,15 | 9,83 | 9,62 | 10,44 | |
| 12 x 610 | | 11,60 | | | | | | | |
| 12 x 1000 ** | | 18,83 | 18,83 | | | | 18,96 | | |
| 15 x 500 | | 11,78 | 11,78 | | 11,28 | | 11,86 | 12,86 | |
| 15 x 610 | | 14,29 | | | | | | | |
| 16 x 500 | | 12,52 | 12,52 | 14,03 | 11,98 | 12,87 | 12,61 | 13,67 | |
| 16 x 1000 ** | | 24,67 | 24,67 | | | | 24,85 | | |
| 18 x 500 | | 14,00 | 14,00 | 15,69 | 13,40 | 14,40 | 14,10 | 15,29 | |
| 18 x 1000 ** | | 27,6 | 27,6 | | 26,4 | | 27,80 | 30,10 | |
| 20 x 500 | | 15,48 | 15,48 | 17,35 | 14,82 | 15,92 | 15,59 | 16,91 | |
| 20 x 610 | | 18,79 | | | | | | | |
| 20 x 1000 ** | | 30,5 | 30,5 | 34,2 | | | 30,7 | | |
| 22 x 500 | | 16,96 | 16,96 | 19,01 | 16,24 | 17,44 | 17,08 | 18,53 | |
| 22 x 1000 ** | | 33,4 | 33,4 | | | | 33,70 | 36,5 | |
| 25 x 500 | | 19,18 | 19,18 | 21,50 | 18,37 | 19,73 | 19,32 | | |
| 25 x 610 | | 23,28 | | | | | | | |
| 25 x 1000 ** | | 37,8 | 37,8 | | | | 38,1 | 41,30 | |
| 27 x 500 | | + 0,5 + 2,5 | 21,1 | 21,11 | 23,65 | 20,21 | 21,71 | 21,26 | |
| 27 x 1000 ** | | | 41,6 | 41,6 | | | | 41,9 | 45,4 |
| 30 x 500 | | | 23,3 | 23,33 | 26,1 | 22,34 | 23,99 | 23,50 | 25,50 |
| 30 x 610 | 28,3 | | | | | | | | |
| 30 x 1000 ** | 46,0 | | 46,0 | | | | 46,3 | | |
| 32 x 500 | 24,81 | | 24,81 | 27,8 | 23,76 | 25,5 | 25,0 | 27,1 | |
| 32 x 1000 ** | 48,9 | | 48,9 | | | | 49,2 | | |
| 35 x 1000 ** | 53,3 | | 53,3 | | 51,0 | | 53,7 | 58,2 | |
| 36 x 500 | 27,8 | | 27,8 | 31,1 | 26,6 | 28,6 | 28,0 | 30,3 | |
| 40 x 500 | 30,7 | | 30,7 | 34,4 | 29,4 | 31,6 | 31,0 | 33,6 | |
| 40 x 610 | 37,3 | | | | | | | | |
| 40 x 1000 ** | 60,6 | | 60,6 | | | | 61,0 | | |
| 45 x 500 | 34,4 | | 34,4 | 38,6 | 33,0 | | 34,7 | 37,6 | |
| 50 x 500 | 38,1 | | 38,1 | 42,7 | 36,5 | 39,2 | 38,4 | 41,7 | |
| 50 x 610 | 46,3 | | | | | | | | |
| 50 x 1000 ** | 75,2 | | 75,2 | | | | 75,7 | | |
| 60 x 500 | + 0,5 + 5 | | 46,5 | 46,5 | 52,1 | 44,5 | 47,8 | 46,8 | |
| 60 x 610 | | | 56,4 | 56,4 | | 54,0 | | 56,8 | 61,6 |
| 60 x 1000 ** | | | 91,6 | 91,6 | | | | 92,3 | |
| 70 x 500 | | | 53,9 | 53,9 | | 51,6 | | 54,3 | |
| 70 x 610 | | 65,4 | 53,9 | | 62,6 | | 65,9 | 71,4 | |
| 75 x 610 | | 69,9 | 69,9 | | 66,9 | | 70,4 | 76,3 | |
| 80 x 500 | | 61,3 | 61,3 | | 58,7 | | 61,7 | | |
| 80 x 1000 ** | | 120,8 | 120,8 | | | | | | |
| 90 x 500 | | 68,7 | 68,7 | | 65,8 | | 69,2 | | |
| 100 x 500 | | 76,1 | 76,1 | | 72,9 | | 76,6 | | |
| 100 x 1000 ** | | 150,0 | 150,0 | | | | | | |

*From size 60 x 500 mm, 20% glass fibre content. **Length 2000 mm. ***Coils.
The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

Tolerances according to DIN: length $\pm \frac{3}{100}$ %.

width $\pm \frac{25}{1000}$ mm.



= Stock item

= Non-stock item - special production

TECAMID/TECAST. The tough engineering plastic with reliable wear resistance.



- I Good sliding properties with high wear resistance
- I Good chemical resistance to many oils, greases, petrol, etc.
- I Good machinability
- I Easily bonded and welded
- I Non-reinforced grades electrically insulating

TECAMID 66

Good bondability and weldability. Electrically insulating and very good machinability.

TECAMID 66 MH black

Good UV resistance. Very good sliding properties.

TECAMID 66 HI

High heat resistance and dimensional stability. Heat-stabilised semi-finished bearing product.

TECAMID 66 GF 30 black

Glassfibre-reinforced polyamide with very high strength. Good UV stability and increased heat resistance.

TECAMID 66/X GF 50 black

Glassfibre-reinforced polyamide with extremely high strength. High continuous operating temperature and dimensional stability.

TECAMID 66 CF 20 black

Elevated operating temperature. Carbon fibre-reinforced polyamide with very high strength.

TECAMID 66 LA

Very good sliding and abrasion properties with soft mating partners. Tough with good strength properties.

TECAM 6 MO black

Good UV resistance and surface hardness. Good machinability and dimensional stability.

TECAMID 6

Very tough and impact resistant. Good chemical resistance.

TECAMID 6 GF 30 black

Glassfibre-reinforced polyamide with very high strength. Good UV stability and increased heat resistance.

TECAMID TR transparent

Transparent. Electrically insulating semi-finished product.

TECAST T

Low-stress cast semi-finished product. Very good machinability.

TECAST TM black

Good UV stability. High surface hardness.

TECAST 12

Very high abrasion and wear resistance, very tough, high load-bearing capacity in static and dynamic conditions.

**Seal ring
TECAMID 6:**
Tough even at low temperatures.



**Valve flange
TECAMID 6:**
Low thermal expansion, good chemical resistance.



**Reducer bushing
TECAMID 66 MH:**
Good UV resistance, increased surface hardness.



On request:

TECAMID 11

High toughness. Good sliding and abrasion properties.

TECAMID 46

High thermal-mechanical resistance. Very rigid. Good creep resistance.

Rods




| | Tolerance to DIN (mm) | TECAMID 66 | TECAMID 66 MH black | TECAMID 66 GF 30 black | TECAMID 66 CF 20 black | TECAMID 66 HI | TECAMID 66 LA |
|-----------------------------------|-----------------------|------------|---------------------|------------------------|------------------------|---------------|---------------|
| DIN-Abbreviation | | PA 66 | PA 66 | PA 66 GF 30** | PA 66 CF 20 | PA 66 | PA 66 |
| Density (g/cm³) | | 1,14 | 1,14 | 1,35 | 1,23 | 1,14 | 1,11 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,016 | 0,016 | 0,019 | 0,017 | 0,016 | 0,016 |
| 5 | + 0,1 | 0,025 | 0,025 | 0,030 | 0,027 | 0,025 | 0,025 |
| 6 | + 0,4 | 0,036 | 0,036 | 0,042 | 0,038 | 0,036 | 0,035 |
| 8 | | 0,063 | 0,063 | 0,075 | 0,068 | 0,063 | 0,061 |
| 9 | + 0,1 | 0,079 | 0,079 | 0,094 | 0,085 | 0,079 | 0,077 |
| 10 | + 0,5 | 0,097 | 0,097 | 0,115 | 0,105 | 0,097 | 0,094 |
| 11 | | 0,120 | 0,120 | 0,142 | 0,129 | 0,120 | 0,117 |
| 12 | | 0,142 | 0,142 | 0,168 | 0,153 | 0,142 | 0,138 |
| 13 | | 0,165 | 0,165 | 0,196 | 0,178 | 0,165 | 0,161 |
| 14 | | 0,191 | 0,191 | 0,226 | 0,206 | 0,191 | 0,186 |
| 15 | + 0,2 | 0,218 | 0,218 | 0,258 | 0,235 | 0,218 | 0,212 |
| 16 | + 0,7 | 0,247 | 0,247 | 0,293 | 0,267 | 0,247 | 0,241 |
| 18 | | 0,311 | 0,311 | 0,368 | 0,335 | 0,311 | 0,303 |
| 19 | | 0,345 | 0,345 | 0,409 | 0,373 | 0,345 | 0,336 |
| 20 | | 0,382 | 0,382 | 0,452 | 0,412 | 0,382 | 0,372 |
| 22 | | 0,464 | 0,464 | 0,550 | 0,501 | 0,464 | 0,452 |
| 25 | + 0,2 | 0,596 | 0,596 | 0,706 | 0,643 | 0,596 | 0,580 |
| 28 | + 0,9 | 0,744 | 0,744 | 0,882 | 0,803 | 0,744 | 0,725 |
| 30 | | 0,852 | 0,852 | 1,01 | 0,920 | 0,852 | 0,830 |
| 32 | | 0,974 | 0,974 | 1,15 | 1,05 | 0,974 | 0,948 |
| 36 | + 0,2 | 1,23 | 1,23 | 1,45 | 1,32 | 1,23 | 1,19 |
| 40 | + 1,1 | 1,51 | 1,51 | 1,79 | 1,63 | 1,51 | 1,47 |
| 45 | | 1,92 | 1,92 | | 2,07 | 1,92 | |
| 50 | + 0,3 | 2,36 | 2,36 | 2,79 | | 2,36 | 2,29 |
| 56 | + 1,3 | 2,95 | 2,95 | 3,49 | 3,18 | 2,95 | 2,87 |
| 60 | | 3,39 | 3,39 | 4,02 | 3,66 | 3,39 | 3,30 |
| 65 | + 0,3 | 3,97 | 3,97 | 4,70 | | 3,97 | 3,87 |
| 70 | + 1,6 | 4,60 | 4,60 | 5,44 | | 4,60 | 4,48 |
| 75 | + 0,4 | 5,30 | 5,30 | 6,28 | | 5,30 | 5,16 |
| 80 | + 2 | 6,02 | 6,02 | 7,13 | 6,50 | 6,02 | 5,86 |
| 90 | + 0,5 + 2,2 | 7,62 | 7,62 | 9,02 | | 7,62 | 7,42 |
| 100 | + 0,6 + 2,5 | 9,42 | 9,42 | 11,15 | | 9,42 | 9,17 |
| 110 | + 0,7 + 3 | 11,42 | 11,42 | 13,53 | | 11,42 | 11,12 |
| 120 | + 0,8 | 13,63 | 13,63 | 16,14 | | 13,63 | 13,27 |
| 125 | + 3,5 | 14,76 | 14,76 | 17,48 | | 14,76 | 14,38 |
| 130 | | 16,00 | 16,00 | | | 16,00 | 15,58 |
| 135 | + 0,9 | 17,23 | 17,23 | 20,40 | | 17,23 | 16,77 |
| 140 | + 3,8 | 18,51 | 18,51 | 21,91 | | 18,51 | 18,02 |
| 150 | + 1,0 + 4,2 | 21,27 | 21,27 | 25,2 | | 21,27 | 20,71 |
| 165 | + 1,2 | 25,8 | 25,8 | | | 25,8 | |
| 180 | + 5 | 30,6 | 30,6 | | | 30,6 | |
| 200 | + 1,3 + 5,5 | 37,8 | 37,8 | | | 37,8 | |

** From 125 mm diameter length 1000 mm.

Tolerances according to DIN: length $+ \frac{3}{10} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground.

 = Stock item

 = Non-stock item – special production

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Email: sales@plastic-metal.com

www.plastic-metal.com

Rods



| | Tolerance to DIN (mm) | TECAMID 6* | TECAM 6 MO* black | TECAMID 6 GF 30 black** | TECAMID TR transparent | TECAMID 12 |
|-----------------------------------|-----------------------|----------------|-------------------|-------------------------|------------------------|------------|
| DIN-Abbreviation | | PA 6 | PA 6 | PA 6 GF 30 | PA 6-3-T | PA 12 |
| Density (g/cm³) | | 1,13 | 1,14 | 1,35 | 1,12 | 1,02 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,016 | 0,016 | 0,020 | 0,016 | 0,014 |
| 5 | + 0,1 | 0,025 | 0,025 | 0,031 | 0,025 | 0,023 |
| 6 | + 0,4 | 0,035 | 0,036 | 0,043 | 0,035 | 0,032 |
| 8 | + 0,1 + 0,5 | 0,062 | 0,063 | 0,077 | 0,062 | 0,056 |
| 9 | | 0,078 | 0,079 | 0,096 | 0,078 | 0,071 |
| 10 | | 0,096 | 0,097 | 0,118 | 0,095 | 0,087 |
| 11 | + 0,2 + 0,7 | 0,119 | 0,120 | 0,146 | 0,118 | 0,107 |
| 12 | | 0,140 | 0,142 | 0,173 | 0,139 | 0,127 |
| 13 | | 0,164 | 0,165 | 0,201 | 0,162 | 0,148 |
| 14 | | 0,189 | 0,191 | 0,232 | 0,187 | 0,171 |
| 15 | | 0,216 | 0,218 | 0,266 | 0,214 | 0,195 |
| 16 | | 0,245 | 0,247 | 0,301 | 0,243 | 0,221 |
| 18 | | 0,308 | 0,311 | 0,379 | 0,305 | 0,278 |
| 19 | | 0,342 | 0,345 | 0,421 | 0,339 | 0,309 |
| 20 | | 0,379 | 0,382 | 0,466 | 0,375 | 0,342 |
| 22 | | + 0,2 + 0,9 | 0,460 | 0,464 | 0,566 | 0,456 |
| 25 | 0,591 | | 0,596 | 0,727 | | 0,533 |
| 28 | 0,738 | | 0,744 | 0,907 | 0,731 | 0,666 |
| 30 | 0,845 | | 0,852 | 1,04 | 0,837 | 0,763 |
| 32 | + 0,2 + 1,1 | 0,965 | 0,974 | 1,19 | 0,956 | 0,871 |
| 36 | | 1,22 | 1,23 | 1,50 | 1,21 | 1,10 |
| 40 | | 1,50 | 1,51 | 1,84 | 1,48 | 1,35 |
| 45 | + 0,3 + 1,3 | 1,90 | 1,92 | 2,34 | 1,88 | 1,71 |
| 50 | | 2,34 | 2,36 | 2,87 | 2,32 | 2,11 |
| 56 | | 2,92 | 2,95 | 3,59 | 2,89 | 2,64 |
| 60 | + 0,3 + 1,6 | 3,36 | 3,39 | 4,14 | 3,33 | 3,04 |
| 65 | | 3,94 | 3,97 | 4,84 | 3,90 | 3,55 |
| 70 | | 4,56 | 4,60 | 5,60 | 4,52 | 4,11 |
| 75 | + 0,4 + 2 | 5,26 | 5,30 | 6,46 | 5,21 | 4,74 |
| 80 | | 5,97 | 6,02 | 7,34 | 5,92 | 5,39 |
| 85 | + 0,5 + 2,2 | 6,75 | 6,81 | | | 6,09 |
| 90 | | 7,55 | 7,62 | 9,29 | 7,49 | 6,82 |
| 100 | + 0,6 + 2,5 | 9,34 | 9,42 | 11,48 | 9,25 | 8,43 |
| 110 | + 0,7 + 3 | 11,32 | 11,42 | 13,93 | 11,22 | 10,22 |
| 120 | + 0,8 | 13,51 | 13,63 | 16,61 | 13,39 | 12,19 |
| 125 | + 3,5 | 14,63 | 14,76 | 18,00 | 14,51 | 13,20 |
| 130 | + 0,9 + 3,8 | 15,86 | 16,00 | 19,50 | 15,72 | 14,31 |
| 135 | | 17,08 | 17,23 | 21,00 | 16,93 | 15,41 |
| 140 | | 18,34 | 18,51 | 22,56 | 18,18 | 16,56 |
| 150 | + 1 + 4,2 | 21,08 | 21,27 | 25,9 | 20,89 | 19,03 |
| 165 | + 1,2 + 5 | 25,6 | 25,8 | 31,5 | 25,4 | 23,09 |
| 180 | | 30,3 | 30,6 | 37,3 | 30,1 | 27,4 |
| 200 | + 1,3 + 5,5 | 37,5 | 37,8 | 46,1 | 37,1 | 33,8 |
| 210 | + 1,3 + 5,8 | 41,3 | 41,6 | | | |
| 230 | + 1,5 | 49,5 | 49,9 | | | |
| 250 | + 6,2 | 58,3 | 58,8 | | | |
| 280 | + 1,6 + 6,5 | 73,0 | 73,7 | | | |
| 300 | + 1,7 + 7 | 83,8 | 84,6 | | | |


* From 110 mm diameter, TECAST T/TECAST TM.

** From 135 mm diameter length, from Ø 165, 25% glass fibre content.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plates





| | Tolerance to DIN (mm) | TECAMID 66 | TECAMID 66 MH black | TECAMID 66 GF 30 black | TECAMID 66 CF 20 black | TECAMID 66 HI brown | TECAMID 66 LA | TECAMID 66/X GF 50 black |
|-----------------------------------|-----------------------|------------|---------------------|------------------------|------------------------|---------------------|---------------|--------------------------|
| DIN-Abbreviation | | PA 66 | PA 66 | PA 66 | PA 66 CF 20 | PA 66 | PA 66 | PA 66 + 63/6T |
| Density (g/cm³) | | 1,14 | 1,14 | 1,35 | 1,23 | 1,14 | 1,11 | 1,56 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 5 x 500 | + 0,2 + 0,5 | 3,20 | 3,20 | 3,79 | | 3,20 | 3,12 | 4,38 |
| 6 x 500 | + 0,2 + 0,75 | 3,88 | 3,88 | 4,59 | 4,18 | 3,88 | 3,78 | 5,31 |
| 8 x 500 | + 0,2 + 0,9 | 5,12 | 5,12 | 6,06 | 5,52 | 5,12 | 4,99 | 7,01 |
| 10 x 500 | | 6,32 | 6,32 | 7,48 | 6,82 | 6,32 | 6,15 | 8,65 |
| 10 x 610 | | 7,70 | 7,70 | | | | | |
| 12 x 500 | + 0,3 + 1,5 | 7,73 | 7,73 | 9,15 | 8,33 | 7,73 | 7,52 | 10,57 |
| 12 x 610 | | 9,38 | 9,31 | | | | | |
| 12 x 1000 ** | | 15,23 | 15,23 | 18,03 | | 15,23 | 14,82 | |
| 16 x 500 | | 10,12 | 10,12 | 11,98 | 10,92 | 10,12 | 9,85 | 13,85 |
| 16 x 1000 ** | | 19,95 | 19,95 | 23,62 | | 19,95 | 19,42 | |
| 18 x 500 | | 11,32 | 11,32 | 13,40 | 12,21 | 11,32 | 11,02 | 15,49 |
| 18 x 1000 ** | | | 22,31 | | 24,07 | | 21,72 | |
| 20 x 500 | | 12,52 | 12,52 | 14,82 | 13,50 | 12,52 | 12,19 | 17,13 |
| 20 x 610 | | 15,19 | 15,19 | | | | | |
| 20 x 1000 ** | | 24,67 | 24,67 | 29,2 | | 24,67 | 24,02 | |
| 22 x 500 | | 13,71 | 13,71 | 16,24 | 14,80 | 13,71 | 13,35 | 18,77 |
| 22 x 1000 ** | | 27,0 | 27,0 | 32,0 | | 27,0 | | |
| 25 x 500 | | 15,51 | 15,51 | 18,37 | 16,73 | 15,51 | 15,10 | 21,22 |
| 25 x 610 | | 18,82 | 18,82 | | | | | |
| 25 x 1000 ** | | 30,6 | 30,6 | 36,2 | | 30,6 | 29,8 | |
| 27 x 500 | + 0,5 + 2,5 | 17,07 | 17,07 | 20,21 | 18,41 | 17,07 | 16,62 | 23,35 |
| 27 x 1000 ** | | 33,6 | 33,6 | 39,8 | | 33,6 | 32,8 | |
| 30 x 300 | | 11,54 | 11,54 | 13,66 | 12,45 | 11,54 | 11,23 | 15,79 |
| 30 x 500 | | 18,86 | 18,86 | 22,34 | 20,35 | 18,86 | 18,37 | 25,80 |
| 30 x 610 | | 22,89 | 22,89 | | | | | |
| 30 x 1000 ** | | 37,2 | 37,2 | 44,0 | | 37,2 | 36,2 | |
| 32 x 300 | | 12,27 | 12,27 | 14,53 | 13,24 | 12,27 | 11,95 | 16,79 |
| 32 x 500 | | 20,06 | 20,06 | 23,76 | 21,64 | 20,06 | 19,53 | 27,50 |
| 32 x 1000 ** | | 39,5 | 39,5 | 46,8 | | 39,5 | 38,5 | |
| 35 x 1000 ** | | 43,1 | 43,1 | | | 43,1 | 41,9 | |
| 36 x 500 | | 22,46 | 22,46 | 26,60 | | 22,46 | 21,87 | |
| 40 x 300 | | 15,20 | 15,20 | 18,00 | 16,40 | 15,20 | 14,80 | 20,80 |
| 40 x 500 | | 24,85 | 24,85 | 29,4 | 26,8 | 24,85 | 24,20 | 34,00 |
| 40 x 610 | | 30,2 | 30,2 | | | | | |
| 40 x 1000 ** | | 49,0 | 49,0 | 58,0 | | 49,0 | 47,7 | |
| 45 x 500 | | | 27,8 | 33,0 | | 27,8 | | 38,1 |
| 50 x 300 | | 18,86 | 18,86 | 22,3 | 20,35 | 18,9 | 18,4 | 25,8 |
| 50 x 500 | | 30,8 | 30,8 | 36,5 | | 30,8 | 30,0 | 42,2 |
| 50 x 610 | | 37,4 | 37,4 | | | | | |
| 50 x 1000 ** | | 60,8 | 60,8 | 72,0 | | 60,8 | 59,2 | |
| 60 x 300 | + 0,5 + 5 | 23,0 | 23,0 | 27,2 | | 23,0 | 21,9 | |
| 60 x 500 | | 37,6 | 37,6 | 44,5 | | 37,6 | 36,6 | |
| 60 x 610 | | 45,6 | 45,6 | 54,0 | | 45,6 | 44,4 | |
| 60 x 1000 ** | | 74,1 | 74,1 | 87,7 | | 74,1 | 72,1 | |
| 70 x 300 | | 26,6 | 26,6 | 31,6 | | 26,6 | 25,9 | |
| 70 x 500 | | 43,6 | 43,6 | 51,6 | | 43,6 | 42,4 | |
| 70 x 610 | | 52,9 | 52,9 | 62,6 | | 52,9 | 51,5 | |
| 75 x 610 | | 56,5 | 56,5 | 66,9 | | 56,5 | 55,0 | |
| 80 x 300 | | 30,3 | 30,3 | 35,9 | | 30,3 | 29,5 | |
| 80 x 500 | | 49,6 | 49,6 | 58,7 | | 49,6 | 48,3 | |
| 90 x 300 | | 34,0 | 34,0 | 40,2 | | 34,0 | 33,1 | |
| 90 x 500 | | 55,5 | 55,5 | 65,8 | | 55,5 | 54,1 | |
| 100 x 300 | | 37,6 | 37,6 | 44,6 | | 37,6 | 36,6 | |
| 100 x 500 | | 61,5 | 61,5 | 72,9 | | 61,5 | 59,9 | |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plates



| | Tolerance to DIN (mm) | TECAMID 6 | TECAM 6 MO black | TECAMID 6 GF 30 black | TECAMID TR transparent | TECAMID 12 |
|-----------------------------------|-----------------------|-----------|------------------|-----------------------|------------------------|------------|
| DIN-Abbreviation | | PA 6 | PA 6 | PA GF 30 | PA 6 CF 20 | PA 12 |
| Density (g/cm³) | | 1,13 | 1,14 | 1,35 | 1,12 | 1,02 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 0,5 x 1000 *** | + 0,08 + 0,02 | 0,628 | | | | |
| 1 x 1000 ** | + 0,1 + 0,1 | 1,29 | | | | |
| 2 x 1000 ** | + 0,15 + 0,15 | 2,52 | | | | |
| 3 x 1000 ** | + 0,2 | 3,74 | | | | |
| 4 x 1000 ** | + 0,2 | 4,91 | | | | |
| 5 x 500 | + 0,2 | 3,18 | 3,20 | 3,79 | | 2,87 |
| 5 x 600 | + 0,5 | 3,79 | 3,83 | 4,53 | 3,76 | 3,42 |
| 5 x 1000 ** | + 0,25 + 0,25 | 6,14 | | | | |
| 6 x 500 | + 0,2 + 0,75 | 3,84 | 3,88 | 4,59 | | 3,47 |
| 6 x 1000 ** | + 0,25 + 0,25 | 7,31 | | | | |
| 8 x 500 | + 0,2 + 0,9 | 5,08 | 5,12 | 6,06 | 5,03 | 4,58 |
| 10 x 500 | | 6,26 | 6,32 | 7,48 | 6,21 | 5,65 |
| 10 x 610 | | 7,60 | | | | |
| 12 x 500 | + 0,3 + 1,5 | 7,66 | 7,73 | 9,15 | 7,59 | 6,91 |
| 12 x 610 | | 9,29 | | | | |
| 12 x 1000 ** | | 15,09 | 15,23 | | | 13,62 |
| 16 x 500 | | 10,03 | 10,12 | 11,98 | 9,94 | 9,06 |
| 16 x 1000 ** | | 19,77 | 19,95 | | | 17,85 |
| 18 x 500 | | 11,22 | 11,32 | 13,40 | 11,12 | 10,13 |
| 18 x 1000 ** | | 22,11 | 22,31 | | | 19,96 |
| 20 x 500 | | 12,41 | 12,52 | 14,82 | 12,30 | 11,20 |
| 20 x 610 | | 15,06 | | | | |
| 20 x 1000 ** | | 24,45 | 24,67 | 29,20 | | 22,07 |
| 22 x 500 | | 13,59 | 13,71 | 16,24 | 13,47 | 12,27 |
| 22 x 1000 ** | | 26,8 | 27,0 | 32,0 | | 24,18 |
| 25 x 500 | | 15,37 | 15,51 | 18,37 | 15,24 | 13,88 |
| 25 x 610 | | 18,66 | | | | |
| 25 x 1000 ** | | 30,3 | 30,6 | 36,2 | 30,0 | 27,4 |
| 27 x 500 | | 16,92 | 17,07 | 20,21 | 16,77 | 15,27 |
| 27 x 1000 ** | | 33,30 | 33,60 | 39,8 | | 30,10 |
| 30 x 300 | + 0,5 + 2,5 | 11,44 | 11,54 | 13,66 | 11,34 | 10,32 |
| 30 x 500 | | 18,70 | 18,86 | 22,34 | 18,53 | 16,88 |
| 30 x 610 | | 22,69 | | | | |
| 30 x 1000 ** | | 36,9 | 37,2 | 44,0 | | 33,3 |
| 32 x 300 | | 12,16 | 12,27 | 14,53 | 12,06 | 10,98 |
| 32 x 500 | | 19,89 | 20,06 | 23,76 | 19,71 | 17,95 |
| 32 x 1000 ** | | 39,2 | 39,5 | 46,8 | | 35,4 |
| 35 x 1000 ** | | 42,7 | 43,1 | | | 38,5 |
| 36 x 500 | | 22,26 | 22,46 | 26,6 | | 20,09 |
| 40 x 300 | | 15,07 | 15,20 | 18,00 | 14,93 | 13,60 |
| 40 x 500 | | 24,63 | 24,85 | 29,4 | 24,42 | 22,24 |
| 40 x 610 | | 29,9 | | | | |
| 40 x 1000 ** | | 48,6 | 49,0 | 58,0 | | 43,8 |
| 45 x 500 | | 27,6 | 27,8 | 33,0 | 27,4 | 24,91 |
| 50 x 300 | | 18,70 | 18,86 | 22,34 | 18,53 | 16,88 |
| 50 x 500 | | 30,6 | 30,8 | 36,5 | 30,3 | 27,6 |
| 50 x 610 | | 37,1 | | | | |
| 50 x 1000 ** | 60,2 | 60,8 | 72,0 | | 54,4 | |
| 60 x 300 | + 0,5 + 5 | 22,78 | 22,98 | 27,2 | 22,58 | 20,56 |
| 60 x 500 | | 37,2 | 37,6 | 44,5 | 36,9 | 33,6 |
| 60 x 610 | | 45,2 | 45,6 | 54,0 | | 40,8 |
| 60 x 1000 ** | | 73,4 | 74,1 | 87,7 | | 66,3 |
| 70 x 300 | | 26,4 | 26,6 | 31,6 | | 23,84 |
| 70 x 500 | | 43,2 | 43,6 | 51,6 | | 39,0 |
| 70 x 610 | | 52,4 | 52,9 | 62,6 | | 47,3 |
| 75 x 610 | | 56,0 | 56,5 | 66,9 | | 50,6 |
| 80 x 300 | | 30,0 | 30,3 | 35,9 | | 27,1 |
| 80 x 500 | | 49,1 | 49,6 | 58,7 | | 44,3 |
| 80 x 1000 ** | | 96,8 | 97,7 | | | |
| 90 x 300 | | 33,7 | 34,0 | 40,2 | | 30,4 |
| 90 x 500 | | 55,1 | 55,5 | 65,8 | | 49,7 |
| 100 x 300 | | 37,3 | 37,6 | 44,6 | | 33,7 |
| 100 x 500 | | 61,0 | 61,5 | | | 55,1 |
| 100 x 1000 ** | | 120,2 | 121,3 | | | |

** Length 2000 mm
*** Coils


Tolerances according to DIN:


length $\pm \frac{3}{0} \%$

width $\pm \frac{25}{5}$ mm

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Tubes



TECAMID 6

| DIN-Abbreviation | | PA 6 | | | | | | | | | | | | |
|------------------------------|----------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| Density (g/cm ³) | | 1,14 | | | | | | | | | | | | |
| Tolerance to DIN (mm) | | Dia- meter Ø (mm) | 18 | 20 | 22 | 25 | 30 | 32 | 35 | 36 | 40 | 45 | 50 | 54 |
| + 0,4 + 1,1 | - 0,4 - 1,1 | 25 | 0,331 | | | | | | | | | | | |
| | | 30 | | 0,521 | 0,447 | | | | | | | | | |
| + 0,6 + 2,0 | - 0,6 - 2,0 | 32 | | 0,635 | 0,562 | 0,439 | | | | | | | | |
| | | 36 | | 0,943 | 0,872 | 0,751 | | | | | | | | |
| | | 40 | | 1,23 | 1,16 | 1,04 | 0,800 | | | | | | | |
| | | 45 | | | | 1,43 | | | 0,910 | 0,850 | | | | |
| | | 50 | | | | 1,87 | 1,64 | | 1,35 | 1,29 | 1,03 | | | |
| + 2,5 + 0,8 | - 2,5 - 0,8 | 56 | | | 2,51 | 2,28 | | 2,00 | 1,94 | 1,68 | 1,31 | | | |
| | | 60 | | | 2,95 | 2,71 | 2,61 | 2,43 | 2,37 | 2,11 | | 1,32 | | |
| + 0,8 + 3 | - 0,8 - 3 | 65 | | | 3,57 | 3,34 | | 3,06 | 3,00 | 2,74 | 2,37 | 1,96 | | |
| | | 70 | | | 4,20 | 3,96 | 3,86 | 3,69 | 3,69 | 3,37 | 3,00 | 2,59 | | |
| | | 75 | | | 4,87 | 4,64 | 4,53 | 4,36 | 4,30 | 4,04 | 3,67 | 3,26 | 2,90 | |
| | | 80 | | | 5,59 | 5,36 | 5,25 | 5,08 | 5,02 | 4,76 | 4,39 | 3,98 | 3,61 | |
| + 1,2 + 3,6 | - 1,6 - 5,0 | 85 | | | | 6,27 | | 6,01 | 5,95 | 5,70 | 5,34 | 4,94 | 4,59 | |
| | | 90 | | | | 7,08 | 6,98 | 6,82 | 6,76 | 6,51 | 6,15 | 5,75 | | |
| | | 100 | | | | | 8,75 | 8,58 | 8,52 | 8,27 | 7,92 | 7,52 | 7,17 | |
| | | 110 | | | | | 10,69 | 10,53 | 10,47 | 10,22 | 9,86 | 9,46 | 9,11 | |
| + 1,5 + 4,5 | - 2 - 6,5 | 120 | | | | | | | | 12,54 | | 11,80 | | |
| | | 125 | | | | | 14,13 | 13,98 | 13,92 | 13,67 | 13,33 | 12,94 | 12,59 | |
| | | 130 | | | | | | | | 14,86 | 14,51 | 14,12 | | |
| | | 135 | | | | | | | | | | 15,34 | 15,00 | |
| | | 140 | | | | | | | | | 17,0 | 16,6 | 16,3 | |
| | | 150 | | | | | | | | | 19,7 | 19,3 | 19,0 | |
| + 1,8 + 5,4 | - 2,2 - 7,5 | 165 | | | | | | | | | | | | |
| | | 180 | | | | | | | | | | | | |
| + 2 + 6 | - 2,5 - 8,5 | 200 | | | | | | | | | | | | |
| | | 210 | | | | | | | | | | | | |
| + 3 + 9 | - 3 - 12 | 230 | | | | | | | | | | | | |
| | | 250 | | | | | | | | | | | | |
| | | 280 | | | | | | | | | | | | |
| | | 300 | | | | | | | | | | | | |
| | | | 18 | 20 | 22 | 25 | 30 | 32 | 35 | 36 | 40 | 45 | 50 | 54 |

- = Outside
- = Stock item
- = Inside
- = Non-stock item – special production

Tolerances according to DIN: length $^{+3}_0$ %.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

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| | 60 | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | Dia- meter Ø (mm) |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------|
| | | | | | | | | | | | | | | 25 |
| | | | | | | | | | | | | | | 30 |
| | | | | | | | | | | | | | | 32 |
| | | | | | | | | | | | | | | 36 |
| | | | | | | | | | | | | | | 40 |
| | | | | | | | | | | | | | | 45 |
| | | | | | | | | | | | | | | 50 |
| | | | | | | | | | | | | | | 56 |
| | | | | | | | | | | | | | | 60 |
| | | | | | | | | | | | | | | 65 |
| | | | | | | | | | | | | | | 70 |
| | | | | | | | | | | | | | | 75 |
| | 3,02 | | | | | | | | | | | | | 80 |
| | 4,00 | | | | | | | | | | | | | 85 |
| | 4,82 | 3,70 | | | | | | | | | | | | 90 |
| | 6,58 | 5,46 | 4,84 | 4,17 | | | | | | | | | | 100 |
| | 8,53 | 7,41 | 6,78 | 6,11 | 4,63 | | | | | | | | | 110 |
| | 10,88 | 9,78 | 9,16 | 8,50 | 7,04 | 5,40 | | | | | | | | 120 |
| | 12,02 | 10,92 | 10,30 | 9,64 | 8,18 | 6,53 | | | | | | | | 125 |
| | 13,20 | 12,10 | 11,48 | 10,82 | 9,36 | 7,71 | | | | | | | | 130 |
| | 14,43 | 13,33 | | 12,04 | 10,58 | 8,94 | 7,12 | | | | | | | 135 |
| | 15,70 | 14,60 | | 13,32 | 11,85 | 10,21 | 8,39 | | | | | | | 140 |
| | 18,38 | 17,28 | | 16,00 | 14,53 | 12,89 | 11,07 | 7,99 | 6,88 | | | | | 150 |
| | | | | 20,62 | 19,17 | 17,54 | 15,72 | 12,66 | 11,55 | | | | | 165 |
| | | | | 25,4 | 23,95 | 23,95 | 20,51 | 17,45 | 16,34 | 11,44 | | | | 180 |
| | | | | 32,6 | 31,2 | 29,6 | 27,8 | 24,74 | 23,64 | 18,77 | 11,66 | | | 200 |
| | | | | | | 33,4 | 31,6 | 28,5 | 27,4 | 22,55 | | | | 210 |
| | | | | | 44,3 | 42,7 | 40,9 | 37,9 | | 32,0 | | 23,48 | 16,87 | 230 |
| | | | | | 53,2 | 51,6 | 49,8 | 46,8 | | 40,9 | | 32,4 | 25,8 | 250 |
| | | | | | | 66,3 | 64,5 | 61,5 | | 55,7 | | 47,1 | 40,5 | 280 |
| | | | | | | 77,0 | 75,3 | 72,3 | | 66,4 | | 57,8 | 51,2 | 300 |
| | 60 | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | |

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 www.plastic-metal.com

Rods




| | | Tolerance to DIN (mm) | TECAST T | TECAST TM black | TECAGLIDE light-green | TECALUBE black |
|-------------------|-------------------------|-----------------------|----------|-----------------|-----------------------|----------------|
| Stock length (mm) | DIN-Abbreviation | | PA 6 G | PA 6 G | PA 6 G | PA 6 G |
| | Density (g/cm³) | | 1,15 | 1,15 | 1,13 | 1,13 |
| | Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m |
| 2000/3000 | 20 | + 0,5 | 0,406 | 0,406 | 0,399 | 0,399 |
| 2000/3000 | 25 | + 1,5 | 0,623 | 0,623 | 0,612 | 0,612 |
| 2000/3000 | 30 | + 0,5 | 0,914 | 0,914 | 0,898 | 0,898 |
| 2000/3000 | 35 | + 2,5 | 1,23 | 1,23 | 1,21 | 1,21 |
| 2000/3000 | 40 | | 1,63 | 1,63 | 1,60 | 1,60 |
| 2000/3000 | 45 | + 1 | 2,04 | 2,04 | 2,00 | 2,00 |
| 2000/3000 | 50 | + 3 | 2,49 | 2,49 | 2,45 | 2,45 |
| 2000/3000 | 56 | | 3,10 | 3,10 | 3,05 | 3,05 |
| 2000/3000 | 60 | | 3,60 | 3,60 | 3,54 | 3,54 |
| 2000 | 65 | | 4,20 | 4,20 | 4,12 | 4,12 |
| 2000 | 70 | | 4,84 | 4,84 | 4,76 | 4,76 |
| 2000 | 75 | | 5,53 | 5,53 | 5,44 | 5,44 |
| 2000 | 80 | + 1 | 6,27 | 6,27 | 6,16 | 6,16 |
| 2000 | 85 | + 4 | 7,05 | 7,05 | 6,93 | 6,93 |
| 2000 | 90 | | 7,88 | 7,88 | 7,75 | 7,75 |
| 2000 | 95 | | 8,76 | 8,76 | 8,61 | 8,61 |
| 2000 | 100 | | 9,68 | 9,68 | 9,51 | 9,51 |
| 2000 | 110 | | 11,82 | 11,82 | 11,61 | 11,61 |
| 2000 | 120 | | 13,99 | 13,99 | 13,75 | 13,75 |
| 2000 | 125 | + 1,5 | 15,15 | 15,15 | 14,89 | 14,89 |
| 2000 | 130 | + 5 | 16,36 | 16,36 | 16,07 | 16,07 |
| 2000 | 140 | | 18,90 | 18,90 | 18,58 | 18,58 |
| 2000 | 150 | | 21,64 | 21,64 | 21,26 | 21,26 |
| 2000 | 160 | | 24,93 | 24,93 | 24,50 | 24,50 |
| 2000 | 170 | + 2 | 28,1 | 28,1 | 27,6 | 27,6 |
| 2000 | 180 | + 7 | 31,4 | 31,4 | 30,8 | 30,8 |
| 2000 | 190 | | 34,9 | 34,9 | 34,2 | 34,2 |
| 2000 | 200 | | 38,5 | 38,5 | 37,9 | 37,9 |
| 2000 | 220 | | 47,1 | 47,1 | 46,2 | 46,2 |
| 2000 | 230 | + 3 | 51,3 | 51,3 | 50,4 | 50,4 |
| 2000 | 250 | + 9 | 60,4 | 60,4 | 59,3 | 59,3 |
| 1000 | 280 | | 75,4 | 75,4 | 74,0 | 74,0 |
| 1000 | 300 | | 86,3 | 86,3 | 84,8 | 84,8 |
| 1000 | 320 | | 98,8 | 98,80 | 97,1 | 97,10 |
| 1000 | 330 | | 104,9 | 104,9 | 103,1 | 103,1 |
| 1000 | 350 | + 4 | 117,7 | 117,7 | 115,7 | 115,7 |
| 1000 | 360 | + 11 | 124,4 | 124,4 | 122,3 | 122,30 |
| 1000 | 370 | | 131,3 | 131,3 | 129,0 | 129,0 |
| 1000 | 400 | | 153,0 | 153,0 | 150,3 | 150,3 |
| 1000 | 450 | + 1,5 | 192,6 | 192,6 | 189,3 | 189,3 |
| 1000 | 500 | + 13 | 237,0 | 237,0 | 232,9 | 232,9 |
| 1000 | 600 | | 342,8 | 342,8 | 336,8 | 336,80 |
| 750 | 710 | + 5 | 477,6 | 477,6 | 469,3 | 469,3 |
| 200 | 800 | + 15 | 604,4 | 604,4 | 593,9 | 593,9 |

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Other delivery lengths possible, also available ground. Larger diameters on request.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

All figures given without obligation.

On request: TECAST ST, TECAST M, TECAST L.

 = Stock item

 = Non-stock item – special production

Plastic & Metal Center, Inc.

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Tel: 949-770-8230

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Plates



| | | Tolerance to DIN (mm) | TECAST T | TECAST TM black | TECAGLIDE light-green | TECALUBE black |
|-------------------|-------------------------|-----------------------|----------|-----------------|-----------------------|----------------|
| Stock length (mm) | DIN-Abbreviation | | PA 6 G | PA 6 G | PA 6 G | PA 6 G |
| | Density (g/cm³) | | 1,15 | 1,15 | 1,13 | 1,13 |
| | Diameter (mm) | | kg/m | kg/m | kg/m | kg/m |
| 2000 | 8 x 1000 | + 1 + 1,7 | 11,13 | 11,13 | 10,94 | 10,94 |
| 2000 | 10 x 1000 | | 13,51 | 13,51 | 13,28 | 13,28 |
| 2000 | 12 x 1000 | | 15,89 | 15,89 | 15,62 | 15,62 |
| 2000 | 16 x 1000 | + 1,2 + 2,5 | 21,25 | 21,25 | 20,88 | 20,88 |
| 2000 | 20 x 1000 | | 26,0 | 26,0 | 25,6 | 25,6 |
| 2000 | 25 x 1000 | | 32,0 | 32,0 | 31,4 | 31,4 |
| 2000 | 30 x 1000 | | 37,9 | 37,9 | 37,3 | 37,3 |
| 2000 | 35 x 1000 | | 43,9 | 43,9 | 43,1 | 43,1 |
| 2000 | 40 x 1000 | + 1,5 + 3,5 | 50,6 | 50,6 | 49,7 | 49,7 |
| 2000 | 50 x 1000 | | 62,5 | 62,5 | 61,4 | 61,4 |
| 2000 | 55 x 1000 | | 68,5 | 68,5 | 67,3 | 67,3 |
| 2000 | 60 x 1000 | + 2 + 5 | 75,6 | 75,6 | 74,3 | 74,3 |
| 2000 | 65 x 1000 | | 81,6 | 81,6 | 80,1 | 80,1 |
| 2000 | 70 x 1000 | | 87,5 | 87,5 | 86,0 | 86,0 |
| 2000 | 75 x 1000 | + 2 + 6 | 94,1 | 94,1 | 92,4 | 92,4 |
| 2000 | 80 x 1000 | | 100,0 | 100,0 | 98,3 | 98,3 |
| 2000 | 90 x 1000 | | 111,9 | 111,9 | 110,0 | 110,0 |
| 2000 | 100 x 1000 | | 123,8 | 123,8 | 121,7 | 121,7 |
| 2000 | 110 x 1000 | | 135,7 | 135,7 | 133,4 | 133,4 |
| 2000 | 120 x 1000 | | 147,6 | 147,6 | 145,1 | 145,1 |
| 2000 | 130 x 1000 | | 159,5 | 159,5 | 156,8 | 156,8 |
| 350 | 160 x 700 | 137,5 | 137,5 | 135,2 | 135,2 | |
| 1200 | 200 x 650 | 159,1 | 159,1 | 156,4 | 156,4 | |

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths as mentioned above, other delivery lengths possible, also available ground.
Tolerances according to DIN: length $+ \frac{3}{0} \%$. width $+ \frac{25}{5}$ mm. All figures given without obligation. On request: TECAST ST, TECAST M, TECAST L.

= Stock item
 = Non-stock item – special production

Plates – special sizes are available in all TECAST grades.

| Thickness (mm) | Tolerance to DIN (mm) | Variable Width (mm) | Length (mm) |
|----------------|-----------------------|---------------------|-------------|
| 8 | + 1 + 1,7 | 800-1250 | |
| 10 | | 800-1250 | 2500/3000 |
| 12 | | 800-1250 | 2500/3000 |
| 16 | + 1,2 + 2,5 | 800-1250 | 2500/3000 |
| 20 | | 800-1250 | 2500/3000 |
| 25 | | 800-1250 | 2500/3000 |
| 30 | | 800-1200 | 2500/3000 |
| 35 | | 800-1200 | 3000 |

| | | | |
|-----------|----------------|----------|-----------|
| 40 | + 1,5 + 3,5 | 800-1200 | 2500/3000 |
| 45 | | 800-1200 | 3000 |
| 50 | | 800-1200 | 2500/3000 |
| 55 | | 800-1200 | 3000 |
| 60 | | + 2 + 5 | 800-1100 |

Further sizes on request.

Rods



| | Tolerance to DIN (mm) | TECARIM 1500 |
|-------------------------|-----------------------|--------------|
| DIN-Abbreviation | | PA 6 G |
| Density (g/cm³) | | 1,15 |
| Diameter Ø (mm) | | kg/m |
| 30 | + 3 + 0,2 | 0,896 |
| 40 | | 1,55 |
| 50 | | 2,39 |
| 65 | + 3 + 0,5 | 4,00 |
| 79 | + 1 - 1,5 | 5,56 |
| 100 | + 3 + 0,5 | 9,29 |
| 110 | | 11,20 |
| 150 | + 3 + 0 | 20,59 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Delivery length 850 mm. Other delivery lengths possible, also available ground. All figures given without obligation.

= Stock item
 = Non-stock item – special production.

Plates



| | Tolerance to DIN (mm) | TECARIM 1500 |
|-------------------------|-----------------------|--------------|
| DIN-Abbreviation | | PA 6 G |
| Density (g/cm³) | | 1,15 |
| Diameter (mm) | | kg/m |
| 30 x 300 | + 2 - 0 | 10,71 |
| 50 x 300 | | 17,61 |
| 60 x 300 | | 21,07 |
| 80 x 300 | + 1 - 1 | 27,6 |
| 100 x 300 | + 2 - 0 | 34,9 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Other delivery lengths possible, also available ground. All figures given without obligation.

= Stock item
 = Non-stock item – special production.

Tubes



TECAST T

| | | | PA 6 G | | | | | | | | | | | | | | | |
|------------------|----------------|----------------|------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| | | | 1,15 | | | | | | | | | | | | | | | |
| Size Length (mm) | Tolerance | | Dia-meter Ø (mm) | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | | |
| 3000 | + 1,0 + 5,0 | - 1,0 - 5,0 | 50 | 1,95 | 1,69 | 1,38 | | | | | | | | | | | | |
| 3000 | | | 60 | 2,90 | 2,84 | 2,54 | 2,18 | 1,78 | | | | | | | | | | |
| 3000 | | | 70 | 3,90 | 4,06 | 3,76 | 3,40 | 3,00 | 2,56 | 2,06 | | | | | | | | |
| 3000 | | | 80 | | | 4,70 | 4,91 | 4,51 | 4,07 | 3,58 | 3,04 | 2,45 | | | | | | |
| 3000 | | | 90 | | | 6,87 | 6,53 | 6,15 | 5,72 | 5,24 | 4,71 | 4,14 | 3,52 | 2,86 | | | | |
| 3000 | | | 100 | | | 8,30 | 8,24 | 7,86 | 7,43 | 6,95 | 6,42 | 5,85 | 5,23 | 4,57 | 3,86 | 3,10 | | |
| 3000 | | | 110 | | | | | 9,99 | 9,56 | 9,08 | 8,55 | 7,98 | 7,36 | 6,70 | 5,99 | 5,23 | | |
| 3000 | | | 120 | | | | | 11,80 | | 11,42 | 10,89 | 10,32 | 9,70 | 9,04 | 8,33 | 7,57 | | |
| 3000 | | | 130 | | | | | | 13,90 | | 13,73 | 13,21 | 12,64 | 12,02 | 11,35 | 10,64 | 9,88 | |
| 3000 | | | 140 | | | | | | | | | 15,54 | 14,88 | 14,26 | 13,60 | 12,89 | 12,13 | |
| 1000 | + 1,0 + 7,0 | - 1,0 - 5,0 | 150 | | | | | | | 19,19 | 18,62 | 18,00 | 17,34 | 16,63 | 15,87 | | | |
| 1000 | | | 160 | | | | | | | | | 21,75 | | 20,50 | | 19,07 | | |
| 1000 | | | 170 | | | | | | | | | | | 23,57 | | 22,13 | | |
| 1000 | | | 180 | | | | | | | | | | | | 27,0 | | 25,54 | |
| 1000 | | | 190 | | | | | | | | | | | | | | 28,8 | |
| | | | | | | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 |

| Size Length (mm) | Tolerance | | Dia-meter Ø (mm) | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | |
|------------------|-----------------|-----------------|------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 3000 | + 2,0 + 6,0 | - 2,5 - 8,5 | 200 | 36,9 | 36,2 | 35,3 | 34,2 | 32,9 | 31,4 | 29,8 | 28,0 | 26,0 | 23,82 | 21,46 | 18,92 | 16,19 | 13,28 | |
| 2000 | | | 220 | 44,7 | 44,0 | 43,1 | 42,0 | 40,7 | 39,3 | 37,6 | 35,8 | 33,8 | 31,6 | 29,3 | 26,7 | 24,00 | 21,09 | |
| 2000 | + 3,0 + 9,0 | - 3,0 - 12,0 | 250 | 58,8 | 58,1 | 57,3 | 56,2 | 55,0 | 53,6 | 52,0 | 50,2 | 48,2 | 46,1 | 43,8 | 41,3 | 38,6 | 35,7 | |
| 2000 | | | 280 | | 73,0 | 72,1 | 71,1 | 69,8 | 68,4 | 66,8 | 65,0 | 63,1 | 60,9 | 58,6 | 56,1 | 53,4 | 50,5 | |
| 2000 | | | 300 | | 83,8 | 82,9 | 81,9 | 80,6 | 79,2 | 77,6 | 75,8 | 73,9 | 71,7 | 69,4 | 66,9 | 64,2 | 61,3 | |
| 3000 | + 3,0 + 11,0 | - 3,5 - 14,0 | 325 | | | 98,2 | 97,1 | 95,9 | 94,5 | 93,0 | 91,2 | 89,3 | 87,1 | 84,8 | 82,3 | 79,7 | 76,8 | |
| 2000 | | | 350 | | | | 112,8 | 111,6 | 110,2 | 108,7 | 106,9 | 105,0 | 102,8 | 100,5 | 98,1 | 95,4 | 92,5 | |
| 2000 | | | 400 | | | | | 147,7 | 146,5 | 145,1 | 143,5 | 141,8 | 139,8 | 137,7 | 135,4 | 132,9 | 130,2 | 127,4 |
| 2100 | | | 450 | | | | | | 186,8 | 185,5 | 183,9 | 182,2 | 180,3 | 178,2 | 175,9 | 173,4 | 170,8 | 167,9 |
| 3550 | + 3,0 + 13,0 | - 3,5 - 16,0 | 500 | | | | | 230,9 | 229,5 | 228,0 | 226,2 | 224,3 | 222,2 | 219,9 | 217,5 | 214,8 | 212,0 | |
| 3000 | | | 550 | | | | | | 278,2 | 276,6 | 274,9 | 272,9 | 270,8 | 268,6 | 266,1 | 263,4 | 260,6 | |
| 3500 | | | 600 | | | | | | | 331,3 | 329,8 | 328,0 | 326,1 | 324,0 | 321,7 | 319,3 | 316,6 | 313,8 |
| 2200 | | | 620 | | | | | | | | | | | | | | | |
| 3500 | | | 710 | | | | | | | | | | | | | | | |
| | | | | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | |

Tolerances: length $+3_0\%$.

Tubes with an outside diameter in the range of 280 mm to 800 mm can be supplied in shorter lengths.

Please let us have your enquiries.

- = Outside
- = Stock item
- = Inside
- = Non-stock item – special production

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

On request:

TECAST T (also in blue), TECAST TM, TECAST R (also in blue), TECAST ST, TECAST M, TECAST HI, TECAST L, TECALUBE TECAGLIDE, TECAST 12.

Plastic & Metal Center, Inc.
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Fax: 949-770-8478

Email: sales@plastic-metal.com

www.plastic-metal.com

| | 95 | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 150 | 160 | 170 | 180 | Dia- meter Ø (mm) |
|--|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|------|-------------------------|
| | | | | | | | | | | | | | | | 50 |
| | | | | | | | | | | | | | | | 60 |
| | | | | | | | | | | | | | | | 70 |
| | | | | | | | | | | | | | | | 80 |
| | | | | | | | | | | | | | | | 90 |
| | | | | | | | | | | | | | | | 100 |
| | 4,43 | 3,58 | | | | | | | | | | | | | 110 |
| | 6,77 | 5,92 | 5,02 | 4,08 | | | | | | | | | | | 120 |
| | 9,08 | 8,23 | 7,33 | 6,39 | 5,40 | 4,36 | | | | | | | | | 130 |
| | 11,32 | 10,47 | 9,58 | 8,63 | 7,64 | 6,61 | 5,53 | 4,40 | | | | | | | 140 |
| | 15,07 | 14,21 | 13,32 | 12,37 | 11,38 | 10,35 | 9,27 | 8,14 | 6,96 | 5,74 | | | | | 150 |
| | | 17,45 | | 15,65 | | 13,66 | | 11,48 | | 9,12 | 6,58 | | | | 160 |
| | | 20,52 | | 18,71 | | 16,73 | | 14,55 | | 12,19 | 9,64 | 6,91 | | | 170 |
| | | 23,93 | | 22,12 | | 20,13 | | 17,96 | | 15,60 | 13,05 | 10,32 | 7,40 | | 180 |
| | | 27,2 | | 25,4 | | 23,38 | | 21,21 | | 18,85 | 16,30 | 13,57 | 10,65 | 7,55 | 190 |
| | 95 | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 150 | 160 | 170 | 180 | |

| | 180 | 190 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 | Dia- meter Ø (mm) |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------|
| | | | | | | | | | | | | | | | | 200 |
| | 17,99 | | | | | | | | | | | | | | | 220 |
| | 32,6 | 29,4 | 26,0 | | | | | | | | | | | | | 250 |
| | 47,5 | 44,2 | 40,8 | 31,5 | | | | | | | | | | | | 280 |
| | 58,3 | 55,0 | 51,6 | 42,3 | 31,8 | | | | | | | | | | | 300 |
| | 73,8 | 70,6 | 67,2 | 57,9 | 47,5 | 35,9 | | | | | | | | | | 325 |
| | 89,5 | 86,3 | 82,9 | 73,6 | 63,2 | 51,6 | 38,9 | | | | | | | | | 350 |
| | 124,4 | 121,1 | 117,7 | 108,4 | 98,0 | 86,4 | 73,7 | 59,9 | | | | | | | | 400 |
| | 164,9 | 161,7 | 158,3 | 149,1 | 138,7 | 127,2 | 114,5 | 100,7 | 85,7 | 69,7 | | | | | | 450 |
| | 209,0 | 205,8 | 202,4 | 193,1 | 182,8 | 171,2 | 158,6 | 144,8 | 129,8 | 113,7 | 96,5 | 78,1 | | | | 500 |
| | 257,6 | 254,4 | 251,0 | 241,8 | 231,4 | 219,8 | 207,2 | 193,4 | 178,4 | 162,3 | 145,1 | 126,7 | 107,2 | | | 550 |
| | 310,8 | 307,6 | 304,2 | 294,9 | 284,6 | 273,0 | 260,4 | 246,6 | 231,6 | 215,5 | 198,3 | 179,9 | 160,4 | 139,8 | 118,0 | 600 |
| | 333,3 | 330,1 | 326,7 | 317,5 | 307,1 | 295,6 | 282,9 | 269,1 | 254,2 | 238,1 | 220,8 | 202,5 | 183,0 | 162,3 | 140,5 | 620 |
| | 443,8 | 440,6 | 437,3 | 428,0 | 417,6 | 406,1 | 393,4 | 379,6 | 364,7 | 348,6 | 331,3 | 313,0 | 293,5 | 272,8 | 251,0 | 710 |
| | 180 | 190 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 | |

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 www.plastic-metal.com

TECADUR/TECAPET. The excellent dimensionally stable engineering plastic with optimum electrical insulating properties.



TECADUR
TECAPET

On exposure to heat, TECADUR shows only low thermal expansion. It exhibits very good electrical insulating properties.

- | Low thermal expansion
- | High strength and hardness with good toughness
- | Good chemical resistance to acids
- | Easily bonded and welded
- | Wear resistant and good sliding properties
- | Very good electrical insulating properties
- | Good machinability

**Contact mounting
TECADUR PBT GF 30:**

Very good electrical insulation, low water absorption.



Roller

TECADUR PET:

Good sliding friction values, good machinability.



TECADUR PET

Low thermal expansion.
Very good sliding properties.

TECADUR PET black

Good UV resistance.
Good machinability.

TECADUR PBT GF 30

Glassfibre-reinforced polyester with very high strength. High heat resistance.

TECAPET

Very good machinability.
Creep resistant and non-abrasive.

TECAPET black

Good UV resistance.
Good machinability.

TECAPET TF

High abrasion resistance.
Very good sliding and friction properties.

**Insulating flange
TECADUR PET:**

Very good electrical properties, dimensionally stable.



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USA

Tel: 949-770-8230

Fax: 949-770-8478

Email: sales@plastic-metal.com



www.plastic-metal.com

Rods



| | Tolerance to DIN (mm) | TECADUR PET | TECADUR PET black | TECADUR PBT GF 30 * | TECAPET | TECAPET black | TECAPET TF |
|-----------------------------------|-----------------------|-------------|-------------------|---------------------|---------|---------------|------------|
| DIN-Abbreviation | | PET | PET | PBT GF 30 | PET | PET | PET |
| Density (g/cm³) | | 1,37 | 1,37 | 1,53 | 1,37 | 1,37 | 1,44 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,019 | 0,019 | 0,022 | 0,019 | 0,019 | 0,020 |
| 5 | + 0,1 | 0,030 | 0,030 | 0,034 | 0,030 | 0,030 | 0,032 |
| 6 | + 0,4 | 0,043 | 0,043 | 0,048 | 0,043 | 0,043 | 0,045 |
| 8 | | 0,076 | 0,076 | 0,084 | 0,076 | 0,076 | 0,079 |
| 9 | + 0,1 | 0,095 | 0,095 | 0,106 | 0,095 | 0,095 | 0,100 |
| 10 | + 0,5 | 0,116 | 0,116 | 0,130 | 0,116 | 0,116 | 0,122 |
| 11 | | 0,144 | 0,144 | 0,161 | 0,144 | 0,144 | 0,151 |
| 12 | | 0,170 | 0,170 | 0,190 | 0,170 | 0,170 | 0,179 |
| 13 | | 0,199 | 0,199 | 0,222 | 0,199 | 0,199 | 0,209 |
| 14 | | 0,229 | 0,229 | | 0,229 | 0,229 | 0,241 |
| 15 | + 0,2 | 0,262 | 0,262 | 0,293 | 0,262 | 0,262 | 0,275 |
| 16 | + 0,7 | 0,297 | 0,297 | 0,332 | 0,297 | 0,297 | 0,312 |
| 18 | | 0,374 | 0,374 | 0,417 | 0,374 | 0,374 | 0,393 |
| 19 | | 0,415 | 0,415 | | 0,415 | 0,415 | 0,436 |
| 20 | | 0,459 | 0,459 | 0,513 | 0,459 | 0,459 | 0,482 |
| 22 | | 0,558 | 0,558 | 0,623 | 0,558 | 0,558 | 0,587 |
| 25 | + 0,2 | 0,716 | 0,716 | 0,800 | 0,716 | 0,716 | 0,753 |
| 28 | + 0,9 | 0,895 | 0,90 | | 0,895 | 0,895 | 0,940 |
| 30 | | 1,02 | 1,02 | 1,14 | 1,02 | 1,02 | 1,08 |
| 32 | | 1,17 | 1,17 | 1,31 | 1,17 | 1,17 | 1,23 |
| 36 | + 0,2 | 1,47 | 1,47 | 1,65 | 1,47 | 1,47 | 1,55 |
| 40 | + 1,1 | 1,81 | 1,81 | 2,03 | 1,81 | 1,81 | 1,91 |
| 45 | | 2,30 | 2,30 | 2,57 | 2,30 | 2,30 | 2,42 |
| 50 | + 0,3 | 2,83 | 2,83 | 3,16 | 2,83 | 2,83 | 2,98 |
| 56 | + 1,3 | 3,54 | 3,54 | 3,95 | 3,54 | 3,54 | 3,72 |
| 60 | | 4,08 | 4,08 | 4,55 | 4,08 | 4,08 | 4,29 |
| 65 | + 0,3 | 4,77 | 4,77 | 5,33 | 4,77 | 4,77 | 5,02 |
| 70 | + 1,6 | 5,52 | 5,52 | 6,17 | 5,52 | 5,52 | 5,81 |
| 75 | + 0,4 | 6,37 | 6,37 | 7,12 | 6,37 | 6,37 | 6,70 |
| 80 | + 2 | 7,24 | 7,24 | 8,08 | 7,24 | 7,24 | 7,61 |
| 90 | + 0,5 + 2,2 | 9,16 | 9,16 | 10,2 | 9,16 | 9,16 | 9,63 |
| 100 | + 0,6 + 2,5 | 11,32 | 11,32 | 12,6 | 11,32 | 11,32 | 11,90 |
| 110 | + 0,7 + 3 | 13,73 | 13,73 | | 13,73 | 13,73 | 14,43 |
| 120 | + 0,8 | 16,38 | 16,38 | | 16,38 | 16,38 | 17,21 |
| 125 | + 3,5 | 17,74 | 17,74 | | 17,74 | 17,74 | 18,65 |
| 130 | | 19,22 | 19,22 | | 19,22 | 19,22 | 20,21 |
| 135 | + 0,9 | 20,70 | 20,70 | | 20,70 | 20,70 | 21,76 |
| 140 | + 3,8 | 22,24 | 22,24 | | 22,24 | 22,24 | 23,38 |
| 150 | + 1 | 25,6 | 25,6 | | 25,6 | 25,6 | |
| 165 | + 4,2 | 30,8 | 30,8 | | 30,8 | 30,8 | 32,4 |
| 180 | + 1,2 + 5 | 36,8 | 36,8 | | 36,8 | 36,8 | 38,7 |
| 200 | + 1,3 + 5,5 | 45,4 | 45,4 | | 45,4 | 45,4 | 47,7 |

*From 110 mm diameter, 20% glass fibre content.
 Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground.
 All figures given without obligation.

-  = Stock item
-  = Non-stock item – special production

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TECADUR
TECAPET

Tubes



TECADUR PET

| DIN-Abbreviation | | PET | | | | | | | | | | | | |
|------------------------------|--------------|-----------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|--|
| Density (g/cm ³) | | 1,37 | | | | | | | | | | | | |
| Tolerance to DIN (mm) | | Dia- meter Ø mm | 18 | 20 | 25 | 30 | 32 | 36 | 40 | 45 | 50 | 54 | 60 | |
| +1,1 +0,4 | -0,4 | 25 | | | | | | | | | | | | |
| | -1,1 | 30 | | | | | | | | | | | | |
| +2,0 +0,6 | -0,6 -2,0 | 36 | 0,39 | | | | | | | | | | | |
| | | 40 | | 0,62 | | | | | | | | | | |
| | | 45 | | 1,12 | 0,89 | | | | | | | | | |
| +2,5 +0,8 | -0,8 -2,5 | 50 | | | 1,23 | 0,95 | | | | | | | | |
| | | 56 | | | 1,70 | | | 1,01 | | | | | | |
| +3,0 +0,8 | -0,8 -3,0 | 60 | | | 2,23 | 1,95 | | | 1,54 | | | | | |
| | | 65 | | | 2,99 | 2,71 | | 2,31 | 1,99 | 1,55 | | | | |
| | | 70 | | | 3,50 | 3,22 | 3,10 | 2,82 | 2,51 | | | | | |
| +3,6 +1,2 | -1,6 -5,0 | 75 | | | 4,24 | 3,97 | | 3,56 | 3,25 | 2,82 | | | | |
| | | 80 | | | 4,99 | 4,71 | 4,59 | 4,31 | 4,00 | 3,56 | 3,07 | | | |
| | | 85 | | | 5,79 | 5,51 | 5,39 | 5,11 | 4,80 | 4,36 | 3,87 | 3,44 | | |
| | | 90 | | | 6,64 | 6,37 | 6,24 | 5,97 | 5,66 | 5,22 | 4,73 | 4,30 | 3,59 | |
| +4,5 +1,5 | -2,0 -6,5 | 100 | | | | | | 7,07 | 6,77 | 6,35 | 5,87 | 5,45 | 4,76 | |
| | | 110 | | | | | 8,30 | 8,04 | | 7,32 | 6,84 | | 5,73 | |
| | | 120 | | | | | | 10,13 | 9,83 | 9,41 | 8,94 | 8,52 | 7,82 | |
| | | 125 | | | | | | | 12,14 | 11,72 | 11,25 | 10,83 | 10,13 | |
| | | 130 | | | | | | | 14,90 | | 14,03 | | 12,93 | |
| | | 135 | | | | | | | | | 15,38 | 14,97 | 14,28 | |
| +5,4 +1,8 | -2,2 -7,5 | 140 | | | | | | | | 16,78 | | 15,69 | | |
| | | 145 | | | | | | | | 18,24 | 17,83 | 17,15 | | |
| | | 150 | | | | | | | | | 19,75 | 19,34 | 18,66 | |
| +6,0 +2,0 | -2,5 -8,5 | 165 | | | | | | | | 22,94 | 22,52 | 21,84 | | |
| | | 180 | | | | | | | | | | | | |
| +9,0 +1,8 | -3 -12,0 | 200 | | | | | | | | | | | | |
| | | 210 | | | | | | | | | | | | |
| | | 230 | | | | | | | | | | | | |
| | | 250 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | 18 | 20 | 25 | 30 | 32 | 36 | 40 | 45 | 50 | 54 | 60 | |

- = Outside
- = Stock item
- = Inside
- = Non-stock item – special production

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

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TECADUR
TECAPET

| | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 200 | Diameter Ø mm |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| | | | | | | | | | | | | 25 |
| | | | | | | | | | | | | 30 |
| | | | | | | | | | | | | 36 |
| | | | | | | | | | | | | 40 |
| | | | | | | | | | | | | 45 |
| | | | | | | | | | | | | 50 |
| | | | | | | | | | | | | 56 |
| | | | | | | | | | | | | 60 |
| | | | | | | | | | | | | 65 |
| | | | | | | | | | | | | 70 |
| | | | | | | | | | | | | 75 |
| | | | | | | | | | | | | 80 |
| | | | | | | | | | | | | 85 |
| | 4,40 | | | | | | | | | | | 90 |
| | 6,50 | 5,75 | 4,95 | | | | | | | | | 100 |
| | 8,81 | 8,06 | 7,26 | 5,51 | | | | | | | | 110 |
| | 11,63 | 10,89 | 10,10 | 8,37 | 6,41 | | | | | | | 120 |
| | 12,98 | 12,24 | 11,45 | 9,72 | 7,76 | | | | | | | 125 |
| | 14,38 | 13,65 | 12,86 | 11,12 | 9,17 | | | | | | | 130 |
| | 15,84 | | 14,32 | 12,58 | 10,63 | 8,46 | | | | | | 135 |
| | 17,35 | | 15,83 | 14,09 | 12,14 | 9,97 | | | | | | 140 |
| | 20,54 | | 19,01 | 17,28 | 15,32 | 13,16 | 9,50 | 8,17 | | | | 150 |
| | | | 24,51 | 22,78 | 20,84 | 18,69 | 15,05 | 13,73 | | | | 165 |
| | | | 30,19 | 28,47 | 26,53 | 24,37 | 20,74 | 19,42 | 13,60 | | | 180 |
| | | | 38,81 | 37,10 | 35,17 | 33,03 | 29,41 | 28,10 | 22,31 | 13,87 | | 200 |
| | | | | 41,59 | 39,67 | 37,53 | 33,91 | 32,60 | | | | 210 |
| | | | | | 50,72 | 48,62 | | 43,78 | | 29,74 | 20,06 | 230 |
| | | | | | 61,31 | 59,21 | | 54,37 | | 40,33 | 30,64 | 250 |
| | | | | | | | | | | | 48,14 | 280 |
| | | | | | | | | | | | 60,88 | 300 |
| | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 200 | |

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Plates



| | Tolerance to DIN (mm) | TECADUR PET | TECADUR PET black | TECADUR PBT GF 30 | TECAPET | TECAPET black | TECAPET TF | |
|-----------------------------------|-----------------------|----------------|-------------------|-------------------|---------|---------------|------------|-------|
| DIN-Abbreviation | | PET | PET | PBT GF 30 | PET | PET | PET | |
| Density (g/cm³) | | 1,37 | 1,37 | 1,53 | 1,37 | 1,37 | 1,44 | |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | |
| 4 x 1000 ** | - 0,2 + 0,2 | 5,67 | | | | | | |
| 5 x 500 | + 0,2 + 0,5 | 3,85 | 3,85 | 4,30 | 3,85 | 3,85 | 4,05 | |
| 6 x 500 | + 0,2 + 0,75 | 4,66 | 4,66 | 5,20 | 4,66 | 4,66 | 4,90 | |
| 8 x 500 | + 0,2 + 0,9 | 6,15 | 6,15 | 6,87 | 6,15 | 6,15 | 6,47 | |
| 10 x 500 | | 7,59 | 7,59 | 8,48 | 7,59 | 7,59 | 7,98 | |
| 10 x 610 | | 9,21 | | | 9,21 | | | |
| 12 x 500 | + 0,3 + 1,5 | 9,28 | 9,28 | 10,37 | 9,28 | 9,28 | 9,76 | |
| 12 x 610 | | 11,27 | | | 11,27 | | 11,84 | |
| 15 x 500 | | 11,44 | 11,44 | | 11,44 | 11,44 | 12,03 | |
| 15 x 610 | | 13,89 | | | 13,89 | | | |
| 16 x 500 | | 12,16 | 12,16 | 13,58 | 12,16 | 12,16 | 12,78 | |
| 18 x 500 | | 13,60 | 13,60 | 15,19 | 13,60 | 13,60 | 14,30 | |
| 20 x 500 | | 15,04 | 15,04 | 16,80 | 15,04 | 15,04 | 15,81 | |
| 20 x 610 | | 18,25 | | | 18,25 | | | |
| 20 x 1000 ** | | 29,60 | 29,60 | | 29,60 | 29,60 | | |
| 22 x 500 | | 16,48 | 16,48 | 18,40 | 16,48 | 16,48 | 17,32 | |
| 25 x 500 | | 18,64 | 18,64 | 20,82 | 18,64 | 18,64 | 19,59 | |
| 25 x 610 | | 22,62 | | | 22,62 | | | |
| 25 x 1000 ** | | 36,70 | 36,70 | | 36,70 | 36,70 | | |
| 27 x 500 | | + 0,5 + 2,5 | 20,51 | 20,51 | 22,91 | 20,51 | 20,51 | 21,56 |
| 30 x 500 | | | 22,67 | 22,67 | 25,3 | 22,67 | 22,67 | 23,83 |
| 30 x 610 | 27,5 | | | | 27,5 | | | |
| 30 x 1000 ** | 44,7 | | 44,7 | | 44,7 | 44,7 | | |
| 32 x 500 | 24,11 | | 24,11 | 26,9 | 24,11 | 24,11 | 25,30 | |
| 36 x 500 | 27,0 | | 27,0 | | 27,0 | 27,0 | | |
| 40 x 500 | 29,9 | | 29,9 | 33,4 | 29,9 | 29,9 | 31,4 | |
| 40 x 610 | 36,2 | | | | 36,2 | | | |
| 40 x 1000 ** | 58,9 | | 58,9 | | 58,9 | 58,9 | | |
| 45 x 500 | 33,5 | | 33,5 | 37,4 | 33,5 | 33,5 | 35,2 | |
| 50 x 300 | 22,67 | | 22,67 | 25,3 | 22,67 | 22,67 | 23,8 | |
| 50 x 500 | 37,1 | | 37,1 | 41,4 | 37,1 | 37,1 | 39,0 | |
| 50 x 610 | 45,0 | | | | 45,0 | | | |
| 60 x 300 | + 0,5 + 5 | | 27,6 | 27,6 | 30,8 | 27,6 | 27,6 | 29,0 |
| 60 x 500 | | | 45,2 | 45,2 | 50,4 | 45,2 | 45,2 | 47,5 |
| 70 x 300 | | 32,0 | 32,0 | 35,8 | 32,0 | 32,0 | 33,7 | |
| 70 x 500 | | 52,4 | 52,4 | 58,5 | 52,4 | 52,4 | 55,0 | |
| 80 x 300 | | 36,4 | 36,4 | 40,7 | 36,4 | 36,4 | 38,3 | |
| 80 x 500 | | 59,6 | 59,6 | 66,5 | 59,6 | 59,6 | 62,6 | |
| 90 x 300 | | 40,8 | 40,8 | 45,6 | 40,8 | 40,8 | 42,9 | |
| 100 x 300 | | 45,2 | 45,2 | 50,5 | 45,2 | 45,2 | 47,5 | |
| 100 x 500 | | 73,9 | 73,9 | | 73,9 | | 77,7 | |


**Length 2000 mm

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

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TECANAT.

The transparent, dimensionally stable engineering plastic.



Extremely tough plastic with outstanding electrical insulation.

TECANAT can be bonded and welded during further processing.

- I Extremely tough
- I Transparent
- I Weldable and bondable
- I Good electrical insulating properties

TECANAT transparent

Extremely tough and transparent.
High operating temperature.

TECANAT GF 30

Glassfibre-reinforced polycarbonate with very high strength. Low water absorption.

Liquid media container TECANAT PC:

Safe for use with foodstuffs, dimensionally stable, low water absorption.



Distributor block TECANAT PC:

High purity, extremely tough, dimensionally precise.



Surface plug TECANAT PC:

Transparent, low water absorption.





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Rods



| | Tolerance to DIN (mm) | TECANAT transparent | TECANAT GF 30 * |
|-----------------------------------|-----------------------|---------------------|-----------------|
| DIN-Abbreviation | | PC | PC GF 30 |
| Density (g/cm³) | | 1,20 | 1,42 |
| Diameter Ø (mm) | | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,017 | 0,020 |
| 5 | + 0,1 | 0,026 | 0,031 |
| 6 | + 0,4 | 0,038 | 0,044 |
| 8 | | 0,066 | 0,078 |
| 9 | + 0,1 | 0,083 | 0,098 |
| 10 | + 0,5 | 0,102 | 0,121 |
| 11 | | 0,128 | 0,152 |
| 12 | | 0,151 | 0,179 |
| 13 | | 0,176 | 0,209 |
| 14 | | 0,204 | 0,241 |
| 15 | + 0,2 | 0,232 | 0,275 |
| 16 | + 0,9 | 0,263 | 0,312 |
| 18 | | 0,331 | 0,391 |
| 19 | | 0,367 | 0,435 |
| 20 | | 0,406 | 0,480 |
| 22 | | 0,495 | 0,586 |
| 25 | | 0,635 | 0,751 |
| 28 | + 0,2 | 0,792 | 0,937 |
| 30 | + 1,2 | 0,906 | 1,07 |
| 32 | | 1,03 | 1,22 |
| 36 | + 0,2 | 1,31 | 1,55 |
| 40 | + 1,6 | 1,60 | 1,90 |
| 45 | | 2,05 | 2,42 |
| 50 | + 0,2 | 2,52 | 2,98 |
| 56 | + 1,5 | 3,14 | 3,72 |
| 60 | | 3,62 | 4,29 |
| 65 | + 0,3 | 4,24 | |
| 70 | + 2,5 | 4,90 | 5,80 |
| 75 | + 0,4 | 5,66 | 6,69 |
| 80 | + 3 | 6,42 | 7,59 |
| 90 | + 0,5 + 3,4 | 8,13 | 9,62 |
| 100 | + 0,6 + 3,8 | 10,04 | 11,88 |
| 110 | + 0,7 + 4,2 | 12,16 | 14,38 |
| 120 | | 14,47 | |
| 125 | + 0,8 + 4,6 | 15,68 | 18,55 |
| 135 | + 0,9 | 18,35 | 21,71 |
| 140 | + 5,4 | 19,70 | 23,31 |
| 150 | + 1 + 5,8 | 22,6 | 26,8 |
| 165 | + 1,2 | 27,6 | 32,6 |
| 180 | + 7,4 | 32,7 | 38,6 |
| 200 | + 1,3 + 8,5 | 40,4 | |
| 210 | | 43,63 | |
| 230 | + 1,3 | 52,11 | |
| 250 | + 9 | 61,36 | |

*From 110 mm diameter, 20% glass fibre content.
Tolerances according to DIN: length $+ \frac{3}{0} \%$.
The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground.
All figures given without obligation.



-  = Stock item
 = Non-stock item – special production

Plates

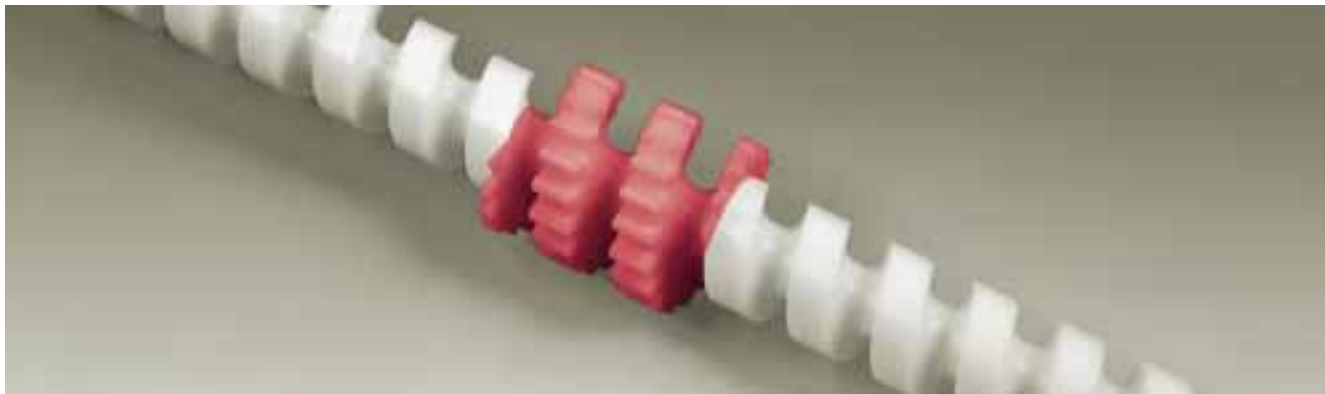


| | Tolerance to DIN (mm) | TECANAT | TECANAT GF 30 |
|-----------------------------------|-----------------------|---------|---------------|
| DIN-Abbreviation | | PC | PC GF 30 |
| Density (g/cm³) | | 1,20 | 1,42 |
| Diameter (mm) | | kg/m | kg/m |
| 1 x 1200 ** | + 0,1 + 0,1 | 1,64 | |
| 2 x 1250 ** | -0,15 + 0,15 | 3,10 | |
| 3 x 1250 ** | + 0,2 | 4,95 | |
| 4 x 1250 ** | + 0,2 | 6,50 | |
| 5 x 300 | | | 2,49 |
| 5 x 500 | | 3,44 | 4,07 |
| 5 x 1250 | + 0,2 | 8,44 | |
| 6 x 300 | + 0,7 | | 2,94 |
| 6 x 500 | | 4,07 | 4,81 |
| 6 x 1250 | | 9,99 | |
| 8 x 300 | | 3,30 | 3,90 |
| 8 x 500 | | 5,39 | 6,38 |
| 8 x 1250 | + 0,2 | 13,24 | |
| 10 x 300 | + 0,9 | 4,07 | 4,81 |
| 10 x 500 | | 6,65 | 7,87 |
| 12 x 300 | | 4,97 | 5,89 |
| 12 x 500 | | 8,13 | 9,62 |
| 16 x 300 | | | 7,71 |
| 16 x 500 | | 10,65 | 12,61 |
| 18 x 500 | | 11,91 | 14,10 |
| 20 x 300 | + 0,3 | 8,06 | 9,54 |
| 20 x 500 | + 1,5 | 13,17 | 15,59 |
| 22 x 300 | | 8,83 | 10,45 |
| 22 x 500 | | 14,44 | 17,08 |
| 25 x 300 | | 9,99 | 11,82 |
| 25 x 500 | | 16,33 | 19,32 |
| 27 x 300 | | 10,99 | 13,00 |
| 27 x 500 | | 17,97 | 21,26 |
| 30 x 300 | | 12,15 | 14,37 |
| 30 x 500 | | 19,86 | 23,50 |
| 32 x 300 | | 12,92 | 15,28 |
| 32 x 500 | + 0,5 | 21,12 | 25,0 |
| 36 x 500 | + 2,5 | 23,64 | 28,0 |
| 40 x 300 | | 16,00 | 18,93 |
| 40 x 500 | | 26,2 | 31,0 |
| 45 x 500 | | 29,3 | 34,7 |
| 50 x 300 | | 19,86 | 23,5 |
| 50 x 500 | | 32,5 | 38,4 |
| 60 x 300 | + 0,5 | 23,90 | 28,3 |
| 60 x 500 | + 3,5 | 39,1 | 46,2 |
| 70 x 300 | | 28,0 | 33,2 |
| 70 x 500 | | 45,9 | 54,3 |
| 80 x 300 | | 31,9 | 37,8 |
| 80 x 500 | + 0,5 | 52,2 | 61,7 |
| 90 x 300 | + 5 | 34,9 | 42,3 |
| 90 x 500 | | 58,5 | |
| 100 x 300 | | 39,6 | 46,9 |
| 100 x 500 | | 64,8 | |

**Length 2000 mm
Tolerances according to DIN: length $+ \frac{3}{0} \%$.
width $+ \frac{25}{5} \text{ mm}$.
The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned.
All figures given without obligation.

-  = Stock item
 = Non-stock item – special production

TECAFLON. Chemically resistant high-temperature fluorine plastic with good UV stability.



TECAFLON is characterised by an exceptionally high resistance to chemicals. Very good sliding properties and electrical insulation, even for high-frequency applications, determine its broad fields of use.

- I Exceptionally high resistance to chemicals
- I High resistance to stress cracking
- I Suitable for use even at low temperatures
- I Very good sliding properties (no slip-stick effect with PTFE)
- I Outstanding electrical insulation, even for high-frequency applications
- I Very good UV resistance
- I Inherently self-extinguishing

TECAFLON PTFE

Exceptionally high resistance to chemicals. Very good sliding friction properties.

TECAFLON PTFE GF 25

Glassfibre-reinforced semi-finished product with enhanced strength. Good machinability.

TECAFLON ETFE

Low moisture absorption. High operating temperature.

TECAFLON PVDF

Good chemical resistance and enhanced strength. Very good weldability.

On request:

TECAFLON PVDF CF 8

Very good chemical resistance. Good sliding and friction properties. Very wear resistant

**Fixing flange
TECAFLON PVDF:**

Very good chemical resistance, UV-resistant, high compressive strength.



**Pump cover
TECAFLON PVDF:**

Good ultrasonic weldability, elastic properties.



**Funnel
TECAFLON PVDF:**

Good machinability, good resilience.



TECAFLON

Rods



| | Tolerance (mm) | TECAFLON PTFE * |
|-----------------------------------|----------------|-----------------|
| DIN-Abbreviation | | PTFE |
| Density (g/cm³) | | 2,18 |
| Diameter Ø (mm) | | kg/m |
| 4 | + 0,3 | 0,030 |
| 5 | + 0,0 | 0,046 |
| 6 | | 0,067 |
| 8 | + 0,4 | 0,117 |
| 9 | + 0,0 | 0,148 |
| 10 | | 0,182 |
| 11 | | 0,227 |
| 12 | | 0,269 |
| 13 | | 0,314 |
| 14 | | 0,362 |
| 15 | + 0,8 | 0,414 |
| 16 | + 0,0 | 0,470 |
| 18 | | 0,591 |
| 19 | | 0,657 |
| 20 | | 0,727 |
| 22 | | 0,892 |
| 25 | + 1,2 | 1,140 |
| 28 | + 0,0 | 1,430 |
| 30 | | 1,640 |
| 32 | | 1,88 |
| 35 | + 1,6 | 2,24 |
| 40 | + 0,0 | 2,91 |
| 45 | + 2,0 | 3,70 |
| 50 | + 0,0 | 4,54 |
| 56 | + 2,4 | 5,71 |
| 60 | + 0,0 | 6,54 |
| 65 | | 7,75 |
| 70 | + 3,2 | 8,95 |
| 75 | + 0,0 | 10,25 |
| 80 | | 11,63 |
| 90 | + 4,0 | 14,78 |
| 100 | + 0,0 | 18,17 |
| 110 | + 5,0 | 22,10 |
| 120 | + 0,0 | 26,2 |

* also available with glass fibres GF 25% oder CF 25%.

** Tolerance based on GKV according to manufacturer's specifications. Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. All figures given without obligation.

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Rods





| | Tolerance to DIN (mm) | TECAFLON PVDF | TECAFLON ETFE |
|-----------------------------------|-----------------------|---------------|---------------|
| DIN-Abbreviation | | PVDF | ETFE |
| Density (g/cm³) | | 1,78 | 1,70 |
| Diameter Ø (mm) | | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,025 | 0,024 |
| 5 | + 0,1 | 0,039 | 0,038 |
| 6 | + 0,4 | 0,056 | 0,054 |
| 8 | | 0,098 | 0,095 |
| 9 | + 0,1 | 0,123 | 0,120 |
| 10 | + 0,5 | 0,151 | 0,147 |
| 11 | | 0,187 | 0,182 |
| 12 | | 0,221 | 0,215 |
| 13 | | 0,258 | 0,251 |
| 14 | | 0,298 | 0,289 |
| 15 | + 0,2 | 0,340 | 0,331 |
| 16 | + 0,7 | 0,386 | 0,375 |
| 18 | | 0,485 | 0,472 |
| 19 | | 0,539 | 0,524 |
| 20 | | 0,596 | 0,580 |
| 22 | | 0,725 | 0,705 |
| 25 | + 0,2 | 0,931 | 0,905 |
| 28 | + 0,9 | 1,16 | 1,13 |
| 30 | | 1,33 | 1,29 |
| 32 | | 1,52 | 1,48 |
| 36 | + 0,2 | 1,92 | 1,86 |
| 40 | + 1,1 | 2,36 | 2,29 |
| 45 | | 2,99 | 2,91 |
| 50 | + 0,3 | 3,68 | 3,58 |
| 56 | + 1,3 | 4,60 | 4,47 |
| 60 | | 5,30 | 5,15 |
| 65 | + 0,3 | | 6,03 |
| 70 | + 1,6 | 7,18 | 6,98 |
| 75 | | 8,28 | 8,05 |
| 80 | + 2,0 | 9,40 | 9,14 |
| 90 | + 0,5 + 2,2 | 11,90 | 11,56 |
| 100 | + 0,6 + 2,5 | 14,70 | 14,29 |
| 110 | + 0,7 + 3,0 | 17,84 | 17,34 |
| 120 | + 0,8 | 21,28 | 20,68 |
| 125 | + 3,5 | 23,05 | 22,41 |
| 135 | + 0,9 | 26,9 | 26,1 |
| 140 | + 3,8 | 28,9 | 28,1 |
| 150 | + 1,0 + 4,2 | 33,2 | 32,3 |
| 165 | + 1,2 | 40,3 | |
| 180 | + 5,0 | 47,8 | |
| 200 | + 1,3 + 5,5 | 59,0 | |
| 210 | + 1,3 + 5,8 | 65,0 | |
| 230 | + 1,5 + 6,2 | 78,0 | |
| 250 | + 1,5 | 92,0 | |
| 280 | + 6,5 | 115,0 | |
| 300 | + 1,5 + 7 | 132,0 | |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plates



| | Tolerance (mm) | TECAFLO PTFE *** |
|-----------------------------------|----------------|------------------------|
| DIN-Abbreviation | | PTFE |
| Density (g/cm³) | | 2,18 |
| Diameter (mm) | | kg/m |
| 1 x 1000 ** | + 1 | 2,50 |
| 2 x 1000 ** | | 5,00 |
| 3 x 1000 ** | | 7,60 |
| 4 x 1000 ** | | 9,90 |
| 5 x 1000 ** | | 12,00 |
| 6 x 1000 ** | | 14,40 |
| 8 x 1000 ** | + 1,2 | 19,30 |
| 10 x 1000 ** | + 1,5 | 24,10 |
| 12 x 1000 ** | + 15 % | 28,90 |
| 15 x 1000 ** | | 36,50 |
| 20 x 1000 ** | | 47,50 |
| 25 x 1000 ** | | 59,40 |
| 30 x 1000 ** | | 71,30 |
| 40 x 1000 ** | | 95,00 |
| 50 x 1000 ** | | 118,70 |
| 60 x 1000 ** | | 142,50 |
| 70 x 1000 ** | | 168,20 |
| 80 x 600 * | | 116,17 |
| 90 x 600 * | | 130,67 |
| 100 x 600 * | | 145,17 |
| 110 x 600 * | | 159,67 |
| 120 x 600 * | | 174,17 |
| 130 x 600 * | | 189,17 |
| 140 x 600 * | 203,17 | |
| 150 x 600 * | 215,67 | |

**Length 600 mm

*Length 1000 mm, other delivery lengths and width possible, also available planed.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given.

***also available 30% glass fibre content.

All figures given without obligation.

Plates




| | Tolerance to DIN (mm) | TECAFLO PVDF |
|-----------------------------------|-----------------------|-----------------|
| DIN-Abbreviation | | PVDF |
| Density (g/cm³) | | 1,78 |
| Diameter (mm) | | kg/m |
| 5 x 300 | + 0,2 | 3,06 |
| 5 x 500 | + 0,5 | 5,00 |
| 6 x 300 | + 0,2 | 3,70 |
| 6 x 500 | + 0,75 | 6,05 |
| 8 x 300 | + 0,2 + 0,9 | 4,89 |
| 8 x 500 | | 7,99 |
| 10 x 300 | | 6,03 |
| 10 x 500 | | 9,86 |
| 12 x 300 | + 0,3 + 1,5 | 7,38 |
| 12 x 500 | | 12,06 |
| 15 x 500 | | 14,87 |
| 15 x 1000 ** | | 29,3 |
| 16 x 300 | | 9,67 |
| 16 x 500 | | 15,80 |
| 18 x 500 | | 17,67 |
| 20 x 300 | | 11,95 |
| 20 x 500 | | 19,54 |
| 20 x 1000 ** | | 38,5 |
| 22 x 300 | | 13,10 |
| 22 x 500 | | 21,41 |
| 25 x 300 | | 14,81 |
| 25 x 500 | | 24,22 |
| 25 x 1000 ** | | 47,7 |
| 27 x 300 | + 0,3 + 2,5 | 16,24 |
| 27 x 500 | | 26,6 |
| 30 x 300 | | 17,96 |
| 30 x 500 | | 29,4 |
| 30 x 1000 ** | | 57,9 |
| 32 x 300 | | 19,10 |
| 32 x 500 | | 31,2 |
| 36 x 500 | | 35,0 |
| 40 x 300 | | 23,68 |
| 40 x 500 | | 38,7 |
| 45 x 500 | 43,4 | |
| 50 x 300 | 29,4 | |
| 50 x 500 | 48,1 | |
| 60 x 300 | + 0,5 | 35,5 |
| 60 x 500 | + 3,5 | 58,0 |
| 70 x 300 | + 0,5 + 5 | 41,6 |
| 70 x 500 | | 68,0 |
| 80 x 300 | | 47,3 |
| 80 x 500 | | 77,4 |
| 90 x 300 | | 53,0 |
| 90 x 500 | | 86,7 |
| 100 x 300 | | 58,8 |
| 100 x 500 | | 96,1 |


** Length 2000 mm

Tolerances according to DIN: length $+ \frac{3}{0}$ %.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plastic & Metal Center, Inc.

23162 La Cadena Drive

Laguna Hills, CA 92653

USA

Tel: 949-770-8230

Fax: 949-770-8478

Email: sales@plastic-metal.com

www.plastic-metal.com

TECASON/TECAPEI. Hydrolysis-resistant high-temperature plastics resistant even to high-energy radiation.



Medical technology benefits in particular from the outstanding properties of TECASON. It has a high strength, hardness and rigidity over a wide range of temperatures.

- | Continuous operating temperature up to 160° C
- | High hardness, strength and rigidity over a wide range of temperatures
- | Outstanding thermal stability and creep resistance
- | Hydrolysis-resistant
- | Good electrical insulating properties
- | Inherently self-extinguishing
- | High frequency-resistant
- | Transparent, translucent
- | Good weldability

TECASON E

Good electrical insulating properties. Translucent, hydrolysis-resistant semi-finished product.

TECASON P MT black

Autoclavable material with approvals for use in medical technology. High thermal stability.

TECASON S

High frequency-resistant plastic. Translucent plastic safe for use with foodstuffs.

TECAPEI

Continuous operating temperature up to 170 °C. High frequency-resistant. FDA conformity.

TECAPEI GF 30

High thermal mechanical resistance. Resistant to high energy radiation.

Cap TECASON S:

Low water absorption, resistance to microwaves, safe for use with foodstuffs.



Mounting arch TECASON S:

Transparent to X-rays, approvals for use in medical technology, dimensionally stable.



Valve plunger TECASON E:

Translucent, dimensionally stable, safe for use with foodstuffs, resistant to disinfectants.



Rods



| | Tolerance to DIN (mm) | TECASON S | TECASON E | TECASON P MT black | TECAPEI |
|-----------------------------------|-----------------------|-----------|-----------|--------------------|---------|
| DIN-Abbreviation | | PSU | PES | PPSU | PEI |
| Density (g/cm³) | | 1,24 | 1,37 | 1,29 | 1,27 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,018 | 0,019 | 0,018 | 0,018 |
| 5 | + 0,1 | 0,027 | 0,030 | 0,028 | 0,028 |
| 6 | + 0,4 | 0,039 | 0,043 | 0,040 | 0,040 |
| 8 | | 0,068 | 0,076 | 0,071 | 0,070 |
| 9 | + 0,1 | 0,086 | 0,095 | 0,089 | 0,088 |
| 10 | + 0,5 | 0,105 | 0,116 | 0,110 | 0,108 |
| 11 | | 0,133 | 0,146 | 0,138 | 0,136 |
| 12 | | 0,156 | 0,173 | 0,163 | 0,160 |
| 13 | | 0,182 | 0,202 | 0,190 | 0,187 |
| 14 | | 0,210 | 0,232 | 0,219 | 0,215 |
| 15 | + 0,2 | 0,240 | 0,265 | 0,250 | 0,246 |
| 16 | + 0,9 | 0,272 | 0,301 | 0,283 | 0,279 |
| 18 | | 0,342 | 0,378 | 0,356 | 0,350 |
| 19 | | 0,380 | 0,419 | 0,395 | 0,389 |
| 20 | | 0,419 | 0,463 | 0,436 | 0,430 |
| 22 | + 0,2 + 1,2 | 0,512 | 0,566 | 0,532 | 0,524 |
| 25,4 | + 0,00 + 0,13 | | | 0,649 | |
| 25 | | 0,656 | 0,725 | 0,683 | 0,672 |
| 28 | + 0,2 | 0,818 | 0,904 | 0,851 | 0,838 |
| 30 | + 1,2 | 0,936 | 1,03 | 0,974 | 0,959 |
| 31,75 | + 0,00 + 0,13 | | | 1,06 | |
| 32 | + 0,2 + 1,2 | 1,06 | 1,17 | 1,11 | 1,09 |
| 36 | + 0,2 + 1,6 | 1,35 | 1,49 | 1,41 | 1,39 |
| 38,1 | + 0,00 + 0,13 | | | 1,51 | |
| 40 | + 0,2 + 1,6 | 1,66 | 1,84 | 1,73 | 1,70 |
| 44,45 | + 0,00 + 0,13 | | | 2,01 | |
| 45 | + 0,3 | 2,12 | 2,34 | 2,20 | 2,17 |
| 50 | + 2,0 | 2,60 | 2,87 | 2,70 | 2,66 |
| 50,8 | + 0,00 + 0,13 | | | 2,69 | |
| 56 | + 0,3 + 2,0 | 3,24 | 3,58 | 3,38 | 3,32 |
| 57,15 | + 0,00 + 0,76 | | | 3,40 | |
| 60 | + 0,3 + 2,5 | 3,74 | 4,14 | 3,90 | 3,84 |
| 63,5 | + 0,00 + 0,76 | | | 4,28 | |
| 65 | + 0,3 + 2,5 | 4,38 | 4,84 | 4,56 | 4,49 |
| 69,85 | + 0,00 + 0,76 | | | 5,12 | |
| 70 | + 0,3 + 2,5 | 5,06 | 5,59 | 5,27 | 5,19 |
| 75 | + 0,4 + 3 | 5,84 | 6,46 | 6,08 | 5,99 |
| 76,2 | + 0,00 + 0,76 | | | 6,03 | |
| 80 | + 0,4 + 3 | 6,63 | 7,33 | 6,90 | 6,79 |
| 88,9 | + 0,00 + 0,76 | | | 8,44 | |
| 90 | + 0,5 + 3,4 | 8,40 | 9,28 | 8,74 | 8,60 |
| 100 | + 0,6 + 3,8 | 10,38 | 11,46 | 10,79 | 10,63 |
| 110 | + 0,7 + 4,2 | 12,56 | 13,88 | 13,07 | 12,86 |
| 120 | + 0,8 | 14,96 | 16,52 | 15,56 | 15,32 |
| 125 | + 4,6 | 16,20 | 17,90 | 16,85 | 16,59 |
| 135 | + 0,9 | 18,96 | 20,95 | 19,72 | 19,42 |
| 140 | + 5,4 | 20,36 | 22,49 | 21,18 | 20,85 |
| 150 | + 1 + 5,8 | 23,37 | 25,8 | 24,32 | 23,94 |
| 165 | + 1,2 | 28,5 | | | |
| 180 | + 7,4 | 33,7 | | | |
| 200 | + 1,3 + 8,5 | 41,7 | | | |

TECASON
TECAPEI

For TECASON P MT colours please look on page 64.

Tolerances according to DIN: length $\pm \frac{3}{10} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

= Stock item

= Non-stock item – special production

Plates




| | Tolerance to DIN (mm) | TECASON S | TECASON E | TECASON P MT black | TECAPEI |
|-----------------------------------|-----------------------|------------------|------------------|------------------------------|----------------|
| DIN-Abbreviation | | PSU | PES | PPSU | PEI |
| Density (g/cm³) | | 1,24 | 1,37 | 1,29 | 1,27 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m |
| 5 x 300 | + 0,2 | 2,17 | 2,40 | 2,26 | 2,22 |
| 6 x 300 | + 0,7 | 2,57 | 2,84 | 2,67 | 2,63 |
| 8 x 300 | + 0,2 | 3,41 | 3,76 | 3,54 | 3,49 |
| 10 x 300 | + 0,9 | 4,20 | 4,56 | 4,37 | 4,30 |
| 12 x 300 | | 5,14 | 5,68 | 5,35 | 5,26 |
| 12 x 500 | | | | | 8,61 |
| 16 x 300 | + 0,3 | 6,73 | 7,44 | 7,00 | 6,90 |
| 20 x 300 | + 1,5 | 8,33 | 9,20 | 8,66 | 8,53 |
| 20 x 500 | | | | | 13,94 |
| 25 x 300 | | 10,32 | 11,40 | 10,73 | 10,57 |
| 27 x 300 | | 11,35 | 12,55 | 11,81 | 11,63 |
| 30 x 300 | | 12,55 | 13,87 | 13,06 | 12,85 |
| 30 x 500 | | 20,52 | | | 21,01 |
| 32 x 300 | + 0,5 | 13,35 | 14,75 | 13,88 | 13,67 |
| 40 x 300 | + 2,5 | 16,53 | 18,27 | 17,20 | 16,93 |
| 40 x 500 | | 27,0 | 29,9 | | 27,7 |
| 50 x 300 | | 20,5 | 22,67 | 21,35 | 21,01 |
| 50 x 500 | | 33,5 | 37,1 | | 34,4 |
| 60 x 300 | + 0,5 | 24,70 | 27,3 | 25,7 | 25,3 |
| 60 x 500 | + 3,5 | | | | 41,4 |
| 70 x 300 | + 0,5 | 29,0 | 32,0 | 30,2 | 29,7 |
| 80 x 300 | + 5 | 33,0 | 36,4 | 34,3 | 33,8 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plastic & Metal Center, Inc.
23162 La Cadena Drive
Laguna Hills, CA 92653
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Tel: 949-770-8230

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Email: sales@plastic-metal.com

www.plastic-metal.com

TECATRON. The high-temperature plastic with outstanding thermal and dimensional stability.



TECATRON is resistant to oxidation and hydrolysis. It can be continuously used at temperatures up to + 230 °C and briefly at up to + 260 °C.

Strength, rigidity and hardness of TECATRON are regarded as very good.

- | Continuous operating temperature up to + 230 °C and briefly up to + 260 °C
- | High strength, rigidity and hardness
- | Outstanding dimensional and thermal stability
- | Low water absorption
- | Very good resistance to chemicals
- | Hydrolysis-resistant
- | Inherently self-extinguishing

TECATRON

Low water absorption.
Very good electrical insulation.

TECATRON GF 40

Extremely high strength thanks to glassfibre reinforcement.
Very good resistance to chemicals.

TECATRON PVX black

Very good sliding and friction values.
Suitable for bearing parts subject to high loads.

**Housing flange
TECATRON GF 40:**

High dimensional stability, good electrical insulating properties.



**Liquid tap
TECATRON GF 40:**

Good resistance to chemicals, dimensionally stable, close tolerances possible.



**Switchgear housing
TECATRON GF 40:**

Electrically insulating, low distortion, low water absorption.



TECATRON

Rods





| | Tolerance to DIN (mm) | TECATRON | TECATRON GF 40 | TECATRON GF 40 black | TECATRON PVX black |
|-----------------------------------|-----------------------|----------|----------------|----------------------|--------------------|
| DIN-Abbreviation | | PPS | PPS GF 40 | PPS GF 40 | PPS |
| Density (g/cm³) | | 1,35 | 1,64 | 1,64 | 1,47 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,019 | 0,023 | 0,023 | 0,021 |
| 5 | + 0,1 | 0,030 | 0,036 | 0,036 | 0,032 |
| 6 | + 0,4 | 0,042 | | | |
| 8 | | 0,075 | 0,091 | 0,091 | 0,081 |
| 9 | + 0,1 | 0,094 | | | |
| 10 | + 0,5 | 0,115 | 0,139 | 0,139 | 0,125 |
| 12 | | 0,168 | 0,204 | 0,204 | 0,183 |
| 16 | + 0,2 | 0,293 | 0,356 | 0,356 | 0,319 |
| 18 | + 0,7 | 0,368 | 0,447 | 0,447 | 0,401 |
| 20 | | 0,452 | 0,549 | 0,549 | 0,492 |
| 22 | | 0,550 | 0,668 | 0,668 | 0,599 |
| 25 | + 0,2 | 0,706 | 0,858 | 0,858 | 0,769 |
| 28 | + 0,9 | 0,882 | 1,07 | 1,07 | 0,960 |
| 30 | | 1,01 | 1,23 | 1,23 | 1,10 |
| 32 | | 1,15 | 1,40 | 1,40 | 1,26 |
| 36 | + 0,2 | 1,45 | 1,76 | 1,76 | 1,58 |
| 40 | + 1,1 | | 2,17 | 2,17 | 1,95 |
| 45 | | 2,27 | | | |
| 50 | + 0,3 | 2,79 | 3,39 | 3,39 | 3,04 |
| 56 | + 1,3 | 3,49 | | | |
| 60 | + 0,3 + 1,6 | 4,02 | 4,88 | 4,88 | 4,37 |

Tolerances according to DIN:

length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plates




| | Tolerance to DIN (mm) | TECATRON | TECATRON GF 40 | TECATRON GF 40 black | TECATRON PVX black |
|-----------------------------------|-----------------------|----------|----------------|----------------------|--------------------|
| DIN-Abbreviation | | PPS | PPS GF 40 | PPS GF 40 | PPS |
| Density (g/cm³) | | 1,35 | 1,64 | 1,64 | 1,47 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m |
| 8 x 300 | | 3,71 | 4,51 | 4,51 | 4,04 |
| 8 x 500 | + 0,2 | 6,06 | 7,37 | 7,37 | 6,60 |
| 10 x 500 | + 0,9 | 7,48 | 9,09 | 9,09 | 8,15 |
| 12 x 500 | | 9,15 | 11,11 | 11,11 | 9,96 |
| 16 x 500 | | 11,98 | 14,56 | 14,56 | 13,05 |
| 18 x 500 | | 13,40 | 16,28 | 16,28 | 14,59 |
| 20 x 300 | + 0,3 | 9,07 | 11,01 | 11,01 | 9,87 |
| 20 x 500 | + 1,5 | 14,82 | 18,01 | 18,01 | 16,14 |
| 25 x 300 | | 11,23 | 13,65 | 13,65 | 12,23 |
| 25 x 500 | | 18,37 | 22,31 | 22,31 | 20,00 |
| 30 x 300 | | 13,66 | 16,60 | 16,60 | 14,88 |
| 30 x 500 | | 22,34 | 27,1 | 27,1 | 24,32 |
| 36 x 500 | | | 32,3 | 32,3 | 29,0 |
| 40 x 300 | + 0,5 | 18,00 | 21,87 | 21,87 | 19,60 |
| 40 x 500 | + 2,5 | 29,4 | 35,8 | 35,8 | 32,0 |
| 50 x 300 | | 22,3 | 27,1 | 27,1 | 24,32 |
| 50 x 500 | | 36,5 | 44,4 | 44,4 | |
| 70 x 300 | + 0,5 + 5 | | 38,3 | 38,3 | |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

TECAPEEK. The high-temperature plastic with outstanding mechanical properties.



The hydrolysis resistance of TECAPEEK extends to over 200° C. TECAPEEK insulates electrically even at high voltages.

Electrical engineering and medical technology as well as mechanical engineering and aerospace benefit from the outstanding load-bearing strength of TECAPEEK

- | Continuous operating temperature up to + 260° C and briefly even up to + 300° C
- | Outstanding mechanical properties even at high temperatures
- | Outstanding resistance to chemicals
- | Hydrolysis resistance even above + 200° C
- | Electrically insulating even with high voltages
- | Excellent sliding properties
- | Resistant to high-energy radiation

TECAPEEK

Continuous operating temperature up to + 260° C. Outstanding mechanical properties even at high temperatures.

TECAPEEK GF 30

Glassfibre-reinforced semi-finished product with enhanced strength. Excellent resistance to chemicals.

TECAPEEK CF 30 black

Very high strength values thanks to the addition of carbon fibres. Enhanced abrasion resistance.

TECAPEEK PVX black

Very good sliding and friction values. Suitable for bearing parts subject to high loads.

TECAPEEK MT black

Hydrolysis-resistant, autoclavable semi-finished product with approvals for medical technology.

TECAPEEK ELS nano

Electrically conductive, high strength, for use in semi-conductor technology and the electronics industry.

TECAPEEK HT

very high abrasion and wear resistance, high load-bearing capacity in static and dynamic conditions, excellent chemical resistance.

TECAPEEK TF 10

Very good sliding and friction properties, suitable for soft mating partners. Electrically insulating.

Gear wheel TECAPEEK:

Torque transmission, high-temperature application, high surface loads.



Cam guide TECAPEEK PVX:

Automation and robotics, very good sliding friction values, high resistance to chemicals.



Transport pinion TECAPEEK MT:

Suitable for use with foodstuffs, resistant to sterilisation, dimensionally stable.



TECAPEEK





Rods



| | Tolerance (mm) | TECAPEEK | TECAPEEK GF 30 | TECAPEEK CF 30 black | TECAPEEK PVX black | TECAPEEK MT black* | TECAPEEK ELS nano | TECAPEEK TF 10 | TECAPEEK HT black |
|-----------------------------------|----------------|----------|----------------|----------------------|--------------------|--------------------|-------------------|----------------|-------------------|
| DIN-Abbreviation | | PEEK | PEEK GF 30 | PEEK CF 30 | PEEK | PEEK | PEEK | PEEK TF 10 | PEK |
| Density (g/cm³) | | 1,30 | 1,51 | 1,40 | 1,48 | 1,30 | 1,34 | 1,35 | 1,32 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 5 | + 0,1 | 0,029 | 0,033 | 0,031 | 0,033 | 0,029 | 0,030 | 0,030 | 0,029 |
| 6 | + 0,4 | 0,041 | 0,047 | 0,044 | 0,046 | 0,041 | 0,042 | 0,042 | 0,041 |
| 8 | | 0,072 | 0,083 | 0,077 | 0,082 | 0,072 | 0,074 | 0,075 | 0,073 |
| 9 | + 0,1 | 0,090 | | 0,097 | | | 0,093 | | 0,091 |
| 10 | + 0,5 | 0,110 | 0,128 | 0,119 | 0,126 | 0,110 | 0,114 | 0,115 | 0,112 |
| 11 | | 0,139 | | 0,150 | | | 0,143 | | 0,141 |
| 12 | | 0,164 | 0,191 | 0,177 | 0,187 | 0,164 | 0,169 | 0,170 | 0,167 |
| 13 | | 0,191 | | | | | | | 0,194 |
| 14 | | 0,220 | | | | | | | 0,224 |
| 15 | + 0,2 | 0,252 | 0,292 | 0,271 | 0,287 | 0,252 | 0,260 | 0,262 | 0,256 |
| 16 | + 0,9 | 0,285 | 0,331 | 0,307 | 0,325 | 0,285 | 0,294 | 0,296 | 0,290 |
| 18 | | 0,358 | 0,416 | 0,386 | 0,408 | 0,358 | 0,369 | 0,372 | 0,364 |
| 19 | | 0,398 | 0,462 | 0,429 | 0,453 | 0,398 | 0,411 | | 0,404 |
| 20 | + 0,2 + 1,1 | 0,444 | 0,516 | 0,478 | 0,506 | 0,444 | 0,458 | 0,461 | 0,451 |
| 22 | | 0,537 | 0,623 | 0,578 | 0,611 | 0,537 | 0,553 | 0,557 | 0,545 |
| 25 | + 0,2 | 0,688 | 0,799 | 0,741 | 0,783 | 0,688 | 0,709 | 0,714 | 0,698 |
| 28 | + 1,2 | 0,858 | 0,996 | 0,924 | 0,977 | 0,858 | 0,884 | 0,891 | 0,871 |
| 30 | | 0,982 | 1,14 | 1,06 | 1,12 | 0,982 | 1,01 | 1,02 | 0,997 |
| 32 | + 0,2 | 1,12 | 1,30 | 1,20 | 1,27 | 1,12 | 1,15 | 1,16 | 1,13 |
| 36 | + 1,3 | 1,41 | 1,63 | 1,51 | 1,60 | 1,41 | 1,45 | 1,46 | 1,43 |
| 40 | + 0,2 + 1,5 | 1,74 | 2,02 | 1,87 | 1,98 | 1,74 | 1,79 | 1,80 | 1,76 |
| 45 | + 0,3 | 2,20 | | 2,37 | 2,51 | 2,20 | 2,27 | | 2,24 |
| 50 | + 1,7 | 2,71 | 3,15 | 2,92 | 3,08 | 2,71 | 2,79 | 2,81 | 2,75 |
| 56 | + 0,3 + 2 | 3,40 | | 3,66 | 3,87 | 3,40 | | | 3,45 |
| 60 | + 0,3 | 3,91 | 4,55 | 4,21 | 4,46 | 3,91 | 4,03 | 4,06 | 3,97 |
| 65 | + 2,3 | 4,58 | 5,32 | | | | | 4,75 | 4,65 |
| 70 | + 0,3 + 2,5 | 5,31 | 6,17 | 5,72 | 6,04 | 5,31 | 5,47 | 5,51 | 5,39 |
| 80 | + 0,4 + 3 | 6,95 | 8,07 | 7,49 | 7,91 | 6,95 | 7,17 | 7,22 | 7,06 |
| 90 | + 0,5 + 3,4 | 8,80 | 10,23 | 9,48 | 10,02 | | 9,08 | 9,14 | 8,94 |
| 100 | + 0,6 + 3,8 | 10,88 | 12,63 | 11,71 | 12,38 | 10,88 | 11,21 | 11,30 | 11,04 |
| 110 | + 0,7 + 4,2 | 13,17 | 15,30 | | | 13,17 | | | 13,37 |
| 120 | + 0,8 | 15,68 | | | | 15,68 | | | 15,92 |
| 125 | + 4,6 | 16,98 | | | | 16,98 | | | 17,24 |
| 135 | + 0,9 | 19,88 | | | | 19,88 | | | 20,18 |
| 140 | + 5,4 | | | | | 21,34 | | | 21,67 |
| 150 | + 1 + 5,8 | 24,51 | | | | 24,51 | | | 24,88 |
| 165 | + 1,1 + 6,3 | 29,6 | | | | | | | |
| 180 | + 1,2 + 7,4 | 35,4 | | | | | | | |
| 200 | + 1,3 + 8,5 | 43,7 | | | | | | | |

*Also available in pigmented form.
Tolerances according to DIN: length $+ \frac{3}{100} \%$.
The specified kg/m weights are purely arithmetic figures.
Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed.
All figures given without obligation.

 = Stock item
 = Non-stock item – special production

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www.plastic-metal.com

Plates



| | Tolerance (mm) | TECAPEEK | TECAPEEK GF 30 | TECAPEEK CF 30 black | TECAPEEK PVX black | TECAPEEK MT black* | TECAPEEK ELS nano | TECAPEEK TF 10 | TECAPEEK HT black |
|-----------------------------------|----------------|----------------|----------------|----------------------|--------------------|--------------------|-------------------|----------------|-------------------|
| DIN-Abbreviation | | PEEK | PEEK GF 30 | PEEK CF 30 | PEEK | PEEK | PEEK | PEEK TF 10 | PEK |
| Density (g/cm³) | | 1,30 | 1,51 | 1,40 | 1,48 | 1,30 | 1,34 | 1,35 | 1,32 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 5 x 300 | + 0,2 + 0,7 | 2,28 | | | 2,59 | 2,28 | | | 2,31 |
| 5 x 500 | | 3,72 | | | | | | | 3,78 |
| 6 x 300 | | 2,69 | 3,13 | | 3,07 | 2,69 | | 2,80 | 2,74 |
| 6 x 500 | | 4,40 | 5,12 | 4,74 | 5,01 | 4,40 | 4,54 | 4,57 | 4,47 |
| 8 x 300 | + 0,2 + 0,9 | 3,57 | 4,15 | | 4,07 | 3,57 | | 3,71 | 3,63 |
| 8 x 500 | | 5,84 | 6,78 | 6,29 | 6,65 | 5,84 | 6,02 | 6,06 | 5,93 |
| 10 x 300 | | 4,41 | 5,12 | | 5,02 | 4,41 | | 4,58 | 4,47 |
| 10 x 500 | | 7,20 | 8,37 | 7,76 | 8,20 | 7,20 | 7,43 | 7,48 | 7,32 |
| 12 x 300 | + 0,3 + 1,5 | 5,39 | 6,26 | | 6,13 | 5,39 | | 5,60 | 5,47 |
| 12 x 500 | | 8,81 | 10,23 | 9,49 | 10,03 | 8,81 | 9,08 | 9,15 | 8,94 |
| 16 x 300 | | 7,06 | 8,20 | | 8,04 | 7,06 | | 7,33 | 7,17 |
| 16 x 500 | | 11,54 | 13,41 | 12,43 | 13,14 | 11,54 | 11,90 | 11,98 | 11,72 |
| 16 x 1000 ** | | 22,75 | | | | | | | |
| 18 x 500 | | 12,91 | 14,99 | 13,90 | 14,69 | 12,91 | 13,30 | 13,40 | 13,11 |
| 20 x 300 | | 8,73 | 10,14 | | 9,94 | 8,73 | | 9,07 | 8,86 |
| 20 x 500 | | 14,27 | 16,58 | 15,37 | 16,25 | 14,27 | 14,71 | 14,82 | 14,49 |
| 20 x 1000 ** | | 28,1 | | | | | | | |
| 22 x 500 | | 15,64 | 18,16 | 16,84 | 17,80 | 15,64 | 16,12 | 16,24 | 15,88 |
| 25 x 300 | | 10,82 | 12,57 | | 12,32 | 10,82 | | 11,23 | 10,98 |
| 25 x 500 | | 17,69 | 20,54 | 19,05 | 20,14 | 17,69 | 18,23 | 18,37 | 17,96 |
| 25 x 1000 ** | | 34,9 | | | | | | | |
| 30 x 300 | | + 0,5 + 2,5 | 13,16 | 15,28 | | 14,98 | 13,16 | | 13,66 |
| 30 x 500 | 21,51 | | 24,99 | 23,17 | 24,49 | 21,51 | 22,17 | 22,34 | 21,84 |
| 30 x 1000 ** | 42,4 | | | | | | | | |
| 32 x 500 | 22,88 | | 26,6 | 24,64 | 26,0 | 22,88 | 23,58 | 23,76 | 23,23 |
| 36 x 500 | 25,6 | | 29,7 | 27,6 | 29,2 | 25,6 | 26,4 | 26,6 | 26,0 |
| 40 x 300 | 17,33 | | 20,13 | 18,67 | 19,73 | 17,33 | 17,87 | 18,00 | 17,60 |
| 40 x 500 | 28,3 | | 32,9 | 30,5 | 32,3 | 28,3 | | 29,4 | 28,8 |
| 40 x 1000 ** | 55,9 | | | | | | | | |
| 45 x 500 | 31,8 | | 36,9 | | 36,2 | 31,8 | 35,7 | 33,0 | 32,2 |
| 50 x 300 | 21,51 | | 24,99 | 23,17 | 24,49 | 21,51 | | 22,34 | 21,84 |
| 50 x 500 | 35,2 | | 40,8 | 37,9 | 40,0 | 35,2 | 36,3 | 36,5 | 35,7 |
| 60 x 300 | + 0,5 + 3,5 | | 25,9 | 30,1 | | | 25,9 | | 26,9 |
| 60 x 500 | | 42,3 | | | 48,2 | 42,3 | | | 43,0 |
| 70 x 300 | | 30,1 | 34,9 | | | | | 31,2 | |
| 80 x 300 | + 0,5 + 5 | 34,6 | 40,1 | | | | | 35,9 | |
| 80 x 500 | | 56,5 | | | | | | | |
| 100 x 300 | | 42,9 | | | | | | | |

*Also available in pigmented form, see page 63.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5}$ mm.

The specified kg/m weights are purely arithmetic figures.

Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed.

All figures given without obligation.



= Stock item



= Non-stock item – special production

TECAPEEK

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www.plastic-metal.com

Tubes



| | | TECAPEEK | | | | | | | | | | |
|------------------------------|------------------------|----------------|------|----------------|------|----------------|-------|-------|----------------|-------|----|--|
| DIN-Abbreviation | | PEEK | | | | | | | | | | |
| Density (g/cm ³) | | 1,30 | | | | | | | | | | |
| Tolerance to DIN (mm) | | - 0,3 - 3,0 | | - 0,3 - 3,0 | | - 0,3 - 5,0 | | | - 0,5 - 5,0 | | | |
| | Diameter Ø (mm) | 25 | 30 | 36 | 40 | 45 | 50 | 54 | 60 | 70 | 75 | |
| + 2,5 + 0,8 | 40 | 1,24 | | | | | | | | | | |
| | 45 | 1,70 | | | | | | | | | | |
| | 50 | 2,21 | 1,94 | 1,58 | | | | | | | | |
| | 56 | 2,89 | 2,62 | 2,26 | 1,97 | | | | | | | |
| | 60 | 3,39 | 3,12 | 2,76 | 2,46 | | | | | | | |
| + 3 + 0,8 | 65 | 4,06 | 3,79 | 3,43 | 3,13 | 2,76 | | | | | | |
| | 70 | 4,82 | 4,55 | 4,19 | 3,89 | 3,52 | 3,05 | | | | | |
| | 75 | 5,59 | 5,32 | 4,96 | 4,66 | 4,29 | 3,82 | 3,41 | | | | |
| | 80 | | 6,15 | 5,79 | 5,49 | 5,12 | 4,65 | 4,24 | 3,56 | | | |
| + 3,6 + 1,2 | 85 | | | 6,67 | 6,37 | 6,00 | 5,53 | 5,12 | 4,44 | | | |
| | 90 | | | 7,69 | 7,40 | 7,02 | 6,56 | 5,40 | 5,47 | 4,18 | | |
| | 100 | | | 9,72 | 9,42 | 9,05 | 8,59 | 8,17 | 7,49 | 6,21 | | |
| + 4,5 + 1,5 | 110 | | | | | 11,29 | 10,82 | 10,41 | 9,73 | 8,45 | | |
| | 125 | | | | | | 14,73 | 14,32 | 13,64 | 12,35 | | |
| | 135 | | | | | | 17,50 | 17,09 | 16,41 | 15,12 | | |
| | 140 | | | | | | 18,96 | 18,55 | 17,87 | 16,59 | | |
| + 5,4 + 1,8 | 150 | | | | | | 22,24 | 21,82 | 21,14 | 19,86 | | |
| | 165 | | | | | | | | | | | |
| | 180 | | | | | | | | | | | |
| | 185 | | | | | | | | | | | |
| + 6 + 2 | 200 | | | | | | | | | | | |
| | 210 | | | | | | | | | | | |
| | 230 | | | | | | | | | | | |
| | 250 | | | | | | | | | | | |
| | 280 | | | | | | | | | | | |
| | 300 | | | | | | | | | | | |
| | 360 | | | | | | | | | | | |
| | Diameter Ø (mm) | 25 | 30 | 36 | 40 | 45 | 50 | 54 | 60 | 70 | 75 | |

- = Outside
- = Stock item
- = Inside
- = Non-stock item – special production

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

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| | -0,5 -8,5 | | | | | | -2,5 -8,5 | | | | | Tolerance |
|--|--------------|-------|-------|-------|-------|-------|--------------|-------|------|-------|------|----------------------------|
| | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | 290 | Diameter Ø (mm) |
| | | | | | | | | | | | | 40 |
| | | | | | | | | | | | | 45 |
| | | | | | | | | | | | | 50 |
| | | | | | | | | | | | | 56 |
| | | | | | | | | | | | | 60 |
| | | | | | | | | | | | | 65 |
| | | | | | | | | | | | | 70 |
| | | | | | | | | | | | | 75 |
| | | | | | | | | | | | | 80 |
| | | | | | | | | | | | | 85 |
| | | | | | | | | | | | | 90 |
| | 4,98 | | | | | | | | | | | 100 |
| | 7,22 | 5,54 | | | | | | | | | | 110 |
| | 11,13 | 9,45 | 7,56 | | | | | | | | | 125 |
| | 13,90 | 12,22 | 10,33 | 8,24 | | | | | | | | 135 |
| | 15,36 | 13,68 | 11,80 | 9,70 | | | | | | | | 140 |
| | 18,63 | 16,96 | 15,07 | 12,98 | 9,45 | 8,17 | | | | | | 150 |
| | 23,67 | 21,99 | 20,11 | 18,01 | 14,48 | 13,20 | | | | | | 165 |
| | 29,2 | 27,5 | 25,6 | 23,51 | 19,98 | 18,70 | 13,06 | | | | | 180 |
| | | | | | | | 15,00 | | | | | 185 |
| | 37,2 | 35,6 | 33,7 | 31,6 | 28,0 | 26,8 | 21,12 | 13,25 | | | | 200 |
| | | | 38,2 | 36,1 | 32,6 | 31,3 | 25,6 | 17,77 | | | | 210 |
| | | | 47,5 | 45,4 | 41,9 | | 35,0 | | 25,3 | 17,63 | | 230 |
| | | | 57,7 | 55,6 | 52,1 | | 45,1 | | 35,5 | 27,8 | | 250 |
| | | | | | | | 53,7 | | 52,3 | 44,6 | | 280 |
| | | | | | | | 70,3 | | 64,5 | 56,8 | | 300 |
| | | | | | | | | | | | 53,7 | 360 |
| | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | 290 | |

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Tubes



TECAPEEK PVX

| DIN-Abbreviation | | PEEK | | | | | | | | | | | |
|------------------|------------|-----------------|------|------|----------------|------|----------------|-------|-------|-------|----------------|----|--|
| Density (g/cm³) | | 1,48 | | | | | | | | | | | |
| Tolerance (mm) | | - 0,3 - 3,0 | | | - 0,3 - 3,9 | | - 0,3 - 5,0 | | | | - 0,5 - 5,0 | | |
| | | Diameter Ø (mm) | 25 | 30 | 36 | 40 | 45 | 50 | 54 | 60 | 70 | 75 | |
| + 2,5 + 0,8 | 40 | 1,41 | | | | | | | | | | | |
| | 45 | 1,93 | | | | | | | | | | | |
| | 50 | 2,52 | 2,21 | 1,80 | | | | | | | | | |
| | 56 | 3,29 | 2,99 | 2,58 | | | | | | | | | |
| | 60 | 3,86 | 3,55 | 3,14 | 2,80 | | | | | | | | |
| + 3 + 0,8 | 65 | | 4,31 | 3,90 | 3,56 | 3,14 | | | | | | | |
| | 70 | | 5,18 | 4,77 | 4,43 | 4,00 | 3,47 | | | | | | |
| | 75 | | | 5,65 | 5,31 | 4,88 | 4,35 | 3,88 | | | | | |
| | 78 | | | 6,21 | 5,87 | 5,44 | 4,91 | 4,44 | | | | | |
| | 80 | | | 6,59 | 6,25 | 5,83 | 5,29 | 4,83 | 4,05 | | | | |
| + 3,6 + 1,2 | 85 | | | | 7,25 | 6,83 | 6,30 | 5,83 | 5,05 | | | | |
| | 90 | | | | | 7,94 | 7,46 | | 6,22 | 4,76 | | | |
| | 100 | | | | | | 9,77 | 9,31 | 8,53 | 7,07 | 6,24 | | |
| + 4,5 + 1,5 | 110 | | | | | | 12,32 | 11,85 | 11,08 | 9,62 | 8,79 | | |
| | 125 | | | | | | 16,77 | 16,30 | 15,53 | 14,06 | 13,24 | | |
| | 135 | | | | | | | | | | | | |
| + 5,4 + 1,8 | 140 | | | | | | | | | | | | |
| | 150 | | | | | | | | | | | | |
| | 165 | | | | | | | | | | | | |
| + 6 + 2 | 180 | | | | | | | | | | | | |
| | 185 | | | | | | | | | | | | |
| | 200 | | | | | | | | | | | | |
| | 210 | | | | | | | | | | | | |
| | 230 | | | | | | | | | | | | |
| | 250 | | | | | | | | | | | | |
| | | 25 | 30 | 36 | 40 | 45 | 50 | 54 | 60 | 70 | 75 | | |

- = Outside
- = Stock item
- = Inside
- = Non-stock item – special production

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
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| | - 0,5 - 5,8 | | | | | | - 2,5 - 8,5 | | | | |
|--|----------------|-------|-------|-------|-------|-------|----------------|-------|------|-------|--------------------|
| | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | Diameter Ø (mm) |
| | | | | | | | | | | | 40 |
| | | | | | | | | | | | 45 |
| | | | | | | | | | | | 50 |
| | | | | | | | | | | | 56 |
| | | | | | | | | | | | 60 |
| | | | | | | | | | | | 65 |
| | | | | | | | | | | | 70 |
| | | | | | | | | | | | 75 |
| | | | | | | | | | | | 78 |
| | | | | | | | | | | | 80 |
| | | | | | | | | | | | 85 |
| | | | | | | | | | | | 90 |
| | 5,43 | | | | | | | | | | 100 |
| | 7,98 | 6,04 | | | | | | | | | 110 |
| | 12,42 | 10,48 | 8,30 | | | | | | | | 125 |
| | 15,58 | 13,64 | 11,46 | 9,38 | | | | | | | 135 |
| | 17,24 | 15,30 | 13,12 | 11,05 | | | | | | | 140 |
| | 20,75 | 18,81 | 16,63 | 14,56 | 10,54 | 9,08 | | | | | 150 |
| | | | 22,58 | 20,51 | 16,49 | 15,03 | | | | | 165 |
| | | | 28,8 | 26,8 | 22,75 | 21,29 | 14,87 | | | | 180 |
| | | | | | | | 17,25 | | | | 185 |
| | | | | 36,1 | 32,1 | 30,7 | 24,24 | 15,28 | | | 200 |
| | | | | | | 35,6 | 29,2 | | | | 210 |
| | | | | | | | 39,8 | | 28,8 | 20,07 | 230 |
| | | | | | | | 51,4 | | 40,4 | 31,6 | 250 |
| | 80 | 90 | 100 | 110 | 125 | 130 | 150 | 175 | 180 | 200 | |

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- | Extremely high creep resistance
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- | Self-extinguishing according to UL 94 V-0
- | Easily machined using conventional tools and machinery

Isolation plugs.

Electrically insulating and temperature resistant.



Transfer lever.

Thermal stable and wear resistant.



TECATOR 5013

Very tough.
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Rods



| | Tolerance to DIN (mm) | TECATOR 5013 |
|-----------------------------------|-----------------------|--------------|
| DIN-Abbreviation | | PAI |
| Density (g/cm³) | | 1,42 |
| Diameter Ø (mm) | | kg/m |
| 5 | + 0,0 | 0,034 |
| 7,5 | + 1,0 | 0,072 |
| 10 | + 0,0 | 0,126 |
| 12,5 | + 1,1 | 0,192 |
| 15 | | 0,273 |
| 20 | + 0,0 | 0,479 |
| 25 | + 1,2 | 0,740 |
| 30 | + 1,3 + 0,0 | 1,06 |
| 40 | + 0,0 | 1,88 |
| 50 | + 1,5 | 2,91 |

Tolerances according to DIN: + 1 + 2,5 mm.
The specified kg/m weights are purely arithmetic figures.
Weight on delivery will deviate from the figures given above.
Stock lengths 1220 mm, other delivery lengths possible, also available ground. All figures given without obligation.



= Stock item



= Non-stock item – special production

Plates



| | Tolerance to DIN (mm) | TECATOR 5013 |
|-----------------------------------|-----------------------|--------------|
| DIN-Abbreviation | | PAI |
| Density (g/cm³) | | 1,42 |
| Size (mm) | | kg/m |
| 5 x 300 | | 2,39 |
| 7,5 x 300 | | 3,48 |
| 10 x 300 | | 4,56 |
| 15 x 300 | + 0,0 | 6,73 |
| 20 x 300 | + 1,0 | 8,91 |
| 25 x 300 | | 11,08 |
| 30 x 300 | | 13,25 |
| 40 x 300 | | 17,59 |

Tolerances according to DIN: + 1 + 2,5 mm.
The specified kg/m weights are purely arithmetic figures.
Weight on delivery will deviate from the figures given above.
Stock lengths 1220 mm, other delivery lengths possible, also available ground. All figures given without obligation.



= Stock item



= Non-stock item – special production

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SINTIMID.

The high-temperature plastic for extremely demanding requirements.



In continuous use, SINTIMID exhibits high strength and high creep resistance. Its strengths range from low thermal conductivity to outstanding sliding properties.

SINTIMID is used, for example, in mechanical engineering and gearbox construction, in vacuum technology and in the electronics industry.

- | Wide range of operating temperatures from -270 °C to +300 °C, unaffected by thermal shock conditions
- | Suitable for use briefly up to +350 °C
- | High strength and high creep resistance in continuous use
- | Outstanding sliding properties and wear resistance
- | Low thermal conductivity
- | Electrical insulating properties

Guide roller

SINTIMID 15 G:

Very high compressive strength, good sliding friction values.



Bearing bush

SINTIMID PVX:

High thermal strength, low friction due to sliding modifications.



Semi-finished products

SINTIMID:

Extremely high continuous operating temperature, good machinability.



SINTIMID PUR HT black

Highest mechanical strength.
Best electrical insulation.

SINTIMID 15 G anthracite

Enhanced friction and wear properties. Self-lubricating.

SINTIMID 40 G

Extremely low wear values.
Self-lubricating.

SINTIMID 30 P

Very low friction values.
Self-lubricating.

SINTIMID PVX black

Low friction values, self-lubricating.
Good UV resistance.

SINTIMID 8000

High chemical resistance. Good properties with soft mating partners.

Rods



| | Tolerance to DIN (mm) | SINTIMID PUR HT black | SINTIMID 15 G charcoal-grey | SINTIMID 40 G charcoal-grey | SINTIMID 30 P | SINTIMID PVX black | SINTIMID 8000 |
|-----------------------------------|-----------------------|--------------------------|--------------------------------|--------------------------------|---------------|-----------------------|---------------|
| DIN-Abbreviation | | PI | PI CS 15 | PI CS 40 | PI + PTFE | PI | PTFE + PI |
| Density (g/cm³) | | 1,34 | 1,42 | 1,58 | 1,51 | 1,48 | 1,88 |
| Diameter Ø mm | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 6 | +0,6 +0,1 | 0,04 | 0,04 | 0,04 | 0,04 | 0,04 | 0,05 |
| 7 | | 0,05 | 0,05 | 0,06 | 0,06 | 0,06 | 0,07 |
| 8 | | 0,07 | 0,07 | 0,08 | 0,08 | 0,07 | 0,09 |
| 9 | | 0,09 | 0,09 | 0,10 | 0,10 | 0,09 | 0,12 |
| 10 | | 0,11 | 0,11 | 0,12 | 0,12 | 0,12 | 0,15 |
| 12 | +0,8 +0,2 | 0,15 | 0,16 | 0,18 | 0,17 | 0,17 | 0,21 |
| 14 | | 0,21 | 0,22 | 0,24 | 0,23 | 0,23 | 0,29 |
| 16 | | 0,27 | 0,29 | 0,31 | 0,30 | 0,30 | 0,38 |
| 18 | | 0,34 | 0,36 | 0,40 | 0,38 | 0,38 | 0,48 |
| 20 | | 0,42 | 0,45 | 0,49 | 0,47 | 0,46 | 0,59 |
| 22 | | 0,51 | 0,54 | 0,59 | 0,57 | 0,56 | 0,71 |
| 24 | | 0,61 | 0,64 | 0,71 | 0,68 | 0,67 | 0,85 |
| 25 | | 0,66 | 0,70 | 0,77 | 0,74 | 0,73 | 0,92 |
| 26 | | 0,71 | 0,75 | 0,83 | 0,80 | 0,79 | 1,00 |
| 28 | | 0,83 | 0,87 | 0,96 | 0,93 | 0,91 | 1,16 |
| 30 | 0,95 | 1,00 | 1,10 | 1,07 | 1,05 | 1,33 | |
| 32 | +1,0 +0,2 | 1,08 | 1,14 | 1,25 | 1,21 | 1,19 | 1,51 |
| 34 | | 1,22 | 1,29 | 1,42 | 1,37 | 1,34 | 1,71 |
| 36 | | 1,36 | 1,45 | 1,59 | 1,54 | 1,51 | 1,91 |
| 38 | | 1,52 | 1,61 | 1,77 | 1,71 | 1,68 | 2,13 |
| 40 | | 1,68 | 1,78 | 1,96 | 1,90 | 1,86 | 2,36 |
| 45 | | 2,13 | 2,26 | 2,48 | 2,40 | 2,35 | 2,99 |
| 50 | | 2,63 | 2,79 | 3,06 | 2,96 | 2,91 | 3,69 |
| 55 | | 3,18 | 3,37 | 3,71 | 3,59 | 3,52 | |
| 60 | | 3,79 | 4,01 | 4,41 | 4,27 | 4,18 | |
| 65 | | 4,45 | 4,71 | 5,18 | 5,01 | 4,91 | |
| 70 | 5,16 | 5,46 | 6,00 | 5,81 | 5,70 | | |
| 75 | +1,0 +0,2 | 5,74 | 6,27 | 6,94 | | 6,54 | |
| 80 | | 6,75 | 7,14 | 7,90 | | 7,44 | |
| 85 | | 7,60 | 8,06 | 8,91 | | 8,40 | |
| 90 | | 8,53 | | | | | |
| 95 | | 9,50 | | | | | |
| 100 | 10,52 | | | | | | |

Delivery length up to 16 mm diameter: 395 mm
 from 20 mm diameter: 395 mm, 795 mm, 1000 mm.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 1000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

- = Stock item
- = Non-stock item – special production



Plastic & Metal Center, Inc.
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 Laguna Hills, CA 92653
 USA
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 Fax: 949-770-8478
 Email: sales@plastic-metal.com
 www.plastic-metal.com

Plates



| | Tolerance to DIN (mm) | SINTIMID PUR HT black | SINTIMID 15 G charcoal-grey | SINTIMID 40 G charcoal-grey | SINTIMID 30 P | SINTIMID PVX black | SINTIMID 8000 |
|-----------------------------------|-----------------------|--------------------------|--------------------------------|--------------------------------|---------------|-----------------------|---------------|
| DIN-Abbreviation | | PI | PI CS 15 | PI CS 40 | PI + PTFE | PI | PTFE + PI |
| Density (g/cm³) | | 1,34 | 1,42 | 1,56 | 1,51 | 1,48 | 1,88 |
| Diameter mm | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 5 x 395 | +0,8 +0,1 | 2,65 | 2,80 | 3,08 | 2,98 | 2,92 | 3,71 |
| 6 x 395 | | 3,18 | 3,37 | 3,70 | 3,58 | 3,51 | 4,46 |
| 7 x 395 | | 3,71 | 3,93 | 4,31 | 4,18 | 4,09 | 5,20 |
| 8 x 395 | | 4,23 | 4,49 | 4,93 | 4,77 | 4,68 | 5,94 |
| 9 x 395 | | 4,76 | 5,05 | 5,55 | 5,37 | 5,26 | 6,68 |
| 10 x 395 | | 5,29 | 5,61 | 6,16 | 5,96 | 5,85 | 7,43 |
| 12 x 395 | +1,2 +0,2 | 6,35 | 6,73 | 7,39 | 7,16 | 7,02 | 8,91 |
| 14 x 395 | | 7,41 | 7,85 | 8,63 | 8,35 | 8,18 | 10,40 |
| 16 x 395 | | 8,47 | 8,97 | 9,86 | 9,54 | 9,35 | 11,88 |
| 18 x 395 | | 9,53 | 10,10 | 11,09 | 10,74 | 10,52 | 13,37 |
| 20 x 395 | | 10,59 | 11,22 | 12,32 | 11,93 | 11,69 | 14,85 |
| 22 x 395 | | 11,64 | 12,34 | 13,56 | 13,12 | 12,86 | 16,34 |
| 24 x 395 | | 12,70 | 13,46 | 14,79 | 14,31 | 14,03 | 17,82 |
| 25 x 395 | | 13,23 | 14,02 | 15,41 | 14,91 | 14,62 | 18,57 |
| 26 x 395 | | 13,76 | 14,58 | 16,02 | 15,51 | 15,20 | 19,31 |
| 28 x 395 | | 14,82 | 15,71 | 17,25 | 16,70 | 16,37 | 20,79 |
| 30 x 395 | | 15,88 | 16,83 | 18,49 | 17,89 | 17,54 | 22,28 |
| 32 x 395 | +1,4 +0,2 | 16,94 | 17,95 | 19,72 | 19,09 | 18,71 | 23,76 |
| 34 x 395 | | 18,00 | 19,07 | 20,95 | 20,28 | 19,88 | 25,25 |
| 36 x 395 | | 19,05 | 20,19 | 22,18 | 21,47 | 21,05 | 26,73 |
| 38 x 395 | | 20,11 | 21,31 | 23,42 | 22,67 | 22,21 | 28,22 |
| 40 x 395 | | 21,17 | 22,44 | 24,65 | 23,86 | 23,38 | 29,70 |
| 45 x 395 | | 23,82 | 25,24 | 27,73 | 26,84 | 26,31 | 33,42 |
| 50 x 395 | | 26,47 | 28,05 | 30,81 | 29,82 | 29,23 | 37,13 |
| 52 x 395 | | 27,52 | 29,17 | 32,04 | 31,02 | 30,40 | 38,62 |
| 55 x 300 | | 22,12 | 23,43 | 25,90 | | 24,42 | |
| 60 x 300 | | 24,12 | 25,56 | 28,26 | | 26,64 | |
| 65 x 300 | | 26,13 | 27,70 | 30,62 | | 28,90 | |
| 68 x 300 | | 27,34 | 29,00 | 32,00 | | 30,20 | |
| 70 x 300 | | 28,14 | 29,84 | 33,00 | | 31,10 | |
| 75 x 300 | | 30,15 | 31,95 | 35,35 | | 33,30 | |
| 80 x 300 | 32,17 | 34,10 | 37,68 | | 35,52 | | |
| 85 x 300 | | 34,18 | 36,20 | 40,00 | | 37,75 | |
| 90 x 300 | | 36,20 | 38,35 | 42,40 | | 40,00 | |
| 95 x 300 | | 38,20 | 40,47 | 44,75 | | 42,18 | |
| 100 x 300 | | 40,20 | 42,60 | 47,10 | | 44,40 | |

Note: All the above mentioned plate-thicknesses are additionally available in 300 x 1000 mm.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 795 mm, other delivery lengths possible, also available planed. All figures given without obligation.



= Stock item

= Non-stock item – special production

SINTIMID

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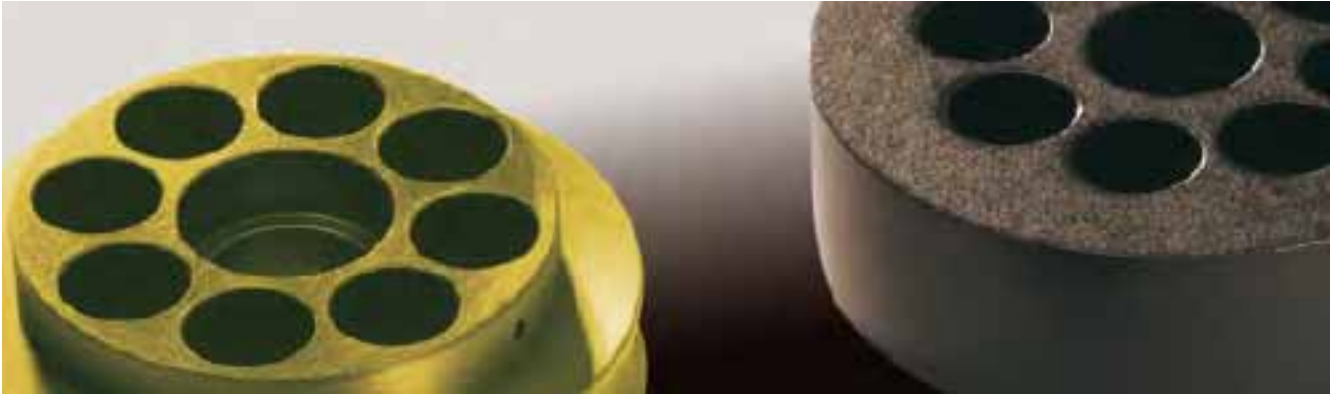
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www.plastic-metal.com

VESPEL®.

The raw material for a new age.



Parts made of VESPEL® Polyimid prove themselves to be extremely stable in their dimensions. Heat resistance which many other plastics do not achieve. Even placed shortly in a temperature reaching 482 °C, VESPEL® parts do not melt or soften up.

- | very good wearing properties
- | electrically insulating
- | extreme heat resistance
- | good resistance against acids
- | high long-term strength as well as an excellent resistance to shocks
- | no corrosion
- | low gas exhalation
- | excellent resistance to radiation
- | easy machining without special equipment or methods
- | good adaption to forms but does not warp

SP1
Basic type without a filling.
Maximum strength and elasticity.
Optimal electrical properties.

SP21
Contains 15 weight % graphite.
Improved wear properties and heat resistance.

SP22
Contains 40 weight % graphite.
Minimum heat extension coefficient.
Maximum creep resistance.

SP211
Contains 15 weight % graphite and 10 % PTFE.
Low static friction.
For use in moderate temperatures .

SP3
Contains 15 weight % MoS₂.
For friction utilisation in vacuum or inert gases.

Insulation as a sensor protection made of **VESPEL® SP1** heat resistant.



Slugs for electrical insulating bodies in welding blowpipes made of **VESPEL® SP1**



Sealing rings in gear made of **VESPEL® SP21**



Rods



| | Tolerance to DIN mm | VESPEL® SP-1 | VESPEL® SP-21 | VESPEL® SP-211 | VESPEL® SP-22 | VESPEL® SP-3 |
|-------------------------|---------------------|--------------|---------------|----------------|---------------|--------------|
| DIN-Abbreviation | | PI | PI CS 15 | PI CS 15, PTFE | PI CS 40 | PI |
| Density (g/cm³) | | 1,43 | 1,51 | 1,55 | 1,65 | 1,6 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 6,3 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 9,5 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 11,1 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 12,7 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 15,8 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 19 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 25,4 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 31,7 | 0 +0,25 | ● | ● | ● | ● | ○ |
| 38,1 | 0 +0,25 | ● | ● | ● | ○ | ○ |
| 50,8 | 0 +0,25 | ● | ● | ○ | ○ | ○ |
| 63,5 | 0 +0,25 | ● | ● | ○ | ○ | ○ |
| 82,5 | 0 +0,25 | ● | ● | ○ | ○ | ○ |

All figures given without obligation.

Standard lengths:

From Ø 6,3 mm to Ø 63,5 mm: 965, 720, 480, 238 mm

For Ø 82,5 mm: 685, 510, 338, 158 mm

All lengths indicated are minimum values.

- : Standard products (in stock or short-term delivery possible)
- : Non-standard products (manufacturing upon request)



= Stock item

= Non-stock item – special production

Plates



| | Tolerance to DIN mm | VESPEL® SP-1 | VESPEL® SP-21 | VESPEL® SP-211 | VESPEL® SP-22 | VESPEL® SP-3 |
|-------------------------|---------------------|--------------|---------------|----------------|---------------|--------------|
| DIN-Abbreviation | | PI | PI CS 15 | PI CS 15, PTFE | PI CS 40 | PI |
| Density (g/cm³) | | 1,43 | 1,51 | 1,55 | 1,65 | 1,6 |
| Size (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 1,6 | | ● | ○ | - | - | - |
| 3,2 | | ● | ● | - | - | - |
| 4,8 | | ● | ● | - | - | - |
| 6,3 | | ● | ● | ○ | ○ | ○ |
| 12,7 | | ● | ● | ○ | ○ | ○ |
| 25,4 | | ● | ● | ○ | ○ | ○ |
| 38,1 | | ● | ● | ○ | ○ | ○ |
| 50,8 | | ● | ● | ○ | ○ | ○ |
| 50,8 (*) | | ○ | ○ | ○ | ○ | ○ |

All figures given without obligation.

For all thicknesses: 254 * 254 mm

For thicknesses over 6,3 mm: 254 * 127 mm and 127 * 127 mm

(*): For thickness 50,8 mm two additional dimensions are possible:
101 * 317,5 mm and 101 * 965 mm



= Stock item

= Non-stock item – special production

All lengths indicated are minimum values.

- : Standard products (in stock or short-term delivery possible)
- : Non-standard products (manufacturing upon request)
- (-): Not available

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Tubes



| | VESPEL® SP-1 | VESPEL® SP-21 | VESPEL® SP-211 | VESPEL® SP-22 | VESPEL® SP-3 |
|-------------------------|-----------------|------------------|-------------------|------------------|-----------------|
| DIN-Abbreviation | PI | PI CS 15 | PI CS 15, PTFE | PI CS 40 | PI |
| Density (g/cm³) | 1,43 | 1,51 | 1,55 | 1,65 | 1,6 |

| Standardlength mm | Diameter Ø mm | 27,90 | 35,50 | 48,2 | 66 | 86,8 | 109 | 119 | 142 |
|----------------------|------------------|-------|-------|------|----|------|-----|-----|-----|
| 165/330 | 40,6 | ○ | | | | | | | |
| 330 | 43,1 | | ○ | | | | | | |
| 838 | 78,7 | | | ○ | | | | | |
| 838 | 86,3 | | | | ○ | | | | |
| 838 | 94 | | | ○* | | ○ | | | |
| 838 | 101 | | | | ○* | | | | |
| 838 | 109 | | | | | ○ | | | |
| 838 | 111 | | | ○ | | | | | |
| 838 | 119 | | | | ○ | | | | |
| 838 | 121 | | | | | | ○ | | |
| 838 | 124 | | | ○* | | ○** | | | |
| 838 | 129 | | | | ○* | | | | |
| 838 | 137 | | | | | ○** | ○ | | |
| 838 | 142 | | | | | | | ○ | |
| 838 | 144 | | | | | | ○ | | |
| 838 | 149 | | | | | | | ○ | |
| 838 | 154 | | | | | | ○ | | |
| 838 | 162 | | | | | | | | ○ |
| 838 | 165 | | | | | | ○** | | |
| 838 | 170 | | | | | | | ○** | ○ |
| 838 | 180 | | | | | | | | ○** |

All figures given without obligation.

All diameters outside and lengths indicates are minimum values, all diameters inside are maximum values.

- Non-standard products (manufacturing upon request)
- (-) Not available

- * Also available length 203 mm
- ** Only SP 1 and SP 21 also in 203 mm



= Stock item



= Non-stock item – special production



= Outside



= Inside

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Compression Moulding.

Low stress and near to the desired size.






Sintered and compression moulded parts are especially used for applications demanding precision and high loads.

Cost and material saving because the geometry of the semi-finished part is very near to the final sizes of the finished part.

Small production runs.

Customized material modifications

Dimensionally stable and low stress, therefore low distortion and easily machinable.

| | | Rods  | | Discs  | | Tubes  | |
|-----------------------------------|------------------|--|--------------|---|-------------|---|------------------------------|
| | DIN-Abbreviation | Diameter Ø (mm) | Length (mm) | Diameter Ø (mm) | Length (mm) | Diameter AD Ø (mm) | Length (mm) |
| TECATOR GF 30 | PAI | 25,4 - 79,5 | 76,2 - 152,4 | 82,6 - 660,4 | 12,7 - 50,8 | 38,1 - 1676,4 | 76,2 - 152,4 |
| TECAPEEK | PEEK | 25,4 - 79,5 | 76,2 - 152,4 | 82,6 - 660,4 | 12,7 - 76,2 | 38,1 - 1676,4 | 76,2 - 152,4 |
| TECAPEEK GF 30, CF 30, PVX | PEEK | 25,4 - 79,5 | 76,2 - 152,4 | 82,6 - 660,4 | 12,7 - 76,2 | 38,1 - 1676,4 209,6 - 1676,4 | 76,2 - 304,8 76,2 - 152,4 |
| TECATRON GF 40 | PPS GF 40 | 25,4 - 101,6 | 76,2 - 304,8 | 108 - 660,4 | 12,7 - 88,9 | 38,1 - 1676,4 209,6 - 1676,4 | 76,2 - 304,8 76,2 - 152,4 |
| TECAPEI | PEI | 25,4 - 101,6 | 76,2 - 304,8 | 108 - 660,4 | 12,7 - 88,9 | 38,1 - 1676,4 | 76,2 - 152,4 |
| TECAFLON PCTFE, PFA | PCTFE, PFA | 25,4 - 63,5 | 76,2 - 152,4 | 69,9 - 1143,0 | 12,7 - 63,5 | 38,1 - 1676,4 | 76,2 - 152,4 |



| Plates | DIN-Abbreviation | Size (mm) | Width x Length (mm) |
|---|------------------|------------|---------------------------------------|
| TECATOR GF 30 | PAI GF 30 | 6,2 - 38,1 | 203,2 x 406,4 |
| | | 6,2 - 50,8 | 254 x 254 / 330,2 x 330,2 |
| TECAPEEK natur | PEEK | 6,2 - 57,2 | 203,2 x 406,4 |
| TECAPEEK GF 30 | PEEK GF 30 | 6,2 - 76,2 | 254 x 254 |
| TECAPEEK CF 30 | PEEK CF 30 | 6,2 - 63,5 | 330,2 x 330,2 / 381 x 762, |
| TECAPEEK PVX | PEEK PVX | 9,5 - 63,5 | 609,6 x 609,6 |
| TECATRON GF 40 TECAPEI | PPS GF 40 PEI | 6,2 - 38,1 | 203,2 x 406,4 |
| | | 6,2 - 88,9 | 254 x 254 |
| | | 6,2 - 76,2 | 330 x 330 |
| | | 6,2 - 50,8 | 381 x 762 |
| TECAFLON PCTFE, TECAFLON PFA | PCTFE PFA | 9,5 - 50,8 | 609,6 x 609,6 |
| | | 6,2 - 38,1 | 203,2 x 406,4 |
| | | 6,2 - 50,8 | 254 x 254 / 330,2 x 330,2 / 381 x 762 |
| | | 9,5 - 50,8 | 609,6 x 609,6 |

Please find **VespeI (PI)** and **SINTIMID (PI)** on page 50 to 55. Many more modifications are available on request.

TECAFINE. TECANYL. TECARAN.

Standard plastics for lightweight and stable parts.



ENSINGER standard plastics include the semi-crystalline polyolefines TECAFINE (PE), and the amorphous TECANYL (PP) and TECARAN (ABS). They are used in all fields where low density and stability are requested, but no long term high temperatures are needed.

- | Low density
- | Low water absorption
- | Low abrasion (semi-crystalline materials)
- | High impact resistance
- | Good chemical resistance
- | Good machinability using standard tools
- | Good electrical insulation

TECAFINE PE 10 (PE-UHMW)

Very good tribological properties.
Very good electrical insulation. High toughness under cold conditions.

TECAFINE PE 5 (PE-HMW)

Good sliding properties, abrasion resistant.

TECAFINE PE (PE-HD)

Very low water absorption. Good weldability.

TECAFINE PP (PP)

Very low water absorption. Very good electrical insulation.

TECAFINE PP GF 30 (PP GF 30)

Very low water absorption. High dimensional stability.

TECAFINE PMP (PMP)

Translucent, also under UV-radiation.
Very good electrical insulation.

TECANYL (PPE)

Good strength. Very good electrical insulation.

TECANYL GF 30 (PPE GF 30)

High stiffness. Good weldability, easily bonded.

TECARAN ABS (ABS)

Very stiff and strong.
Very good electrical insulation.

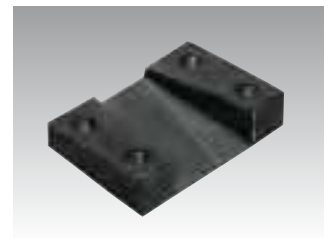
TECARAN ABS.

Stripper.
Impact resistant.



TECAFINE 5 black.

Sliding pad. Very abrasion resistant, impact resistant and UV-resistant.



TECAFINE PE.

Side plate. Light and flexible.




Rods



| | Tolerance to DIN (mm) | TECAFINE PE 10 | TECAFINE PE 5 | TECAFINE PE | TECAFINE PE black | TECAFINE PP | TECAFINE PP grey | TECAFINE PMP translucent |
|-----------------------------------|-----------------------|----------------|---------------|-------------|-------------------|-------------|------------------|--------------------------|
| DIN-Abbreviation | | PE-UHMW | PE-HMW | PE-HD | PE-HD | PP | PP | PMP |
| Density (g/cm³) | | 0,93 | 0,95 | 0,96 | 0,96 | 0,91 | 0,91 | 0,83 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,013 | 0,013 | 0,014 | 0,014 | 0,013 | 0,013 | 0,012 |
| 5 | + 0,1 | 0,021 | 0,021 | 0,021 | 0,021 | 0,020 | 0,020 | 0,018 |
| 6 | + 0,4 | 0,029 | 0,030 | 0,030 | 0,030 | 0,028 | 0,028 | 0,026 |
| 8 | + 0,1 + 0,5 | 0,051 | 0,052 | 0,053 | 0,053 | 0,050 | 0,050 | 0,046 |
| 9 | + 0,1 | 0,065 | 0,067 | 0,067 | 0,067 | 0,064 | 0,064 | 0,058 |
| 10 | + 0,6 | 0,080 | 0,082 | 0,082 | 0,082 | 0,078 | 0,078 | 0,071 |
| 11 | + 0,2 | 0,098 | 0,100 | 0,101 | 0,101 | 0,096 | 0,096 | 0,087 |
| 12 | + 0,7 | 0,115 | 0,118 | 0,119 | 0,119 | 0,113 | 0,113 | 0,103 |
| 13 | | 0,136 | 0,139 | 0,140 | 0,140 | 0,133 | 0,133 | 0,121 |
| 14 | + 0,2 | 0,157 | 0,160 | 0,162 | 0,162 | 0,153 | 0,153 | 0,140 |
| 15 | + 0,8 | 0,179 | 0,183 | 0,185 | 0,185 | 0,175 | 0,175 | 0,160 |
| 16 | | 0,203 | 0,207 | 0,209 | 0,209 | 0,198 | 0,198 | 0,181 |
| 18 | + 0,2 + 0,9 | 0,256 | 0,262 | 0,265 | 0,265 | 0,251 | 0,251 | 0,229 |
| 19 | + 0,2 | 0,286 | 0,292 | 0,295 | 0,295 | 0,280 | 0,280 | 0,255 |
| 20 | + 1 | 0,316 | 0,323 | 0,326 | 0,326 | 0,309 | 0,309 | 0,282 |
| 22 | + 0,2 | 0,382 | 0,390 | 0,395 | 0,395 | 0,374 | 0,374 | 0,341 |
| 25 | + 1,1 | 0,490 | 0,501 | 0,506 | 0,506 | 0,480 | 0,480 | 0,437 |
| 28 | + 0,2 | 0,614 | 0,627 | 0,633 | 0,633 | 0,600 | 0,600 | 0,548 |
| 30 | + 1,2 | 0,702 | 0,717 | 0,73 | 0,73 | 0,687 | 0,687 | 0,627 |
| 32 | + 0,2 | 0,799 | 0,816 | 0,83 | 0,83 | | | |
| 36 | + 1,3 | 1,01 | 1,03 | 1,04 | 1,04 | 0,985 | 0,985 | 0,898 |
| 40 | + 0,2 + 1,5 | 1,24 | 1,27 | 1,28 | 1,28 | 1,22 | 1,22 | 1,11 |
| 45 | + 0,3 + 1,7 | 1,58 | 1,61 | 1,63 | 1,63 | 1,54 | 1,54 | 1,41 |
| 50 | + 0,3 | 1,95 | 1,99 | 2,01 | 2,01 | 1,91 | 1,91 | 1,74 |
| 56 | + 2 | 2,43 | 2,49 | 2,51 | 2,51 | 2,38 | 2,38 | 2,17 |
| 60 | + 0,3 + 2,3 | 2,80 | 2,86 | 2,9 | 2,9 | 2,74 | 2,74 | 2,50 |
| 65 | + 0,3 | 3,28 | 3,36 | 3,39 | 3,39 | 3,21 | 3,21 | 2,93 |
| 70 | + 2,5 | 3,80 | 3,88 | 3,9 | 3,9 | 3,72 | 3,72 | 3,39 |
| 75 | | 4,38 | 4,48 | 4,52 | 4,52 | 4,29 | 4,29 | 3,91 |
| 80 | + 0,4 + 3 | 4,97 | 5,08 | 5,13 | 5,13 | 4,87 | 4,87 | 4,44 |
| 90 | + 0,5 + 3,4 | 6,30 | 6,43 | 6,50 | 6,50 | 6,16 | 6,16 | 5,62 |
| 100 | + 0,6 + 3,8 | 7,78 | 7,95 | 8,0 | 8,0 | 7,61 | 7,61 | 6,94 |
| 110 | + 0,7 + 4,2 | 9,42 | 9,62 | 9,72 | 9,72 | 9,22 | 9,22 | 8,41 |
| 120 | + 0,8 | 11,22 | 11,46 | 11,58 | 11,58 | 10,98 | 10,98 | 10,01 |
| 125 | + 4,6 | 12,15 | 12,41 | 12,54 | 12,54 | 11,89 | 11,89 | 10,84 |
| 135 | + 0,9 | 14,22 | 14,52 | 14,68 | 14,68 | 13,91 | 13,91 | 12,69 |
| 140 | + 5,4 | 15,27 | 15,59 | 15,76 | 15,76 | 14,94 | 14,94 | 13,63 |
| 150 | + 1 + 5,8 | 17,53 | 17,91 | 18,10 | 18,10 | 17,15 | 17,15 | 15,65 |
| 165 | + 1,2 | 21,35 | 21,81 | 22,04 | 22,04 | 20,89 | 20,89 | 19,06 |
| 180 | + 7,4 | 25,3 | 25,8 | 26,1 | 26,1 | 24,76 | 24,76 | 22,58 |
| 200 | + 1,3 | 31,3 | 32,0 | 32,3 | 32,3 | 30,6 | 30,6 | 27,9 |
| 210 | + 8,5 | 34,4 | 35,1 | 35,5 | 35,5 | 33,7 | 33,7 | 30,7 |
| 230 | + 1,3 | 41,2 | 42,1 | 42,5 | 42,5 | 40,3 | 40,3 | 36,8 |
| 250 | + 9 | 48,5 | 49,5 | 50,1 | 50,1 | 47,5 | 47,5 | 43,3 |
| 280 | + 1,3 + 9,5 | 60,7 | 62,0 | 62,6 | 62,6 | 59,4 | 59,4 | |
| 300 | + 1,3 + 10 | 69,6 | 71,1 | 71,8 | 71,8 | 68,1 | 68,1 | |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

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Email: sales@plastic-metal.com

www.plastic-metal.com

Rods



| | Tolerance to DIN (mm) | TECANYL grey | TECANYL GF 30 | TECARAN ABS grey |
|-----------------------------------|-----------------------|-----------------|------------------|------------------------|
| DIN-Abbreviation | | PPE | PPE GF 30 | ABS |
| Density (g/cm³) | | 1,06 | 1,29 | 1,06 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,015 | 0,018 | 0,015 |
| 5 | + 0,1 | 0,023 | 0,028 | 0,023 |
| 6 | + 0,4 | 0,033 | 0,040 | 0,033 |
| 8 | | 0,058 | 0,071 | 0,058 |
| 9 | | 0,073 | 0,089 | 0,073 |
| 10 | + 0,1 | 0,090 | 0,110 | 0,090 |
| 11 | + 0,5 | 0,108 | 0,132 | 0,108 |
| 12 | | 0,128 | 0,156 | 0,128 |
| 13 | | 0,156 | 0,190 | 0,156 |
| 14 | | 0,180 | 0,219 | 0,180 |
| 15 | | 0,205 | 0,250 | 0,205 |
| 16 | + 0,2 | 0,233 | 0,283 | 0,233 |
| 18 | + 0,9 | 0,292 | 0,356 | 0,292 |
| 19 | | 0,325 | 0,395 | 0,325 |
| 20 | | 0,359 | 0,436 | 0,359 |
| 22 | | 0,438 | 0,532 | 0,438 |
| 24 | | 0,518 | 0,630 | 0,518 |
| 25 | + 0,2 | 0,561 | 0,683 | 0,561 |
| 28 | + 1,2 | 0,689 | 0,851 | 0,699 |
| 30 | | 0,800 | 0,974 | 0,800 |
| 32 | | 0,908 | 1,11 | 0,908 |
| 36 | + 0,2 | 1,16 | 1,41 | 1,16 |
| 40 | + 1,6 | 1,42 | 1,73 | 1,42 |
| 45 | | 1,81 | 2,20 | 1,81 |
| 50 | + 0,3 | 2,22 | 2,70 | 2,22 |
| 56 | + 2 | 2,77 | 3,38 | 2,77 |
| 60 | | 3,20 | 3,90 | 3,20 |
| 65 | + 0,3 | 3,74 | 4,56 | 3,74 |
| 70 | + 2,5 | 4,33 | 5,27 | 4,33 |
| 75 | + 0,4 | 5,00 | 6,08 | 5,00 |
| 80 | + 3 | 5,67 | 6,90 | 5,67 |
| 90 | + 0,5 + 3,4 | 7,18 | 8,74 | 7,18 |
| 100 | + 0,6 + 3,8 | 8,87 | 10,79 | 8,87 |
| 110 | + 0,7 + 4,2 | 10,74 | 13,07 | 10,74 |
| 120 | + 0,8 | 12,78 | 15,56 | 12,78 |
| 125 | + 4,6 | 13,85 | 16,85 | 13,85 |
| 135 | + 0,9 | 16,21 | 19,72 | 16,21 |
| 140 | + 5,4 | 17,40 | 21,18 | 17,40 |
| 150 | + 1 + 5,8 | 19,98 | 24,32 | 19,98 |
| 160 | + 1,1 + 6,3 | 22,76 | 27,7 | 22,76 |
| 165 | + 1,2 | 24,34 | 29,6 | 24,34 |
| 180 | + 7,4 | 28,8 | 35,1 | 28,8 |
| 200 | | 35,7 | 43,4 | 35,7 |
| 210 | + 1,3 | 39,2 | | 39,2 |
| 230 | + 8,5 | 46,9 | | 46,9 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 The specified kg/m weights are purely arithmetic figures.
 Weight on delivery will deviate from the figures given above.
 Stock lengths 3000 mm, other delivery lengths possible,
 also available ground. All figures given without obligation.



= Stock item

= Non-stock item – special production

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 23162 La Cadena Drive
 Laguna Hills, CA 92653
 USA
 Tel: 949-770-8230
 Fax: 949-770-8478
 Email: sales@plastic-metal.com
 www.plastic-metal.com


Plates



| | Tolerance* | TECAFINE PPH grey | TECAFINE PPH GF 30 | TECAFINE PE 10 | TECAFINE PE 5 | TECAFINE PE |
|-----------------------------------|------------|-------------------|--------------------|----------------|---------------|-------------|
| DIN-Abbreviation | | PP | PP GF 30 | PE-UHMW | PE-HMW | PE-HD |
| Density (g/cm³) | | 0,91 | 1,14 | 0,93 | 0,95 | 0,95 |
| Diameter (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 5 x 300 | | 1,56 | 1,96 | 1,60 | 1,63 | 1,63 |
| 5 x 500 | | 2,55 | 3,20 | 2,61 | 2,67 | 2,67 |
| 6 x 300 | | 1,85 | 2,32 | 1,89 | 1,93 | 1,93 |
| 6 x 500 | | 3,02 | 3,79 | 3,09 | 3,16 | 3,16 |
| 8 x 300 | | 2,45 | 3,07 | 2,50 | 2,56 | 2,56 |
| 8 x 500 | | 4,01 | 5,02 | 4,10 | 4,18 | 4,18 |
| 10 x 300 | | 3,02 | 3,79 | 3,09 | 3,16 | 3,16 |
| 10 x 500 | | 4,94 | 6,19 | 5,05 | 5,16 | 5,16 |
| 12 x 300 | | 3,70 | 4,63 | 3,78 | 3,86 | 3,86 |
| 12 x 500 | | 6,05 | 7,57 | 6,18 | 6,31 | 6,31 |
| 16 x 300 | | 4,84 | 6,07 | 4,95 | 5,06 | 5,06 |
| 16 x 500 | | 7,92 | 9,92 | 8,09 | 8,27 | 8,27 |
| 18 x 500 | | 8,86 | 11,10 | 9,05 | 9,25 | 9,25 |
| 20 x 300 | | 5,99 | 7,51 | 6,12 | 6,25 | 6,25 |
| 20 x 500 | | 9,79 | 12,27 | 10,01 | 10,23 | 10,23 |
| 22 x 300 | | 6,56 | 8,22 | 6,71 | 6,85 | 6,85 |
| 22 x 500 | | 10,73 | 13,44 | 10,97 | 11,20 | 11,20 |
| 25 x 300 | | 7,42 | 9,30 | 7,59 | 7,75 | 7,75 |
| 25 x 500 | | 12,14 | 15,21 | 12,40 | 12,67 | 12,67 |
| 27 x 300 | | 8,00 | 10,02 | 8,17 | 8,35 | 8,35 |
| 27 x 500 | | 13,08 | 16,38 | 13,36 | 13,65 | 13,65 |
| 30 x 300 | | 9,03 | 11,31 | 9,23 | 9,43 | 9,43 |
| 30 x 500 | | 14,76 | 18,49 | 15,09 | 15,41 | 15,41 |
| 32 x 300 | | 9,60 | 12,03 | 9,81 | 10,02 | 10,02 |
| 32 x 500 | | 15,70 | 19,67 | 16,04 | 16,39 | 16,39 |
| 40 x 300 | | 11,90 | 14,90 | 12,16 | 12,42 | 12,42 |
| 40 x 500 | | 19,45 | 24,36 | 19,88 | 20,33 | 20,33 |
| 45 x 500 | | 21,79 | 27,30 | 22,27 | 22,75 | 22,75 |
| 50 x 300 | | 14,76 | 18,49 | 15,09 | 15,41 | 15,41 |
| 50 x 500 | | 24,14 | 30,24 | 24,67 | 25,20 | 25,20 |
| 60 x 300 | | 17,77 | 22,26 | 18,16 | 18,55 | 18,55 |
| 60 x 500 | | 29,06 | 36,40 | 29,69 | 30,33 | 30,33 |
| 70 x 300 | | 20,64 | 25,86 | 21,09 | 21,55 | 21,55 |
| 70 x 500 | | 33,74 | 42,27 | 34,48 | 35,23 | 35,23 |
| 80 x 300 | | 23,72 | 29,72 | 24,24 | 24,76 | 24,76 |
| 80 x 500 | | 38,78 | 48,58 | 39,63 | 40,49 | 40,49 |
| 90 x 300 | | 26,59 | 33,31 | 27,17 | 27,76 | 27,76 |
| 90 x 500 | | 43,47 | 54,45 | 44,42 | 45,38 | 45,38 |
| 100 x 300 | | 29,45 | 36,90 | 30,10 | 30,75 | 30,75 |
| 100 x 500 | | 48,15 | 60,32 | 49,21 | 50,27 | 50,27 |

* Tolerance based on GKV according to manufacturer's specifications.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planned. All figures given without obligation.

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OTHERS

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www.plastic-metal.com


Plates




| | Tolerance to DIN (mm) | TECANYL grey | TECANYL GF 30 | TECARAN ABS grey |
|-----------------------------------|-----------------------|-----------------|------------------|------------------------|
| DIN-Abbreviation | | PPE | PPE GF 30 | ABS |
| Density (g/cm³) | | 1,06 | 1,29 | 1,06 |
| Diameter (mm) | | kg/m | kg/m | kg/m |
| 5 x 300 | | 1,86 | 2,26 | 1,86 |
| 5 x 500 | + 0,2 | 3,03 | 3,69 | 3,03 |
| 6 x 300 | + 0,7 | 2,20 | 2,67 | 2,20 |
| 6 x 500 | | 3,59 | 4,37 | 3,59 |
| 8 x 300 | | 2,91 | 3,54 | 2,91 |
| 8 x 500 | + 0,2 | 4,76 | 5,79 | 4,76 |
| 10 x 300 | + 0,9 | 3,59 | 4,37 | 3,59 |
| 10 x 500 | | 5,87 | 7,15 | 5,87 |
| 12 x 300 | | 4,39 | 5,35 | 4,39 |
| 12 x 500 | | 7,18 | 8,74 | 7,18 |
| 15 x 500 | | 8,85 | 10,77 | 8,85 |
| 16 x 300 | | 5,76 | 7,00 | 5,76 |
| 16 x 500 | | 9,41 | 11,45 | 9,41 |
| 18 x 500 | + 0,3 | 10,52 | 12,81 | 10,52 |
| 20 x 300 | + 1,5 | 7,12 | 8,66 | 7,12 |
| 20 x 500 | | 11,64 | 14,16 | 11,64 |
| 22 x 300 | | 7,80 | 9,49 | 7,80 |
| 22 x 500 | | 12,75 | 15,52 | 12,75 |
| 25 x 300 | | 8,82 | 10,73 | 8,82 |
| 25 x 500 | | 14,42 | 17,55 | 14,42 |
| 27 x 300 | | 9,71 | 11,81 | 9,71 |
| 27 x 500 | | 15,87 | 19,31 | 15,87 |
| 30 x 300 | | 10,73 | 13,06 | 10,73 |
| 30 x 500 | | 17,54 | 21,35 | 17,54 |
| 32 x 300 | | 11,41 | 13,88 | 11,41 |
| 32 x 500 | + 0,5 | 18,65 | 22,70 | 18,65 |
| 40 x 300 | + 2,5 | 14,13 | 17,20 | 14,13 |
| 40 x 500 | | 23,11 | 28,1 | 23,11 |
| 45 x 500 | | 25,9 | 31,5 | 25,9 |
| 50 x 300 | | 17,54 | 21,35 | 17,54 |
| 50 x 500 | | 28,7 | 34,9 | 28,7 |
| 60 x 300 | | 21,37 | 26,0 | 21,37 |
| 60 x 500 | | 34,9 | 42,5 | 34,9 |
| 70 x 300 | | 24,78 | 30,2 | 24,78 |
| 70 x 500 | | 40,5 | 49,3 | 40,5 |
| 80 x 300 | + 0,5 | 28,2 | 34,3 | 28,2 |
| 80 x 500 | + 5 | 46,1 | 56,1 | 46,1 |
| 90 x 300 | | 31,6 | | 31,6 |
| 90 x 500 | | 51,6 | | 51,6 |
| 100 x 300 | | 35,0 | | 35,0 |
| 100 x 500 | | 57,2 | | 57,2 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
width $\pm \frac{25}{8}$ mm.

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ENSINGER Materials for Medical Technology



- | Physiologically harmless
- | Bio compatible
- | Can be sterilised with the usual methods
- | Very good chemical resistance
- | Good dimensional and geometric stability for long term usage
- | Good electrical insulation

TECAPEEK CLASSIX™

Semi-finished shapes and raw material are batch tested for cytotoxicity according to ISO 10993.

TECAPEEK CLASSIX™ XRO

Same properties as TECAPEEK CLASSIX™, a radio opacifier allows for visibility and x-rays.

TECAPEEK MT

Hydrolysis-resistant, autoclavable semi-finished, product with approvals for medical technology.

TECAPEI MT

Very good mechanical and electrical properties. Available in several colours.

TECAFORM AH MT

Very good sliding and friction behaviour. Resistant to multiple cleaning and disinfecting agents and to a number of solvents. Available in many colours.

TECASON P MT

Autoclavable material with approvals for medical technology. Very good mechanical and electrical properties. High thermal stability.

TECASON P MT XRO

Same properties as TECASON P MT, a radio opacifier allows for visibility and x-rays.

TECATRON MT

Resistant to oxidation and hydrolysis. Long term usability up to + 230 °C, short term up to + 260 °C.

TECAPRO MT

Resistant to sterilisation and very good dimensional stability. Easily machined.

TECANYL MT

Resistant to sterilisation and dimensionally stable. High impact resistance. Low density.

Furthermore are used in medicine technology:

TECAFLON PTFE, TECASON E, TECASON S, TECAFLON PVDF, TECANAT, TECADUR PET, TECAMID 66 natural, TECAFORM AH natural



Container made of
TECAPRO MT



TECAFORM AH MT
Sizing trials for knee implants.



TECAPEEK CLASSIX™
Dental healing caps.



Please find detailed information in our brochures "Technical Plastics and Engineering Excellence in Medical Technology" also for download under www.ensinger-online.com

Rods



| | Tolerance to DIN (mm) | TECAPEEK CLASSIX™ white | TECAPEEK CLASSIX™ black |
|--------------------------|-----------------------|-------------------------|-------------------------|
| Color* | | | |
| DIN-Abbreviation | | PEEK | PEEK |
| Density (g/cm³) | | 1,38 | 1,38 |
| Diameter Ø (mm/“) | | kg/m | kg/m |
| 6 | + 0,036 + 0,00 | 0,040 | 0,040 |
| 8 | | 0,071 | 0,071 |
| 10 | | 0,111 | 0,111 |
| 20 | 0 - 0,056 | 0,443 | 0,443 |
| 30 | | 0,997 | 0,997 |
| 45 | 0 - 0,062 | 2,24 | 2,24 |

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Tolerances according to DIN: length $+ \frac{3}{0} \%$.
The specified kg/m weights are purely arithmetic figures.
Weight on delivery will deviate from the figures given above.
Stock lengths 3000 mm, other delivery lengths possible, also available ground.
All figures given without obligation.

 = Stock item


 = Non-stock item – special production


Rods



| | Tolerance to DIN (mm) | TECAPEEK MT black | TECAPEEK MT blue | TECAPEEK MT yellow | TECAPEEK MT red | TECAPEEK MT green |
|--------------------------|-----------------------|-------------------|------------------|--------------------|-----------------|-------------------|
| Color* | | | | | | |
| DIN-Abbreviation | | PEEK | PEEK | PEEK | PEEK | PEEK |
| Density (g/cm³) | | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |
| Diameter Ø (mm/“) | | kg/m | kg/m | kg/m | kg/m | kg/m |
| 12 | + 0,2 + 0,9 | 0,164 | 0,164 | 0,164 | 0,164 | 0,164 |
| 15 | | 0,252 | 0,252 | 0,252 | 0,252 | 0,252 |
| 16 | | 0,285 | | | | |
| 18 | | 0,358 | | | | |
| 19 | | 0,398 | | | | |
| 20 | + 0,2 + 1,1 | 0,444 | 0,444 | 0,444 | 0,444 | 0,444 |
| 22 | + 0,2 + 1,2 | 0,537 | | | | |
| 25 | | 0,688 | 0,688 | 0,688 | 0,688 | 0,688 |
| 28 | | 0,858 | | | | |
| 30 | | 0,982 | | | | |
| 32 | + 0,2 + 1,3 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 |
| 36 | | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 |
| 40 | + 0,2 + 1,5 | 1,74 | 1,74 | 1,74 | 1,74 | 1,74 |
| 45 | + 0,3 + 1,7 | 2,20 | | | | |
| 50 | | 2,71 | 2,71 | 2,71 | 2,71 | 2,71 |
| 56 | + 0,3 + 2 | 3,40 | | | | |
| 60 | + 0,3 + 2,3 | 3,91 | 3,91 | 3,91 | 3,91 | 3,91 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours.
Please ask for samples.
Tolerances according to DIN: length $+ \frac{3}{0} \%$.
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 = Stock item

 = Non-stock item – special production

Rods



| | Tolerance to DIN (mm) | TECASON P MT black | TECASON P MT green | TECASON P MT red | TECASON P MT yellow | TECASON P MT blue | TECASON P MT ivory | TECASON P MT grey |
|-----------------------------------|-----------------------|--------------------|--------------------|------------------|---------------------|-------------------|--------------------|-------------------|
| Color* | | | | | | | | |
| DIN-Abbreviation | | PPSU | PPSU | PPSU | PPSU | PPSU | PPSU | PPSU |
| Density (g/cm³) | | 1,29 | 1,29 | 1,29 | 1,29 | 1,29 | 1,29 | 1,29 |
| Diameter Ø (mm / ") | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 20 | + 0,2 + 0,9 | 0,436 | | | | | | |
| 22 | + 0,2 + 1,2 | 0,532 | | | | | | |
| 25,4 / 1" | + 0,0 + 0,13 | 0,670 | 0,670 | 0,670 | 0,670 | 0,670 | 0,670 | 0,670 |
| 25 | + 0,2 1,2 | 0,683 | | | | | | |
| 28 | | 0,851 | | | | | | |
| 30 | | 0,974 | | | | | | |
| 31,75 / 1¼" | + 0,0 + 0,13 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 |
| 32 | + 0,2 + 1,2 | 1,11 | | | | | | |
| 36 | + 0,2 + 1,6 | 1,41 | | | | | | |
| 38,1 / 1½" | + 0,0 + 0,13 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 |
| 40 | + 0,2 + 1,6 | 1,73 | | | | | | |
| 44,45 / 1¾" | + 0,0 + 0,13 | 2,05 | 2,05 | 2,05 | 2,05 | 2,05 | 2,05 | 2,05 |
| 45 | + 0,3 2,0 | 2,20 | | | | | | |
| 50 | | 2,70 | | | | | | |
| 50,8 / 2" | + 0,0 + 0,13 | 2,67 | 2,67 | 2,67 | 2,67 | 2,67 | 2,67 | 2,67 |
| 56 | + 0,3 + 2,0 | 3,38 | | | | | | |
| 57,15 / 2¼" | + 0,0 + 0,76 | 3,42 | 3,42 | 3,42 | 3,42 | 3,42 | 3,42 | 3,42 |
| 60 | + 0,3 + 2,5 | 3,90 | | | | | | |
| 63,5 / 2½" | + 0,0 + 0,76 | 4,22 | 4,22 | 4,22 | 4,22 | 4,22 | 4,22 | 4,22 |
| 65 | + 0,3 + 2,5 | 4,56 | | | | | | |
| 69,85 / 2¾" | + 0,0 + 0,76 | 5,10 | 5,10 | 5,10 | 5,10 | 5,10 | 5,10 | 5,10 |
| 70 | + 0,3 + 2,5 | 5,27 | | | | | | |
| 75 | + 0,4 + 3 | 6,08 | | | | | | |
| 76,2 / 3" | + 0,0 + 0,76 | 6,06 | 6,06 | 6,06 | 6,06 | 6,06 | 6,06 | 6,06 |
| 80 | + 0,4 + 3 | 6,90 | | | | | | |
| 88,9 / 3½" | + 0,0 + 0,76 | 8,24 | 8,24 | 8,24 | 8,24 | 8,24 | 8,24 | 8,24 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours. Please ask for samples.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

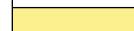





Stock lengths 2440 mm, other delivery lengths possible, also available ground.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

More colours on request:

| TECASON P MT signal yellow | TECASON P MT deep orange | TECASON P MT raspberry red | TECASON P MT blue lila | TECASON P MT sky blue | TECASON P MT light green |
|---|---|--|---|---|---|
|  |  |  |  |  |  |

| | Toleranz nach DIN (mm) | TECASON P MT XRO black | TECASON P MT XRO green | TECASON P MT XRO red | TECASON P MT XRO yellow | TECASON P MT XRO blue | TECASON P MT XRO rust | TECASON P MT XRO brown | TECASON P MT XRO ivory |
|-----------------------------------|------------------------|------------------------|------------------------|----------------------|-------------------------|-----------------------|-----------------------|------------------------|------------------------|
| Color* | | | | | | | | | |
| DIN-Abbreviation | | PPSU | PPSU | PPSU | PPSU | PPSU | PPSU | PPSU | PPSU |
| Density (g/cm³) | | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |
| Diameter Ø (mm / ") | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 25,4 / 1" | + 0,0 + 0,13 | 0,675 | | | | | | | |
| 38,1 / 1½" | + 0,0 + 0,13 | 1,52 | 1,52 | | 1,52 | 1,52 | | 1,52 | 1,52 |
| 50,8 / 2" | + 0,0 + 0,13 | | 2,69 | 2,69 | | 2,69 | | | |
| 63,5 / 2½" | + 0,0 + 0,76 | | | | | | 4,25 | | |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours. Please ask for samples.


Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

Stock lengths 2440 mm, other delivery lengths possible, also available ground.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Rods



| | Tolerance to DIN (mm) | TECAFORM AH MT black | TECAFORM AH MT blue | TECAFORM AH MT yellow | TECAFORM AH MT red | TECAFORM AH MT green | TECAFORM AH MT brown | TECAFORM AH MT grey | TECAFORM AH MT light blue | TECAFORM AH MT rust |
|-----------------------------------|-----------------------|----------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|---------------------|---------------------------|---------------------|
| Color* | | | | | | | | | | |
| DIN-Abbreviation | | POM-C | POM-C | POM-C | POM-C | POM-C | POM-C | POM-C | POM-C | POM-C |
| Density (g/cm³) | | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 | 1,41 |
| Diameter Ø (mm/“) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m | |
| 25,4 / 1“ | | 0,710 | 0,710 | 0,710 | 0,710 | 0,710 | 0,710 | 0,710 | | 0,710 |
| 38,1 / 1½“ | + 0,00 + 0,13 | 1,64 | 1,64 | 1,64 | 1,64 | 1,64 | 1,64 | 1,64 | 1,64 | 1,64 |
| 50,8 / 2“ | | 2,95 | 2,95 | 2,95 | 2,95 | 2,95 | 2,95 | 2,95 | 2,95 | 2,95 |
| 63,5 / 2½“ | | 4,68 | 4,68 | 4,68 | 4,68 | 4,68 | 4,68 | 4,68 | 4,68 | 4,68 |
| 76,2 / 3“ | + 0,00 + 0,76 | 6,59 | 6,59 | 6,59 | 6,59 | 6,59 | 6,59 | 6,59 | 6,59 | 6,59 |
| 88,9 / 3½“ | | 9,02 | 9,02 | 9,02 | 9,02 | 9,02 | 9,02 | 9,02 | 9,02 | 9,02 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours.


Please ask for samples.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

Stock lengths 2440 mm, other delivery lengths possible, also available ground.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Rods



| | Tolerance to DIN (mm) | TECAFORM AH MT SAN weiss |
|-----------------------------------|-----------------------|--------------------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm³) | | 1,41 |
| Diameter Ø (mm/“) | | kg/m |
| 60 | + 0,3 + 1,6 | 4,20 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours.

Please ask for samples.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

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Plates



| | Tolerance (mm) | TECAPRO MT white | TECAPRO MT black |
|-----------------------------------|----------------|------------------|------------------|
| Color* | | | |
| DIN-Abbreviation | | PP | PP |
| Density (g/cm³) | | 0,92 | 0,92 |
| Size (mm/“) | | kg/m | kg/m |
| 12,7 x 610 (½“ x 24“) | + 0,8 + 0 | 7,58 | 7,58 |
| 25,4 x 610 (1“ x 24“) | | 14,92 | 14,92 |
| 38,1 x 610 (1½“ x 24“) | | 22,23 | 22,27 |
| 50,8 x 610 (2“ x 24“) | | 29,6 | 29,6 |
| 63,5 x 610 (2½“ x 24“) | | 37,0 | 37,0 |

Plates



| | Tolerance (mm) | TECAPRO MT SAN white |
|-----------------------------------|----------------|----------------------|
| Color* | | |
| DIN-Abbreviation | | PP |
| Density (g/cm³) | | 0,92 |
| Size (mm/“) | | kg/m |
| 25,4 x 610 (1“ x 24“) | + 0,0 +0,8 | 14,92 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours.


Tolerances according to DIN: length $+ \frac{3}{0} \%$.

width $+ \frac{25}{5} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

Stock lengths 1220 mm, other delivery lengths possible, also available ground.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Rods



| | Tolerance (mm) | TECANYL MT black | TECANYL MT green | TECANYL MT brown | TECANYL MT yellow | TECANYL MT bleu | TECANYL MT gris |
|-----------------------------------|----------------|------------------|------------------|------------------|-------------------|-----------------|-----------------|
| Color* | | | | | | | |
| DIN-Abbreviation | | PPE | PPE | PPE | PPE | PPE | PPE |
| Density (g/cm³) | | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m | kg/m | kg/m | kg/m |
| 38,1 | +0,013 | 1,26 | 1,26 | 1,26 | 1,26 | 1,26 | 1,26 |

*Note: The colour fields are only for comparison. We cannot guarantee the liability of the colours.


Please ask for samples.

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above.

Stock lengths 2440 mm, other delivery lengths possible, also available ground.

All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plastic & Metal Center, Inc.

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USA

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ENSINGER

Materials for Semicon and Electronics



- | High thermal-mechanical properties
- | Good electrical insulating properties
- | Low thermal expansion
- | High wear resistance
- | Good chemical resistance
- | Good plasma resistance
- | Low outgassing in vacuum
- | Minimum ionic impurities

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TECAFORM AH SD

Antistatic dissipative. Carbon free, inherently active long-term, non-contaminating.

TECAFORM AH ELS

Electrically conductive POM with conductive carbon for many applications.

TECAFLON PVDF (Semicon)

Very good chemical resistance. Mechanically more stable than TFM.

TECATRON HP PPS

Very good chemical resistance. Electrically insulating, non-abrasive. Minimum ionic impurities.

TECAPEEK ELS nano

Electrical insulation, high toughness. For use in semiconductor and electronics.

Furthermore are used for semicon and electronics:

SINTIMID, VESPEL, TECAPEEK CF, TECAPEEK GF, TECAFLON PTFE, TECATRON GF, TECADUR

On request:

TECAPEI ESD 7

Antistatic dissipative. Rigid and hard, very dimensional stable. High heat distortion temperature, non-abrasive.

TECANAT ESD 7

Antistatic dissipative with nanotubes.

| Material | DIN-Description | Specific volume resistance in $\Omega \cdot \text{cm}$ | Surface resistance in Ω |
|--------------------|-----------------|--|--------------------------------|
| SINTIMID PAI ESD | PAI | $10^9 - 10^{11}$ | $10^9 - 10^{11}$ |
| TECAPEI ESD 7 | PEI | $10^5 - 10^8$ | $10^5 - 10^{10}$ |
| TECANAT ESD 7 | PC | $10^7 - 10^9$ | $10^5 - 10^{10}$ |
| TECAFORM AH SD | POM-C | $10^9 - 10^{11}$ | $10^9 - 10^{11}$ |
| TECAPEEK ELS nano | PEEK | $10^2 - 10^4$ | $10^1 - 10^3$ |
| TECAPEEK CF 30 | PEEK | $10^5 - 10^7$ | $10^5 - 10^7$ |
| TECAFLON PTFE C25 | PTFE | 10^3 | 10^3 |
| TECAFLON PVDF AS | PVDF | $10^2 - 10^4$ | $10^2 - 10^4$ |
| TECAFLON PVDF CF 8 | PVDF | $10^3 - 10^5$ | $10^5 - 10^7$ |
| TECAMID 66 CF 20 | PA 66 | $10^2 - 10^4$ | $10^2 - 10^4$ |
| TECAFORM AH ELS | POM-C | $10^2 - 10^4$ | $10^2 - 10^4$ |
| TECAFINE PP ELS | PP | $10^3 - 10^5$ | $10^3 - 10^5$ |



Antistatic



Electrically conducting

Rods



| DIN-Abbreviation | Tolerance to DIN (mm) | TECAFORM AH ELS |
|------------------------------|-----------------------|-----------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm ³) | | 1,45 |
| Diameter Ø (mm) | | kg/m |
| 4 | + 0,3 + 0,1 | 0,020 |
| 5 | + 0,1 | 0,032 |
| 6 | + 0,4 | 0,045 |
| 8 | | 0,080 |
| 9 | + 0,1 | 0,100 |
| 10 | + 0,5 | 0,123 |
| 11 | | 0,152 |
| 12 | | 0,180 |
| 13 | | 0,210 |
| 14 | | 0,243 |
| 15 | + 0,2 | 0,277 |
| 16 | + 0,7 | 0,314 |
| 18 | | 0,395 |
| 19 | | 0,439 |
| 20 | | 0,486 |
| 22 | | 0,591 |
| 25 | + 0,2 | 0,758 |
| 28 | + 0,9 | 0,947 |
| 30 | | 1,08 |
| 32 | | 1,24 |
| 36 | + 0,2 | 1,56 |
| 40 | + 1,1 | 1,92 |
| 45 | | 2,44 |
| 50 | + 0,3 | 3,00 |
| 56 | + 1,3 | 3,75 |
| 60 | | 4,32 |
| 65 | + 0,3 | 5,05 |
| 70 | + 1,6 | 5,85 |
| 75 | + 0,4 | 6,74 |
| 80 | + 2 | 7,66 |
| 90 | + 2,2 + 0,5 | 9,69 |
| 100 | + 2,5 + 0,6 | 11,98 |

Rods



| DIN-Abbreviation | Tolerance (mm) | TECAPEEK ELS nano |
|------------------------------|----------------|-------------------|
| DIN-Abbreviation | | PEEK |
| Density (g/cm ³) | | 1,34 |
| Diameter Ø (mm) | | kg/m |
| 5 | | 0,030 |
| 6 | + 0,4 + 0,1 | 0,042 |
| 8 | | 0,074 |
| 9 | + 0,1 | 0,093 |
| 10 | + 0,5 | 0,114 |
| 11 | | 0,143 |
| 12 | | 0,169 |
| 15 | + 0,2 | 0,260 |
| 16 | + 0,9 | 0,294 |
| 18 | | 0,369 |
| 19 | | 0,411 |
| 20 | + 0,2 + 1,1 | 0,458 |
| 22 | | 0,553 |
| 25 | + 0,2 | 0,709 |
| 28 | + 1,2 | 0,884 |
| 30 | | 1,01 |
| 32 | + 0,2 | 1,15 |
| 36 | + 1,3 | 1,45 |
| 40 | + 0,2 + 1,5 | 1,79 |
| 45 | + 0,3 | 2,37 |
| 50 | + 1,7 | 2,79 |
| 60 | + 0,3 + 2,3 | 4,03 |
| 70 | + 0,3 + 2,5 | 5,47 |
| 80 | + 0,4 + 3 | 7,17 |
| 90 | + 0,5 + 3,4 | 9,08 |
| 100 | + 0,6 + 3,8 | 11,21 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$. The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

= Stock item

= Non-stock item – special production

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Email: sales@plastic-metal.com

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Plates



| DIN-Abbreviation | Tolerance (mm) | TECAFORM AH SD |
|------------------------------|----------------|----------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm ³) | | 1,45 |
| Diameter (mm) | | kg/m |
| 12,7 x 610* | + 0,2 + 0,7 | 4,54 |
| 19,1 x 610* | + 0,2 | 6,02 |
| 25,4 x 610* | + 0,9 | 7,43 |
| 38,1 x 610* | | 9,08 |
| 44,4 x 610* | + 0,3 | 11,90 |
| 50,8 x 610* | + 1,5 | 13,30 |

*Length 1220 mm

**Length 2000 mm

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
width $\pm \frac{25}{8} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed.

All figures given without obligation.

= Stock item

= Non-stock item – special production

Plates



| DIN-Abbreviation | Tolerance to DIN (mm) | TECAFORM AH ELS |
|------------------------------|-----------------------|-----------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm ³) | | 1,45 |
| Diameter (mm) | | kg/m |
| 5 x 500 | - 0,2 + 0,2 | 4,08 |
| 6 x 500 | + 0,2 + 0,75 | 4,93 |
| 8 x 500 | | 6,51 |
| 10 x 500 | + 0,2 | 8,04 |
| 10 x 1000 ** | + 0,9 | 15,84 |
| 12 x 500 | | 9,83 |
| 16 x 500 | | 12,87 |
| 18 x 500 | + 0,3 | 14,40 |
| 20 x 500 | + 1,5 | 15,92 |
| 22 x 500 | | 17,44 |
| 25 x 500 | | 19,73 |
| 27 x 500 | | 21,71 |
| 30 x 500 | | 23,99 |
| 32 x 500 | + 0,5 | 25,5 |
| 36 x 500 | + 2,5 | 28,6 |
| 40 x 500 | | 31,6 |
| 50 x 500 | | 39,2 |
| 60 x 500 | + 0,5 + 5 | 47,8 |

Plates





| DIN-Abbreviation | Tolerance (mm) | TECAPEEK ELS nano |
|------------------------------|----------------|-------------------|
| DIN-Abbreviation | | PEEK |
| Density (g/cm ³) | | 1,34 |
| Diameter (mm) | | kg/m |
| 6 x 500 | + 0,2 + 0,7 | 4,54 |
| 8 x 500 | | 6,02 |
| 10 x 500 | + 0,2 + 0,9 | 7,43 |
| 12 x 500 | | 9,08 |
| 16 x 500 | | 11,90 |
| 18 x 500 | | 13,30 |
| 20 x 500 | + 0,3 + 1,5 | 14,71 |
| 22 x 500 | | 16,12 |
| 25 x 500 | | 18,23 |
| 30 x 500 | | 22,17 |
| 32 x 500 | | 23,58 |
| 36 x 500 | + 0,5 + 2,5 | 26,4 |
| 40 x 300 | | 17,87 |
| 45 x 500 | | 35,7 |
| 50 x 500 | | 36,3 |

Rods



| | Tolerance to DIN (mm) | TECAFLON PVDF |
|-----------------------------------|-----------------------|---------------|
| DIN-Abbreviation | | PVDF |
| Density (g/cm³) | | 1,78 |
| Diameter Ø (mm) | | kg/m |
| 4 | + 0,1 + 0,3 | 0,025 |
| 5 | + 0,1 | 0,039 |
| 6 | + 0,4 | 0,056 |
| 8 | | 0,098 |
| 9 | + 0,1 | 0,123 |
| 10 | + 0,5 | 0,151 |
| 11 | | 0,187 |
| 12 | | 0,221 |
| 13 | | 0,258 |
| 14 | | 0,298 |
| 15 | + 0,2 | 0,340 |
| 16 | + 0,7 | 0,386 |
| 18 | | 0,485 |
| 19 | | 0,539 |
| 20 | | 0,596 |
| 22 | | 0,725 |
| 25 | + 0,2 | 0,931 |
| 28 | + 0,9 | 1,16 |
| 30 | | 1,33 |
| 32 | | 1,52 |
| 36 | + 0,2 | 1,92 |
| 40 | + 1,1 | 2,36 |
| 45 | | 2,99 |
| 50 | + 0,3 | 3,68 |
| 56 | + 1,3 | 4,60 |
| 60 | | 5,30 |
| 65 | + 0,3 | |
| 70 | + 1,6 | 7,18 |
| 75 | + 0,4 | 8,28 |
| 80 | + 2,0 | 9,40 |
| 90 | + 0,5 + 2,2 | 11,90 |
| 100 | + 0,6 + 2,5 | 14,70 |
| 110 | + 0,7 + 3,0 | 17,84 |
| 120 | + 0,8 | 21,28 |
| 125 | + 3,5 | 23,05 |
| 135 | + 0,9 | 26,9 |
| 140 | + 3,8 | 28,9 |
| 150 | + 1,0 + 4,2 | 33,2 |
| 165 | + 1,2 | 40,3 |
| 180 | + 5,0 | 47,8 |
| 200 | + 1,3 + 5,5 | 59,0 |
| 210 | + 1,3 + 5,8 | 65,0 |
| 230 | + 1,5 + 6,2 | 78,0 |
| 250 | + 1,5 | 92,0 |
| 280 | + 6,5 | 115,0 |
| 300 | + 1,5 + 7 | 132,0 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 The specified kg/m weights are purely arithmetic figures.
 Weight on delivery will deviate from the figures given above.
 Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.



-  = Stock item
-  = Non-stock item – special production

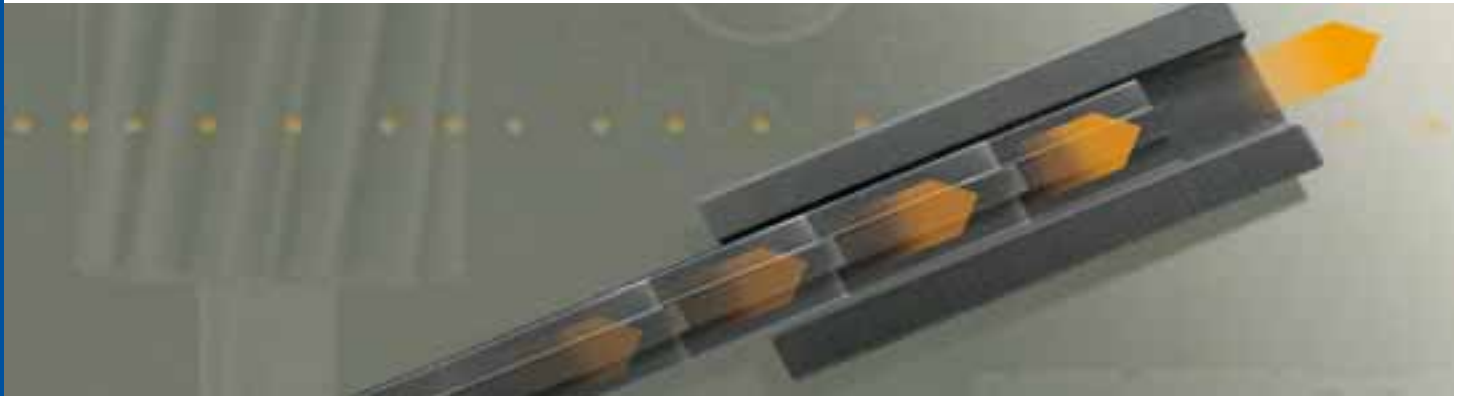
Plates



| | Tolerance to DIN (mm) | TECAFLON PVDF |
|-----------------------------------|-----------------------|---------------|
| DIN-Abbreviation | | PVDF |
| Density (g/cm³) | | 1,78 |
| Diameter (mm) | | kg/m |
| 5 x 300 | + 0,2 | 3,06 |
| 5 x 500 | + 0,5 | 5,00 |
| 6 x 300 | + 0,2 | 3,70 |
| 6 x 500 | + 0,75 | 6,05 |
| 8 x 300 | | 4,89 |
| 8 x 500 | + 0,2 | 7,99 |
| 10 x 300 | + 0,9 | 6,03 |
| 10 x 500 | | 9,86 |
| 12 x 300 | | 7,38 |
| 12 x 500 | | 12,06 |
| 15 x 500 | | 14,87 |
| 15 x 1000 ** | | 29,3 |
| 16 x 300 | | 9,67 |
| 16 x 500 | | 15,80 |
| 18 x 500 | | 17,67 |
| 20 x 300 | + 0,3 | 11,95 |
| 20 x 500 | + 1,5 | 19,54 |
| 20 x 1000 ** | | 38,5 |
| 22 x 300 | | 13,10 |
| 22 x 500 | | 21,41 |
| 25 x 300 | | 14,81 |
| 25 x 500 | | 24,22 |
| 25 x 1000 ** | | 47,7 |
| 27 x 300 | | 16,24 |
| 27 x 500 | | 26,6 |
| 30 x 300 | | 17,96 |
| 30 x 500 | | 29,4 |
| 30 x 1000 ** | | 57,9 |
| 32 x 300 | | 19,10 |
| 32 x 500 | + 0,3 | 31,2 |
| 36 x 500 | + 2,5 | 35,0 |
| 40 x 300 | | 23,68 |
| 40 x 500 | | 38,7 |
| 45 x 500 | | 43,4 |
| 50 x 300 | | 29,4 |
| 50 x 500 | | 48,1 |
| 60 x 300 | + 0,5 | 35,5 |
| 60 x 500 | + 3,5 | 58,0 |
| 70 x 300 | | 41,6 |
| 70 x 500 | | 68,0 |
| 80 x 300 | | 47,3 |
| 80 x 500 | + 0,5 | 77,4 |
| 90 x 300 | + 5 | 53,0 |
| 90 x 500 | | 86,7 |
| 100 x 300 | | 58,8 |
| 100 x 500 | | 96,1 |

**Length 2000 mm
 Tolerances according to DIN: length $+ \frac{3}{0} \%$.
 width $+ \frac{25}{5} \text{ mm}$.
 The specified kg/m weights are purely arithmetic figures.
 Weight on delivery will deviate from the figures given above.
 Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

-  = Stock item
-  = Non-stock item – special production



- I Good dry running properties
- I Silent running
- I Low maintenance
- I Good chemical resistance
- I Optimised friction behaviour with different additives

TECAFORM AH LA blue
Very good sliding and abrasion properties. Low water absorption.

TECAMID 66 MH black
Good UV resistance. Very good sliding properties.

TECAM 6 MO black
Good UV resistance and surface hardness. Easily machined and dimensionally stable.

TECAMID 66 LA
Very good sliding and abrasion properties against soft mating materials. Tough and strong.

TECAST TM black
Good UV stability. High surface hardness.

TECALUBE
Self extinguishing. Outstanding sliding and friction properties.

TECAGLIDE
Low friction coefficient. Polymer lubricant, no silicones.

TECAFLON PTFE
Exceptionally high chemical resistance. Very good sliding and friction properties.

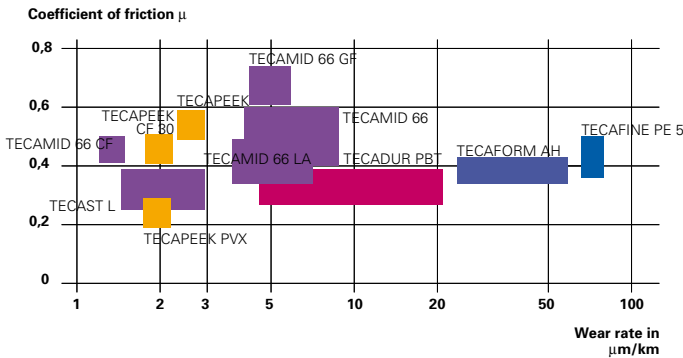
TECATRON PVX black
Very good sliding and friction values. Suitable for bearing parts subjected to high loads.

TECAPEEK PVX black
Very good sliding and friction values. Suitable for bearing parts subjected to high loads.

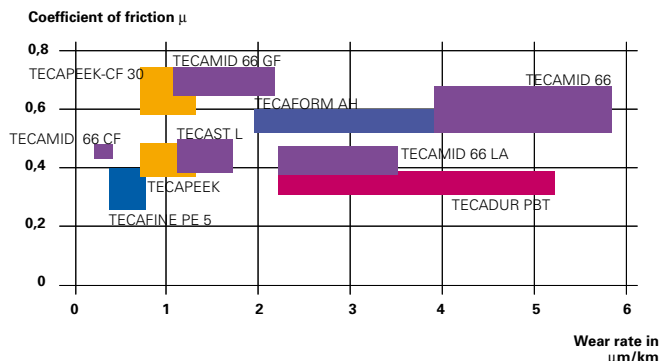
TECAPEEK TF 10
Very good sliding and friction properties, suitable for soft mating materials. Electrically insulating.

In addition the following materials are used in sliding-friction applications:

Sintimid, Vespel, TECAMID 66, TECAMID 6, TECAMID 66 CF, TECAFORM AH, TECAFORM AD, TECAFORM AD AF, TECADUR PET



Conditions:
Load: 1 MPa,
Speed: 0,5 m/s,
against steel with
R_z = 2,5 μm





Conditions:
Load: 1 MPa,
Speed: 0,5 m/s, against
steel with
R_z = 2,5 μm

Rods



| | Tolerance to DIN (mm) | TECAFORM AH LA blue |
|-----------------------------------|-----------------------|---------------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm³) | | 1,35 |
| Diameter Ø (mm) | | kg/m |
| 3 | + 0,1 | 0,011 |
| 4 | + 0,3 | 0,019 |
| 5 | + 0,1 | 0,030 |
| 6 | + 0,4 | 0,042 |
| 8 | | 0,075 |
| 9 | + 0,1 | 0,094 |
| 10 | + 0,5 | 0,115 |
| 11 | | 0,142 |
| 12 | | 0,168 |
| 13 | | 0,196 |
| 14 | | 0,226 |
| 15 | + 0,2 | 0,258 |
| 16 | + 0,7 | 0,293 |
| 18 | | 0,368 |
| 19 | | 0,409 |
| 20 | | 0,452 |
| 22 | | 0,550 |
| 25 | + 0,2 | 0,706 |
| 28 | + 0,9 | 0,882 |
| 30 | | 1,01 |
| 32 | | 1,15 |
| 36 | + 0,2 | 1,45 |
| 40 | + 1,1 | 1,79 |
| 45 | | 2,27 |
| 50 | + 0,3 | 2,79 |
| 56 | + 1,3 | 3,49 |
| 60 | | 4,02 |
| 65 | + 0,3 | 4,70 |
| 70 | + 1,6 | 5,44 |
| 75 | + 0,4 | 6,28 |
| 80 | + 2 | 7,13 |
| 90 | + 0,5 + 2,2 | 9,02 |
| 95 | + 0,6 | 10,08 |
| 100 | + 2,5 | 11,15 |
| 110 | + 0,7 + 3 | 13,53 |
| 120 | + 0,8 | 16,14 |
| 125 | + 3,5 | 17,48 |
| 130 | | 18,94 |
| 135 | + 0,9 | 20,40 |
| 140 | + 3,8 | 21,91 |
| 150 | + 1 + 4,2 | 25,2 |
| 165 | + 1,2 | 30,6 |
| 180 | + 5 | 36,3 |
| 200 | + 1,3 + 5,5 | 44,7 |
| 210 | + 1,3 + 5,8 | 49,3 |
| 230 | + 1,5 | 59,1 |
| 250 | + 6,2 | 69,7 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.
The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

-  = Stock item
-  = Non-stock item – special production



Plates



| | Tolerance to DIN (mm) | TECAFORM AH LA blue |
|-----------------------------------|-----------------------|---------------------|
| DIN-Abbreviation | | POM-C |
| Density (g/cm³) | | 1,35 |
| Diameter (mm) | | kg/m |
| 5 x 500 | - 0,2 + 0,2 | 3,79 |
| 6 x 500 | + 0,2 + 0,75 | 4,59 |
| 8 x 500 | | 6,06 |
| 10 x 500 | + 0,2 | 7,48 |
| 10 x 1000 ** | + 0,9 | 14,75 |
| 12 x 500 | | 9,15 |
| 15 x 500 | | 11,28 |
| 16 x 500 | | 11,98 |
| 18 x 500 | + 0,3 | 13,40 |
| 18 x 1000 ** | + 1,5 | 26,4 |
| 20 x 500 | | 14,82 |
| 22 x 500 | | 16,24 |
| 25 x 500 | | 18,37 |
| 27 x 500 | | 20,21 |
| 30 x 500 | | 22,34 |
| 32 x 500 | | 23,76 |
| 35 x 1000 ** | + 0,5 | 51,0 |
| 36 x 500 | + 2,5 | 26,6 |
| 40 x 500 | | 29,4 |
| 45 x 500 | | 33,0 |
| 50 x 500 | | 36,5 |
| 60 x 500 | | 44,5 |
| 60 x 610 | | 54,0 |
| 70 x 500 | | 51,6 |
| 70 x 610 | + 0,5 + 5 | 62,6 |
| 75 x 610 | | 66,9 |
| 80 x 500 | | 58,7 |
| 90 x 500 | | 65,8 |
| 100 x 500 | | 72,9 |

**Length 2000 mm
Tolerances according to DIN: length $+ \frac{3}{0} \%$.
width $+ \frac{25}{5} \text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

-  = Stock item
-  = Non-stock item – special production

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USA

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Fax: 949-770-8478

Email: sales@plastic-metal.com


www.plastic-metal.com


Rods



| | Tolerance to DIN (mm) | TECAM 6 MO | TECAMID 66 MH sw | TECAMID 66 LA |
|-------------------------|-----------------------|------------|------------------|---------------|
| DIN-Abbreviation | | PA 6 | PA 66 | PA 66 |
| Density (g/cm³) | | 1,14 | 1,14 | 1,11 |
| Diameter Ø (mm) | | kg/m | kg/m | kg/m |
| 4 | + 0,1 + 0,3 | 0,016 | 0,016 | 0,016 |
| 5 | + 0,1 | 0,025 | 0,025 | 0,025 |
| 6 | + 0,4 | 0,036 | 0,036 | 0,035 |
| 8 | | 0,063 | 0,063 | 0,061 |
| 9 | + 0,1 | 0,079 | 0,079 | 0,077 |
| 10 | + 0,5 | 0,097 | 0,097 | 0,094 |
| 11 | | 0,120 | 0,120 | 0,117 |
| 12 | | 0,142 | 0,142 | 0,138 |
| 13 | | 0,165 | 0,165 | 0,161 |
| 14 | | 0,191 | 0,191 | 0,186 |
| 15 | + 0,2 | 0,218 | 0,218 | 0,212 |
| 16 | + 0,7 | 0,247 | 0,247 | 0,241 |
| 18 | | 0,311 | 0,311 | 0,303 |
| 19 | | 0,345 | 0,345 | 0,336 |
| 20 | | 0,382 | 0,382 | 0,372 |
| 22 | | 0,464 | 0,464 | 0,452 |
| 25 | + 0,2 | 0,596 | 0,596 | 0,580 |
| 28 | + 0,9 | 0,744 | 0,744 | 0,725 |
| 30 | | 0,852 | 0,852 | 0,830 |
| 32 | | 0,974 | 0,974 | 0,948 |
| 36 | + 0,2 | 1,23 | 1,23 | 1,19 |
| 40 | + 1,1 | 1,51 | 1,51 | 1,47 |
| 45 | | 1,92 | 1,92 | |
| 50 | + 0,3 | 2,36 | 2,36 | 2,29 |
| 56 | + 1,3 | 2,95 | 2,95 | 2,87 |
| 60 | | 3,39 | 3,39 | 3,30 |
| 65 | + 0,3 | 3,97 | 3,97 | 3,87 |
| 70 | + 1,6 | 4,60 | 4,60 | 4,48 |
| 75 | + 0,4 | 5,30 | 5,30 | 5,16 |
| 80 | + 2 | 6,02 | 6,02 | 5,86 |
| 85 | + 0,5 | 6,81 | | |
| 90 | + 2,2 | 7,62 | 7,62 | 7,42 |
| 100 | + 0,6 + 2,5 | 9,42 | 9,42 | 9,17 |
| 110 | + 0,7 + 3 | 11,42 | 11,42 | 11,12 |
| 120 | + 0,8 | 13,63 | 13,63 | 13,27 |
| 125 | + 3,5 | 14,76 | 14,76 | 14,38 |
| 130 | | 16,00 | 16,00 | 15,58 |
| 135 | + 0,9 | 17,23 | 17,23 | 16,77 |
| 140 | + 3,8 | 18,51 | 18,51 | 18,02 |
| 150 | + 1 + 4,2 | 21,27 | 21,27 | 20,71 |
| 165 | + 1,2 + 5 | 25,8 | 25,8 | |
| 180 | + 1,2 + 5 | 30,6 | 30,6 | |
| 200 | + 1,3 + 5,5 | 37,8 | 37,8 | |
| 210 | + 1,3 + 5,8 | 41,6 | | |
| 230 | + 1,5 | 49,9 | | |
| 250 | + 6,2 | 58,8 | | |
| 280 | + 1,6 + 6,5 | 73,7 | | |
| 300 | + 1,7 + 7 | 84,6 | | |

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

 = Stock item

 = Non-stock item – special production

Plates



| | Tolerance to DIN (mm) | TECAM 6 MO | TECAMID 66 MH sw | TECAMID 66 LA |
|-------------------------|-----------------------|------------|------------------|---------------|
| DIN-Abbreviation | | PA 6 | PA 66 | PA 66 |
| Density (g/cm³) | | 1,14 | 1,14 | 1,11 |
| Diameter (mm) | | kg/m | kg/m | kg/m |
| 5 x 500 | + 0,2 | 3,20 | 3,20 | 3,12 |
| 5 x 600 | + 0,5 | 3,83 | | |
| 6 x 500 | + 0,2 + 0,75 | 3,88 | 3,88 | 3,78 |
| 8 x 500 | | 5,12 | 5,12 | 4,99 |
| 10 x 500 | + 0,2 | 6,32 | 6,32 | 6,15 |
| 10 x 610 | + 0,9 | | 7,70 | |
| 12 x 500 | + 0,9 | 7,73 | 7,73 | 7,52 |
| 12 x 610 | + 0,2 | | 9,31 | |
| 12 x1000 ** | | 15,23 | 15,23 | 14,82 |
| 16 x 500 | | 10,12 | 10,12 | 9,85 |
| 16 x1000 ** | | 19,95 | 19,95 | 19,42 |
| 18 x 500 | | 11,32 | 11,32 | 11,02 |
| 18 x1000 ** | | 22,31 | 22,31 | 21,72 |
| 20 x 500 | | 12,52 | 12,52 | 12,19 |
| 20 x 610 | | | 15,19 | |
| 20 x1000 ** | + 0,3 | 24,67 | 24,67 | 24,02 |
| 22 x 500 | + 1,5 | 13,71 | 13,71 | 13,35 |
| 22 x1000 ** | | 27,0 | 27,0 | |
| 25 x 500 | | 15,51 | 15,51 | 15,10 |
| 25 x 610 | | | 18,82 | |
| 25 x1000 ** | | 30,6 | 30,6 | 29,8 |
| 27 x 500 | | 17,07 | 17,07 | 16,62 |
| 27 x1000 ** | | 33,6 | 33,6 | 32,8 |
| 30 x 300 | | 11,54 | 11,54 | 11,23 |
| 30 x 500 | | 18,86 | 18,86 | 18,37 |
| 30 x 610 | | | 22,89 | |
| 30 x1000 ** | | 37,2 | 37,2 | 36,2 |
| 32 x 300 | | 12,27 | 12,27 | 11,95 |
| 32 x 500 | | 20,06 | 20,06 | 19,53 |
| 32 x1000 ** | | 39,5 | 39,5 | 38,5 |
| 35 x1000 ** | | 43,1 | 43,1 | 41,9 |
| 36 x 500 | + 0,5 | 22,46 | 22,46 | 21,87 |
| 40 x 300 | + 2,5 | 15,20 | 15,20 | 14,80 |
| 40 x 500 | | 24,85 | 24,85 | 24,20 |
| 40 x 610 | | | 30,2 | |
| 40 x1000 ** | | 49,0 | 49,0 | 47,7 |
| 45 x 500 | | 27,8 | 27,8 | |
| 50 x 300 | | 18,86 | 18,86 | 18,37 |
| 50 x 500 | | 30,8 | 30,8 | 30,0 |
| 50 x 610 | | | 37,4 | |
| 50 x1000 ** | | 60,8 | 60,8 | 59,2 |
| 60 x 300 | | 22,98 | 22,98 | 21,93 |
| 60 x 500 | | 37,6 | 37,6 | 36,6 |
| 60 x 610 | | 45,6 | 45,6 | 44,4 |
| 60 x1000 ** | | 74,1 | 74,1 | 72,1 |
| 70 x 300 | | 26,6 | 26,6 | 25,9 |
| 70 x 500 | | 43,6 | 43,6 | 42,4 |
| 70 x 610 | | 52,9 | 52,9 | 51,5 |
| 75 x 610 | + 0,5 | 56,5 | 56,5 | 55,0 |
| 80 x 300 | + 5 | 30,3 | 30,3 | 29,5 |
| 80 x 500 | | 49,6 | 49,6 | 48,3 |
| 80 x1000 ** | | 97,7 | | |
| 90 x 300 | | 34,0 | 34,0 | 33,1 |
| 90 x 500 | | 55,5 | 55,5 | 54,1 |
| 100 x 300 | | 37,6 | 37,6 | 36,6 |
| 100 x 500 | | 61,5 | 61,5 | 59,9 |
| 100 x1000 ** | | 121,3 | | |

Rods



Cast Polyamide

| | | Tolerance to DIN (mm) | TECAST TM black | TECAGLIDE light-green | TECALUBE black |
|-------------------|-----------------------------------|-----------------------|--------------------|--------------------------|-------------------|
| Stock length (mm) | DIN-Abbreviation | | PA 6 G | PA 6 G | PA 6 G |
| | Density (g/cm³) | | 1,15 | 1,13 | 1,13 |
| | Diameter Ø (mm) | | kg/m | kg/m | kg/m |
| 2000/3000 | 20 | + 0,5 | 0,406 | 0,399 | 0,399 |
| 2000/3000 | 25 | + 1,5 | 0,623 | 0,612 | 0,612 |
| 2000/3000 | 30 | + 0,5 | 0,914 | 0,898 | 0,898 |
| 2000/3000 | 35 | + 2,5 | 1,23 | 1,21 | 1,21 |
| 2000/3000 | 40 | | 1,63 | 1,60 | 1,60 |
| 2000/3000 | 45 | + 1 | 2,04 | 2,00 | 2,00 |
| 2000/3000 | 50 | + 3 | 2,49 | 2,45 | 2,45 |
| 2000/3000 | 56 | | 3,10 | 3,05 | 3,05 |
| 2000/3000 | 60 | | 3,60 | 3,54 | 3,54 |
| 2000 | 65 | | 4,20 | 4,12 | 4,12 |
| 2000 | 70 | | 4,84 | 4,76 | 4,76 |
| 2000 | 75 | | 5,53 | 5,44 | 5,44 |
| 2000 | 80 | + 1 | 6,27 | 6,16 | 6,16 |
| 2000 | 85 | + 4 | 7,05 | 6,93 | 6,93 |
| 2000 | 90 | | 7,88 | 7,75 | 7,75 |
| 2000 | 95 | | 8,76 | 8,61 | 8,61 |
| 2000 | 100 | | 9,68 | 9,51 | 9,51 |
| 2000 | 110 | | 11,82 | 11,61 | 11,61 |
| 2000 | 120 | | 13,99 | 13,75 | 13,75 |
| 2000 | 125 | + 1,5 | 15,15 | 14,89 | 14,89 |
| 2000 | 130 | + 5 | 16,36 | 16,07 | 16,07 |
| 2000 | 140 | | 18,90 | 18,58 | 18,58 |
| 2000 | 150 | | 21,60 | 21,3 | 21,3 |
| 2000 | 160 | | 24,93 | 24,50 | 24,50 |
| 2000 | 170 | + 2 | 28,1 | 27,6 | 27,6 |
| 2000 | 180 | + 7 | 31,4 | 30,8 | 30,8 |
| 2000 | 190 | | 34,9 | 34,2 | 34,2 |
| 2000 | 200 | | 38,5 | 37,9 | 37,9 |
| 2000 | 220 | | 47,1 | 46,2 | 46,2 |
| 2000 | 230 | | 51,3 | 50,4 | 50,4 |
| 2000 | 250 | + 3 | 60,4 | 59,3 | 59,3 |
| 1000 | 280 | + 9 | 75,4 | 74,0 | 74,0 |
| 1000 | 300 | | 86,3 | 84,8 | 84,8 |
| 1000 | 320 | | 98,80 | 97,1 | 97,10 |
| 1000 | 330 | | 104,9 | 103,1 | 103,1 |
| 1000 | 350 | + 4 | 117,7 | 115,7 | 115,7 |
| 1000 | 360 | + 11 | 124,4 | 122,3 | 122,30 |
| 1000 | 370 | | 131,3 | 129,0 | 129,0 |
| 1000 | 400 | | 153,0 | 150,3 | 150,3 |
| 1000 | 450 | + 1,5 | 192,6 | 189,3 | 189,3 |
| 1000 | 500 | + 13 | 237,0 | 232,9 | 232,9 |
| 1000 | 600 | | 342,8 | 336,8 | 336,80 |
| 750 | 710 | + 5 | 477,6 | 469,3 | 469,3 |
| 200 | 800 | + 15 | 604,4 | 593,9 | 593,9 |

Tolerances according to DIN: length $+ \frac{3}{0} \%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Other delivery lengths possible. All figures given without obligation.

- = Stock item
- = Non-stock item – special production

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Laguna Hills, CA 92653

USA

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Fax: 949-770-8478

Email: sales@plastic-metal.com

www.plastic-metal.com

Rods



| | Tolerance to DIN (mm) | TECATRON PVX black |
|-----------------------------------|-----------------------|--------------------|
| DIN-Abbreviation | | PPS |
| Density (g/cm³) | | 1,47 |
| Diameter (mm) | | kg/m |
| 4 | + 0,1 + 0,3 | 0,021 |
| 5 | + 0,1 + 0,4 | 0,032 |
| 8 | + 0,1 | 0,081 |
| 10 | + 0,5 | 0,125 |
| 12 | | 0,183 |
| 16 | | 0,319 |
| 18 | + 0,2 + 0,7 | 0,401 |
| 20 | | 0,492 |
| 22 | | 0,599 |
| 25 | + 0,2 | 0,769 |
| 28 | + 0,9 | 0,960 |
| 30 | | 1,10 |
| 32 | | 1,26 |
| 36 | + 0,2 + 1,1 | 1,58 |
| 40 | | 1,95 |
| 50 | + 0,3 + 1,3 | 3,04 |
| 60 | + 0,3 + 1,6 | 4,37 |

Plates



| | Tolerance to DIN (mm) | TECATRON PVX black |
|-----------------------------------|-----------------------|--------------------|
| DIN-Abbreviation | | PPS |
| Density (g/cm³) | | 1,47 |
| Diameter (mm) | | kg/m |
| 8 x 300 | | 4,04 |
| 8 x 500 | + 0,2 + 0,9 | 6,60 |
| 10 x 500 | | 8,15 |
| 12 x 500 | | 9,96 |
| 16 x 500 | | 13,05 |
| 18 x 500 | | 14,59 |
| 20 x 300 | + 0,3 + 1,5 | 9,87 |
| 20 x 500 | | 16,14 |
| 25 x 300 | | 12,23 |
| 25 x 500 | | 20,00 |
| 30 x 300 | | 14,88 |
| 30 x 500 | | 24,32 |
| 36 x 500 | + 0,5 + 2,5 | 29,0 |
| 40 x 300 | | 19,60 |
| 40 x 500 | | 32,0 |
| 50 x 300 | | 24,32 |

Rods



| | Tolerance (mm) | TECAPEEK PVX black | TECAPEEK TF 10 |
|-----------------------------------|----------------|--------------------|----------------|
| DIN-Abbreviation | | PEEK | PEEK TF 10 |
| Density (g/cm³) | | 1,48 | 1,35 |
| Diameter Ø (mm) | | kg/m | kg/m |
| 5 | + 0,1 | 0,033 | 0,030 |
| 6 | + 0,4 | 0,046 | 0,042 |
| 8 | + 0,1 | 0,082 | 0,075 |
| 10 | + 0,5 | 0,126 | 0,115 |
| 12 | | 0,187 | 0,170 |
| 15 | | 0,287 | 0,262 |
| 16 | + 0,2 + 0,9 | 0,325 | 0,296 |
| 18 | | 0,408 | 0,372 |
| 19 | | 0,453 | |
| 20 | + 0,2 + 1,1 | 0,506 | 0,461 |
| 22 | | 0,611 | 0,557 |
| 25 | + 0,2 | 0,783 | 0,714 |
| 28 | + 1,2 | 0,977 | 0,891 |
| 30 | | 1,12 | 1,02 |
| 32 | + 0,2 | 1,27 | 1,16 |
| 36 | + 1,3 | 1,60 | 1,46 |
| 40 | + 0,2 + 1,5 | 1,98 | 1,80 |
| 45 | + 0,3 | 2,51 | |
| 50 | + 1,7 | 3,08 | 2,81 |
| 56 | + 0,3 + 2 | 3,87 | |
| 60 | + 0,3 | 4,46 | 4,06 |
| 65 | + 2,3 | | 4,75 |
| 70 | + 0,3 + 2,5 | 6,04 | 5,51 |
| 80 | + 0,4 + 3 | 7,91 | 7,22 |
| 90 | + 0,5 + 3,4 | 10,02 | 9,14 |
| 100 | + 0,6 + 3,8 | 12,38 | 11,30 |

Tolerances according to DIN: length $+\frac{3}{0}\%$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available ground. All figures given without obligation.

= Stock item

= Non-stock item – special production

Plates



| | Tolerance (mm) | TECAPEEK PVX black | TECAPEEK TF 10 |
|-----------------------------------|----------------|--------------------|----------------|
| DIN-Abbreviation | | PEEK | PEEK TF 10 |
| Density (g/cm³) | | 1,48 | 1,35 |
| Diameter (mm) | | kg/m | kg/m |
| 5 x 300 | | 2,59 | |
| 6 x 300 | + 0,2 + 0,7 | 3,07 | 2,80 |
| 6 x 500 | | 5,01 | 4,57 |
| 8 x 300 | | 4,07 | 3,71 |
| 8 x 500 | + 0,2 + 0,9 | 6,65 | 6,06 |
| 10 x 300 | | 5,02 | 4,58 |
| 10 x 500 | | 8,20 | 7,48 |
| 12 x 300 | | 6,13 | 5,60 |
| 12 x 500 | | 10,03 | 9,15 |
| 16 x 300 | | 8,04 | 7,33 |
| 16 x 500 | | 13,14 | 11,98 |
| 18 x 500 | | 14,69 | 13,40 |
| 20 x 300 | + 0,3 + 1,5 | 9,94 | 9,07 |
| 20 x 500 | | 16,25 | 14,82 |
| 22 x 500 | | 17,80 | 16,24 |
| 25 x 300 | | 12,32 | 11,23 |
| 25 x 500 | | 20,14 | 18,37 |
| 30 x 300 | | 14,98 | 13,66 |
| 30 x 500 | | 24,49 | 22,34 |
| 32 x 500 | | 26,0 | 23,76 |
| 36 x 500 | | 29,2 | 26,6 |
| 40 x 300 | + 0,5 + 2,5 | 19,73 | 18,00 |
| 40 x 500 | | 32,3 | 29,4 |
| 45 x 500 | | 36,2 | 33,0 |
| 50 x 300 | | 24,49 | 22,34 |
| 50 x 500 | | 40,0 | 36,5 |
| 60 x 300 | | | 26,9 |
| 60 x 500 | + 0,5 + 3,5 | 48,2 | |
| 70 x 300 | | | 31,2 |
| 80 x 300 | + 0,5 + 5 | | 35,9 |

Tolerances according to DIN: length $+\frac{3}{0}\%$ - width $+\frac{25}{5}\text{ mm}$.

The specified kg/m weights are purely arithmetic figures. Weight on delivery will deviate from the figures given above. Stock lengths 3000 mm, other delivery lengths possible, also available planed. All figures given without obligation.

= Stock item

= Non-stock item – special production

Chemical Resistance

Important criteria for testing chemical resistance are temperature, the concentration of the agents, the residence time as well as the mechanical load.

The resistance against various chemicals is listed in the following table. These details correspond to

the present state of our knowledge and are meant to provide information about our products and their applications. They do not mean that the chemical resistance of products or their suitability for a particular purpose is guaranteed in a legally binding way. Any existing commercial proprietary rights are to be

taken into account. We guarantee perfect quality within the scope of our general terms and conditions.

For specific applications it is recommended to establish suitability first. Standard testing is performed in normal climatic conditions 23/50 according to DIN 50 014.

| | VESEL® SP1 (PI) | SINTIMID (PI) | TECAPEEK (PEEK) | TECAPEEK HT (PEEK) | TECAPEI (PEI) | TECATRON (PPS) | TECASON E (PES) | TECASON P (PPSU) | TECASON S (PSU) | TECARFON PTFE (PTFE) | TECARFON ETFE (ETFE) | TECARFON PVDF (PVDF) | TECARFON PCTFE (PCTFE) | TECAMID 6 (PA 6) | TECAMID 46, 66 (PA 46, 66) | TECAMID 11, 12 (PA 11, 12) | TECARIM (PA 6 G) | TECANAT (PC) | TECAFINE (PC) | TEAOUR PET PBT (PET, PBT) | TECAFINE PMP (PMP) | TECAFINE AD (POM-CA) | TECAFINE PP (PP) | TECAFINE PE (PE) | TECARAN ABS (ABS) | TECANYL (PEE) | | | |
|---|-----------------|---------------|-----------------|--------------------|---------------|----------------|-----------------|------------------|-----------------|----------------------|----------------------|----------------------|------------------------|------------------|----------------------------|----------------------------|------------------|--------------|---------------|---------------------------|--------------------|----------------------|------------------|------------------|-------------------|---------------|-----|-----|---|
| Acetamide 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | + | + | + | + | + | + | - | - | - | + | + | (+) | + | (+) | (+) | (+) | (+) | (+) | (+) | - | (+) | - | + | + | + | (+) | - | - | |
| Formic acid, aqueous solution 10% | (+) | + | + | + | - | + | + | | | + | + | + | + | - | - | - | - | + | + | + | + | - | + | + | + | + | + | | |
| Ammonia solution 10% | - | - | + | + | - | + | (+) | | (+) | + | + | + | + | + | + | + | + | + | + | - | + | + | + | + | (+) | + | + | + | |
| Anone | | | | | | | | | | + | + | (+) | | + | + | + | | | | | | | | | + | + | (+) | | |
| Benzine | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | - | | + | + | + | (+) | (+) | (+) | - | |
| Benzene | + | + | | | | (+) | + | (+) | - | + | + | + | + | + | + | + | + | | | - | - | (+) | + | + | (+) | (+) | - | - | |
| Bitumen | | + | | | | | | | | + | | | | (+) | (+) | (+) | | | | - | | | + | + | (+) | (+) | | | |
| Boric acid, aqueous solution 10% | (+) | | + | + | | | + | | | + | + | | | + | + | + | + | + | + | | | | - | + | + | + | + | + | |
| Butyl acetate | | + | | | | + | (+) | + | (+) | + | + | + | | + | + | + | | | | - | - | + | + | + | (+) | (+) | - | | |
| Calcium chloride, solution 10% | (+) | + | + | + | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | (+) | + | + | + | |
| Chlorobenzene | | + | | | + | (+) | - | | | + | + | | | + | + | + | + | | | - | - | - | + | + | + | - | - | | |
| Chloroform | (+) | + | | | | (+) | - | | - | + | + | + | (+) | - | (+) | - | | | | - | - | - | - | - | - | (+) | - | - | - |
| Clophene A60, 50% | | | | | | | | | | + | + | + | + | + | + | + | + | + | | | | | + | + | (+) | | + | | |
| Cyclohexane | + | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | - | | | + | + | + | + | + | + | |
| Cyclohexanone | | + | | | | + | - | | | + | + | (+) | | + | + | + | | | | (+) | (+) | | + | + | + | + | - | + | |
| Decalin | | + | | | | | | | | + | + | | | + | + | + | + | + | + | (+) | (+) | | + | + | + | + | + | - | + |
| Diesel oil | | + | | | + | + | + | | | + | + | + | | + | + | + | + | + | + | (+) | (+) | + | + | + | + | (+) | + | + | + |
| Dimethyl formamide | | (+) | | | | + | - | | | + | + | | | + | + | + | (+) | + | - | + | | + | - | + | + | + | - | | |
| Diocetyl phthalate | | | | | | (+) | + | | | + | + | | | + | + | + | | | | (+) | + | | + | + | + | + | | + | |
| Dioxane | | + | | | + | + | (+) | | | + | + | + | | + | + | + | | | | - | | (+) | (+) | + | + | (+) | | (+) | |
| Acetic acid, concentrated | | (+) | | | - | + | + | | | + | + | (+) | | - | - | - | - | - | - | - | - | (+) | - | (+) | - | + | + | - | + |
| Acetic acid, aqueous solution 10% | (+) | + | | | + | + | + | + | + | + | + | + | | + | - | - | (+) | - | + | + | (+) | + | (+) | + | (+) | + | + | + | |
| Acetic acid, aqueous solution 5% | | + | | | + | + | + | + | + | + | + | + | | + | + | + | (+) | + | + | + | + | + | + | + | (+) | + | + | + | |
| Etanolo 96% | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | (+) | + | + | + | + | + | + | + | + | |
| Etilacetato | + | + | | | + | | - | | - | + | + | + | | + | + | + | + | + | + | - | (+) | (+) | (+) | + | + | + | + | + | |
| Etiletere | | + | | | | + | + | + | + | + | + | + | | + | + | + | + | + | + | - | | + | + | + | + | + | + | + | |
| Cloruro di etilene | (+) | + | | | + | | | | | + | + | | | + | + | (+) | + | - | | - | - | - | - | - | + | (+) | - | | |
| Hydrofluoric acid, 40% | | | | | | | | | (+) | + | + | | | + | - | - | - | | | (+) | | - | - | - | - | + | + | (+) | + |
| Formaldehyde, aqueous solution 30% | | | + | + | + | + | + | + | | + | + | + | (+) | + | + | (+) | + | | | + | | + | + | + | + | + | + | + | |
| Formamide | | | | | | | | | | + | + | | | + | + | (+) | | | | | | | | | (+) | + | (+) | + | |
| Freon, Frigen, liquid | | + | - | - | | + | + | | | + | + | + | | + | + | + | + | + | + | - | | + | | + | - | (+) | (+) | + | |
| Fruit juices | (+) | + | | | + | | | | | + | | | | + | + | + | + | + | + | - | + | + | + | + | + | + | + | + | |
| Glykol | + | + | + | + | | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Glyasantin, aqueous solution 40% | | + | + | + | | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Glycerine | + | + | | | + | | + | | | + | + | + | + | + | + | + | + | + | + | (+) | | + | + | + | + | + | + | + | |
| Urea, aqueous solution | | + | | | | + | | | | + | | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Heating oil | | + | | | | + | + | | | + | | + | | + | + | + | + | + | + | (+) | | + | + | + | (+) | + | + | + | |
| Heptane, Hexane | + | + | + | + | + | + | + | + | + | + | + | | | + | + | + | + | + | + | + | + | - | + | + | + | + | - | + | + |
| Iso-octane | | + | | | + | | + | + | + | + | + | | | + | + | + | + | + | + | | | | | | + | + | + | + | |
| Isopropanol | | + | | | | + | + | + | (+) | + | | | | + | + | + | + | (+) | | (+) | + | + | + | + | + | + | + | (+) | + |
| Iodine solution, alcohol solution | | + | | | | | | | | + | | | | - | - | - | | | | (+) | + | | | (+) | + | + | (+) | + | |
| Potassium lye, aqueous 50% ¹⁾ | | - | + | + | | + | + | | | + | | | | - | + | + | + | + | | - | + | - | + | - | + | + | + | + | |
| Potassium lye, aqueous 10% | | (+) | | | | + | + | | | + | + | (+) | + | + | + | + | + | + | + | - | + | - | + | - | + | + | + | + | |
| Potassium dichromate, aqueous solution 10% | | - | | | | | | | | + | | | | + | + | + | + | (+) | | + | + | + | + | (+) | + | + | + | + | |
| Potassium permanganate, aqueous solution 1% | | + | + | + | + | + | | | | + | | + | | - | - | - | - | - | - | + | + | + | + | (+) | + | + | (+) | + | |
| Cupric sulphate 10% | | + | + | + | | + | + | | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |

| | VEPEL® SPI (PI) | SINTIMID (PI) | TECAFEK HT (PEK) | TECAPEEK (PEK) | TECAPEI (PEI) | TECATRON (PPS) | TECASON E (PES) | TECASON P (PPSU) | TECASON S (PSU) | TECAFLON PTFE (PTFE) | TECAFLON ETFE (ETFE) | TECAFLON PVDF (PVDF) | TECAMID 6 (PA 6) | TECAMID 46, 66 (PA 46, 66) | TECAMID 11, 12 (PA 11, 12) | TECANAT (PC) | TECAFINE (PC) | TECOUR PEI/PBT/TECAPET (PEI/PBT) | TECAFORM AH (POM-C) | TECAFORM AD (POM-H) | TECAFINE PP (PP) | TECARAN PE (PE) | TECANYL (PEE) | |
|--|-----------------|---------------|------------------|----------------|---------------|----------------|-----------------|------------------|-----------------|----------------------|----------------------|----------------------|------------------|----------------------------|----------------------------|--------------|---------------|----------------------------------|---------------------|---------------------|------------------|-----------------|---------------|--|
| Linseed oil | | | | | | | | | | | | | | | | | | | | | | | | |
| Methanol | | | | | | | | | | | | | | | | | | | | | | | | |
| Methyl ethyl ketone | | | | | | | | | | | | | | | | | | | | | | | | |
| Methylene chloride | | | | | | | | | | | | | | | | | | | | | | | | |
| Milk | | | | | | | | | | | | | | | | | | | | | | | | |
| Lactic acid, aqueous solution 90% | | | | | | | | | | | | | | | | | | | | | | | | |
| Lactic acid, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium bisulphite, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium carbonate, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium chloride, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium nitrate, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sodium thiosulphate 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Soda lye, aqueous 50% | | | | | | | | | | | | | | | | | | | | | | | | |
| Soda lye, aqueous 5% | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrobenzene | | | | | | | | | | | | | | | | | | | | | | | | |
| Oxalic acid, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Ozone | | | | | | | | | | | | | | | | | | | | | | | | |
| Paraffin oil | | | | | | | | | | | | | | | | | | | | | | | | |
| Perchloroethylene | | | | | | | | | | | | | | | | | | | | | | | | |
| Petroleum | | | | | | | | | | | | | | | | | | | | | | | | |
| Phenol, aqueous solution | | | | | | | | | | | | | | | | | | | | | | | | |
| Phosphoric acid, concentrated | | | | | | | | | | | | | | | | | | | | | | | | |
| Phosphoric acid, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Propanol | | | | | | | | | | | | | | | | | | | | | | | | |
| Pyridine | | | | | | | | | | | | | | | | | | | | | | | | |
| Pyridine 3 solution, aqueous solution | | | | | | | | | | | | | | | | | | | | | | | | |
| Salicylic acid | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitric acid, aqueous solution 2% | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrochloric acid, aqueous solution 36% | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrochloric acid, aqueous solution 2% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sulphur dioxide | | | | | | | | | | | | | | | | | | | | | | | | |
| Sulphuric acid, concentrated 98% | | | | | | | | | | | | | | | | | | | | | | | | |
| Sulphuric acid, aqueous solution 2% | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogen sulphide, saturated | | | | | | | | | | | | | | | | | | | | | | | | |
| Soap solution, aqueous solution | | | | | | | | | | | | | | | | | | | | | | | | |
| Silicone oils | | | | | | | | | | | | | | | | | | | | | | | | |
| Soda solution, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Edible fats, Edible oils | | | | | | | | | | | | | | | | | | | | | | | | |
| Styrene | | | | | | | | | | | | | | | | | | | | | | | | |
| Tar | | | | | | | | | | | | | | | | | | | | | | | | |
| Carbon tetrachloride | | | | | | | | | | | | | | | | | | | | | | | | |
| Tetrahydrofurane | | | | | | | | | | | | | | | | | | | | | | | | |
| Tetralin | | | | | | | | | | | | | | | | | | | | | | | | |
| Ink | | | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | | | | | | | | | | | | | | | | | | | | | | | | |
| Transformer oil | | | | | | | | | | | | | | | | | | | | | | | | |
| Triethanolamine | | | | | | | | | | | | | | | | | | | | | | | | |
| Trichlorethylene | | | | | | | | | | | | | | | | | | | | | | | | |
| Trilon B, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Vaseline | | | | | | | | | | | | | | | | | | | | | | | | |
| Wax, molten | | | | | | | | | | | | | | | | | | | | | | | | |
| Water, cold | | | | | | | | | | | | | | | | | | | | | | | | |
| Water, warm | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogen peroxide, aqueous solution 30% | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogen peroxide, aqueous solution 0,5% | | | | | | | | | | | | | | | | | | | | | | | | |
| Wine, Brandy | | | | | | | | | | | | | | | | | | | | | | | | |
| Tartaric acid | | | | | | | | | | | | | | | | | | | | | | | | |
| Xylene | | | | | | | | | | | | | | | | | | | | | | | | |
| Zink chloride, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |
| Citric acid, aqueous solution 10% | | | | | | | | | | | | | | | | | | | | | | | | |

+ = Resistant (+) = Limited resistance - = Not resistant (also dependent on concentration, time and temperature)

Please find the latest information at www.ensinger-online.com.

ENSINGER High temperature plastics. Material standard values.

Mechanical properties

| Trade name | DIN-abbreviation | Additives and/or colour | Service temperature °C long term | ρ g/cm ³ | σ _s MPa | σ _b MPa | ε _b % | E _t MPa | E _b MPa | H _t MPa | a kJ/m ² | σ _{B/1000} MPa | σ _{T/1000} MPa | μ - | V μ/km | Trade name |
|-------------------|------------------|---|----------------------------------|---------------------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|---------------------|-------------------------|-------------------------|-----------|--------|-------------------|
| | | | | | | | | | | | | | | | | |
| VESPEL® SP1 | PI | brown | 300 | 1,43 | | 86 (a) | 7,5 (a) | 3275 | 3100 | | | | | 0,35 | | VESPEL® SP1 |
| VESPEL® SP21 | PI CS 15 | black | 300 | 1,51 | | 66 (a) | 4,5 (a) | | 3790 | | | | | 0,3 | | VESPEL® SP21 |
| VESPEL® SP3 | PI | MoS ₂ , anthracite | 300 | 1,6 | | 59 (a) | 4 (a) | | 3280 | | | | | | | VESPEL® SP3 |
| SINTIMID PUR HT | PI | black | 300 | 1,35 | | 116 | 9 | 4000 | 4000 | | 75 (c) | | 12 | 0,8 | | SINTIMID PUR HT |
| SINTIMID 15 G | PI CS 15 | 15% graphite, black | 300 | 1,42 | | 97 | 2,8 | 4000 | 4000 | 88 (d) | 26 (ai) | | | 0,27 | | SINTIMID 15 G |
| SINTIMID 30 P | PI TF 30 | 30% PTFE | 260 | 1,51 | | 82 | 4,1 | | | 84 (d) | 23 (ai) | | | 0,45 | | SINTIMID 30 P |
| SINTIMID 40 G | PI CS 40 | 40% graphite, black | 300 | 1,57 | | 65 | 2,2 | | | 80 (d) | | | | | | SINTIMID 40 G |
| SINTIMID PVX | PI CS 15 TF 10 | 15% graphite, 10% PTFE, black | 300 | 1,48 | | 77 | 2,9 | | | 85 (d) | 27 (i) | | | 0,3 | | SINTIMID PVX |
| SINTIMID 8000 | PTFE + PI | PTFE | 250 | 1,85 | | 15 | 200 | | | 65 (d) | n. b. (c) | | | 0,15-0,2 | | SINTIMID 8000 |
| TECATOR 5013 | PAI | yellow-brown | 260 | 1,42 | 147 | 137 | 21 | 3800 | 3750 | E 86 | 142 (ai) | | | | | TECATOR 5013 |
| TECATOR 5031 PVX | PAI CS 12 TF 3 | graphite, PTFE, black | 260 | 1,46 | | 125 | 4 | 5300 | 6100 | E 72 | 63 (ai) | | | | | TECATOR 5031 PVX |
| TECAPEEK HT | PEK | black | 260 | 1,32 | 110 | | 20 | 3800 | 4100 | 108 (r) | 52 (ai) | | | | | TECAPEEK HT |
| TECAPEEK CLASSIX™ | PEEK | white | 260 | 1,38 | 95 | | >25 | | 4200 | | 7,6 (d) | | | | | TECAPEEK CLASSIX™ |
| TECAPEEK | PEEK | natural, also black ^(k) | 260 | 1,30 | 95 | | 25 | 3000 | 4100 | M99 (r) | n. b. (c) | | | 0,30-0,38 | | TECAPEEK |
| TECAPEEK GF 30 | PEEK GF 30 | 30% glass fibre | 260 | 1,51 | | 180 | 2,5 | 9500 | 10000 | M103 (r) | 60 (c) | 36 | | 0,38-0,46 | | TECAPEEK GF 30 |
| TECAPEEK CF 30 | PEEK CF 30 | 30% carbon fibre, black | 260 | 1,40 | | 215 | 1,5 | 18500 | 20000 | 256 ⁽²⁾ | 35 (c) | | | | | TECAPEEK CF 30 |
| TECAPEEK PVX | PEEK CF CS TF | 10% carbon fibre, graphite, PTFE, black | 260 | 1,48 | | 130 | 1,5 | 9500 | 8100 | 208 ⁽²⁾ | 30 (c) | | | 0,11 | | TECAPEEK PVX |
| TECAPEEK MT | PEEK | coloured, also in black ^(k) | 260 | 1,30 | 95 | | 25 | 3000 | 4100 | M99 (r) | n. b. (c) | | | 0,30-0,38 | | TECAPEEK MT |
| TECAPEEK ELS nano | PEEK CF | black | 260 | 1,34 | | 100 | 15 | 4100 | | | 50 (c) | | | | | TECAPEEK ELS nano |
| TECAPEEK TF 10 | PEEK TF 10 | PTFE, natural | 260 | 1,35 | 80 | | 15 | 3000 | | | n. b. (c) | | | | | TECAPEEK TF 10 |
| TECATRON | PPS | natural | 230 | 1,35 | 75 | | 4 | 3700 | 3600 | 190 | 50 (c) | | | | | TECATRON |
| TECATRON MT sw | PPS | black | 230 | 1,35 | 75 | | 4 | 3700 | 3600 | 190 | 50 (c) | | | | | TECATRON MT sw |
| TECATRON GF 40 | PPS GF 40 | 40% glass fibre, natural | 230 | 1,64 | | 185 | 1,9 | 14000 | 13000 | 320 | 45 (c) | | | | | TECATRON GF 40 |
| TECATRON PVX | PPS CF 10 | 10% carbon fibre, graphite, PTFE, black | 230 | 1,47 | | 115 | 1,5 | 10000 | | 203 ⁽²⁾ | 20 (c) | | | 0,21 | 0,69 | TECATRON PVX |
| TECASON S | PSU | translucent | 160 | 1,24 | 80 | 6 | > 50 | 2600 | | 147 | n. b. (c) | 42 | 22 | 0,4 | | TECASON S |
| TECASON E | PES | translucent | 180 | 1,37 | 90 | 6 | 40 | 2700 | | 148 | n. b. (c) | | 20 | | | TECASON E |
| TECASON P MT | PPSU | coloured | 170 | 1,29 | 70 | | > 50 | 2350 | 2600 | | | | | | | TECASON P MT |
| TECAPEI | PEI | translucent | 170 | 1,27 | 105 | | > 50 | 3200 | 3300 | 140 | 4 (c) | | | | | TECAPEI |
| TECAPEI MT | PEI | translucent, coloured | 170 | 1,27 | 105 | | > 50 | 3200 | 3300 | 140 | 4 (c) | | | | | TECAPEI MT |
| TECAPEI GF 30 | PEI GF 30 | 30% glass fibre | 170 | 1,51 | | 165 | 2 | 9500 | 9000 | 165 | 40 (c) | | | | | TECAPEI GF 30 |

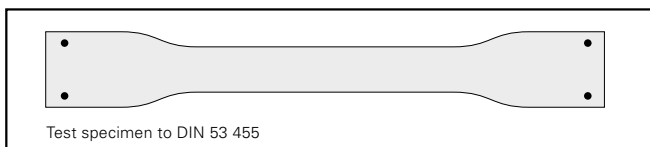
The information corresponds with current knowledge, and indicates our products and possible applications. We cannot give you a legally binding guarantee of the physical properties or the suitability for a specific application. Existing commercial patents are to be taken into account. A definite quality guarantee is given in our general conditions of sale. Tests are carried out in a standard atmosphere of 23 °C/50% r.h. according to DIN 50 014. We reserve the right to make technical alterations.

Remark: For polyamides the values strongly depend on the humidity contents.

* humid, after storage in standard atmosphere 23 °C/50% r.h. (DIN 50 014) until saturation.

- (1) When plastics are listed under "additives and colour" as available "also in black", the electrical properties are not valid for the black variant. The black variants are resistant to weathering.
- (2) Testing of semi-finished products
- (3) Expected values.
- (4) Impact resistance is measured with different methods. The values in the following tables are marked with the following letters: (c) Charpy: DIN EN ISO 179: a, kJ/m² (ai) Izod: ASTM D 256: a, J/m (di) Izod: DIN EN ISO 180, a, kJ/m² (k) Notch impact strength: DIN EN ISO 179: a, kJ/m²

| Trade name | Thermal properties | | | | | | | | | | | Electrical properties ⁽¹⁾ | | | | | | Miscellaneous data | | |
|-------------------|-------------------------------|--|---|---|-----------------------------------|---------------------------------|--------------------------|--|---|--|--|---|---|---|---|---|---|-------------------------------------|--|-------------------|
| | T _g °C | T _g °C | HDT/A °C | HDT/B °C | °C | λ W/(K·m) | c J/(g·K) | α 10 ⁻⁵ 1/K | ε _r | tan δ | ρ _p Ω·cm | R _o Ω | E _d kV/mm | Stufe | W(H ₂ O) % | W _s % | - | - | - | Trade name |
| | Melting point (DIN 53 765) | Glass transition temperature (DIN 53 755) | Heat distortion temperature (DIN EN ISO 75 method A) | Heat distortion temperature (DIN EN ISO 75 method B) | Service temperature short term | Thermal conductivity (23 °C) | Specific heat (23 °C) | Coefficient of linear thermal expansion (23 °C, ASTM D 695, DIN ISO 7599, ASTM E 831) | Dielectric constant (100 Hz, ASTM D 150, DIN ISO 7599, ASTM E 831) | Dielectric loss factor (100 Hz, ASTM D 150, DIN ISO 7599, ASTM E 831) | Surface volume resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Surface resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Dielectric strength (ASTM D 149, DIN EN 60093) | Resistance to tracking (DIN EN 60112, VDE 0302 part 1) | Moisture absorption to equilibrium 23 °C/50% rel. humidity (DIN EN ISO 62) | Water absorption at saturation (DIN EN ISO 62) | Resistance to hot water washing soda | Flammability acc. UL-Standard 94 | Resistance to weathering ⁽²⁾ | |
| VESPEL® SP1 | | | 360 | 360 | 360 | 0,35 | 1,13 | 5,4 | 3,55 | 0,0034 | 10 ¹⁴ -10 ¹⁵ | 10 ¹⁵ -10 ¹⁶ | 22 | | 1,3 | | | VO | | VESPEL® SP1 |
| VESPEL® SP21 | | | 360 | 360 | 360 | 0,87 | | 4,9 | 13,4 | 0,01 | 10 ¹² -10 ¹³ | | 9,84 | | 1,1 | | | VO | | VESPEL® SP21 |
| VESPEL® SP3 | | | | | | | | | | | | | | | | | | | | VESPEL® SP3 |
| SINTIMID PUR HT | | 360-375 | 368 | | 350 | 0,22 | 1,04 | 4,9 | 3,1 | 0,003 | 10 ¹⁷ | 10 ¹⁶ | 20 | | 2,6 | 3,6 | (+) | VO | (+) | SINTIMID PUR HT |
| SINTIMID 15 G | | 330 | 300 | | 350 | 0,53 | 1,13 | 3,8 | | | | 10 ⁷ | | | 2,3 | | (+) | VO | + | SINTIMID 15 G |
| SINTIMID 30 P | | 330 | | | 330 | | | 5 | | | 10 ¹⁷ | 10 ¹⁶ | | | | | | | | SINTIMID 30 P |
| SINTIMID 40 G | | 330 | | | 350 | | | 3,1 | | | | | | | | | | VO | + | SINTIMID 40 G |
| SINTIMID PVX | | 330 | 330 | | 350 | | | 5 | | | | | | | 2,3 | | | | + | SINTIMID PVX |
| SINTIMID 8000 | 327 | -20 | | | 260 | 0,25 | 1 | 6 | 2,3 | | 10 ¹⁸ | | | 0,5 | 0,7 | (+) | VO | + | SINTIMID 8000 | |
| TECATOR 5013 | | 275 | 278 | | 270 | 0,26 | 0,24 | 3,1 | 3,9 | 0,031 | > 10 ¹⁸ | > 10 ¹⁸ | 23,6 | | 2,5 | 4,5 | + | VO | - | TECATOR 5013 |
| TECATOR 5031 PVX | | 275 | 279 | | 270 | 0,54 | 0,24 | 2,5 | 5,4 | 0,042 | 8x10 ¹³ | 8x10 ¹³ | | 1,9 | 3,5 | + | VO | + | TECATOR 5031 PVX | |
| TECAPEEK HT | 374 | 157 | 165 | | 300 | | | 5,7 | 3,3 | 0,0035 | 10 ¹⁶ | | | | | | | VO | - | TECAPEEK HT |
| TECAPEEK CLASSIX™ | | 143 | | | 300 | | | | | | | | | | | | | | | TECAPEEK CLASSIX™ |
| TECAPEEK | 343 | 143 | 140 | 182 | 300 | 0,25 | 0,32 | 5 | 3,2-3,3 | 0,001-0,004 | 10 ¹⁶ | 10 ¹⁵ | 20 | | 0,1 | 0,5 | + | VO | - | TECAPEEK |
| TECAPEEK GF 30 | 343 | 143 | 315 | | 300 | 0,43 | | 2 | | 0,004 | 10 ¹⁵ | 10 ¹⁵ | 24,5 | | 0,1 | 0,1 | + | VO | - | TECAPEEK GF 30 |
| TECAPEEK CF 30 | 343 | 143 | 315 | | 300 | 0,92 | | 1,5 ⁽²⁾ | | | 10 ⁻⁵ -10 ⁽²⁾ | 10 ⁻² -10 ⁽²⁾ | | 0,1 | 0,1 | + | VO | + | TECAPEEK CF 30 | |
| TECAPEEK PVX | 343 | 143 | 277 | | 300 | 0,24 | | 2,2 | | | 3x10 ⁶ | 5x10 ⁶ | | 0,1 | 0,1 | + | VO | + | TECAPEEK PVX | |
| TECAPEEK MT | 343 | 143 | 140 | 182 | 300 | 0,25 | 0,32 | 5 | 3,2-3,3 | 0,001-0,004 | 10 ¹⁶ | 10 ¹⁵ | 20 | | 0,1 | 0,5 | + | VO | - | TECAPEEK MT |
| TECAPEEK ELS nano | 343 | 143 | | | 300 | 0,8 | | 1,9 | | | 10 ² -10 ⁴ | 10 ¹ -10 ³ | | 0,1 | 0,2 | + | VO | + | TECAPEEK ELS nano | |
| TECAPEEK TF 10 | 300 | 143 | | | 300 | | | | | | | | | | 0,1 | | + | VO | - | TECAPEEK TF 10 |
| TECATRON | 280 | 90 | 110 | | 260 | 0,25 | | 5 | | | 10 ¹³ | 10 ¹⁵ | | | 0,01 | | + | VO | - | TECATRON |
| TECATRON MT sw | 280 | 90 | 110 | | 260 | 0,25 | | 5 | | | 10 ¹³ | 10 ¹⁵ | | | 0,01 | | + | VO | + | TECATRON MT sw |
| TECATRON GF 40 | 280 | 90 | 260 | | 260 | 0,25 | 1,18 | ca. 3 | 4 | 0,004 | 10 ¹³ | 10 ¹⁵ | 20 | KC 175 | 0,02 | 1 | + | VO | - | TECATRON GF 40 |
| TECATRON PVX | 280 | 90 | | | 260 | | | 3-4 ⁽²⁾ | | | 4x10 ¹⁰⁽²⁾ | 1x10 ¹⁰⁽²⁾ | | | 0,02 | | + | VO | + | TECATRON PVX |
| TECASON S | | 180 | 169 | 181 | 180 | 0,25 | 1 | 5,5 | 3,1 | 0,005 | 10 ¹⁶ | 10 ¹⁴ | 42 | KA 1 KB 175 | 0,2 | 0,8 | + | VO | - | TECASON S |
| TECASON E | | 225 | 204 | 214 | 220 | 0,18 | 1,12 | 5,5 | 3,5 | 0,005 | 10 ¹⁶ | 10 ¹⁴ | 40 | | 0,7 | 2,1 | + | VO | - | TECASON E |
| TECASON P MT | | 220 | 207 | 214 | 190 | 0,35 | | 5,6 | 3,45 | | 10 ¹⁵ | 10 ¹³ | 15 | | 0,37 | 1,1 | + | VO | + | TECASON P MT |
| TECAPEI | | 217 | 180 | 200 | 200 | 0,22 | | 5 | 3,15 | 0,001 | 10 ¹⁵ | 10 ¹⁵ | 33 | | 0,7 | 1,25 | + | VO | - | TECAPEI |
| TECAPEI MT | | 217 | 180 | 200 | 200 | 0,22 | | 5 | 3,15 | 0,001 | 10 ¹⁵ | 10 ¹⁵ | 33 | | 0,7 | 1,25 | + | VO | - | TECAPEI MT |
| TECAPEI GF 30 | | 217 | 210 | 215 | 200 | 0,23 | | 2 | 3,7 | 0,007 | 10 ¹⁵ | 10 ¹⁵ | 30 | | 0,5 | 0,9 | + | VO | - | TECAPEI GF 30 |



For **VESPEL®** see page 54.

+ = Resistant (+) = Limited resistance - = Not resistant (depending on concentration, time and temperature)

These values represent the average of a number of individual measurements. Unless otherwise stated the test results apply to injection moulded samples.

ENSINGER Engineering plastics. Material standard values

Mechanical properties

| Trade name | DIN-abbreviation | Additives and/or colour | Service temperature °C long term | ρ g/cm³ | σ _S MPa | σ _B MPa | ε _B % | E _T MPa | E _B MPa | H _K MPa | a kJ/m² | σ _{B/1000} MPa | σ _{T/1000} MPa | μ - | V μ/km | Trade name |
|------------------------|-------------------|--|----------------------------------|---------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|-----------|-------------------------|-------------------------|-----------|--------|------------------------|
| | | | | | | | | | | | | | | | | |
| TECAFLON PTFE | PTFE | natural | 260 | 2,18 | 25 | | > 50 | 700 | | 30 | n. b. (c) | 5 | 1,58 | 0,08-0,1 | 21 | TECAFLON PTFE |
| TECAFLON ETFE | E/TFE | | 150 | 1,73 | 45 | | 40 | 800 | | 60 (d) | n. b. (c) | | | 0,4 | | TECAFLON ETFE |
| TECAFLON PVDF | PVDF | | 150 | 1,78 | 50 | | > 30 | 2000 | 2000 | 80 | n. b. (c) | 34 | 3 | 0,3 | | TECAFLON PVDF |
| TECAMID 46 | PA 46 | | 130 | 1,18 | 100/65* | | 40/280* | 3300/1200* | | 90 (d) | n. b. (c) | | | 0,20-0,45 | | TECAMID 46 |
| TECAMID 66/ X GF 50 sw | PA 66 + PA 63/ 6T | 50% glass fibre, partly aromatic, black ⁽¹⁾ | 130 | 1,56 | | 210 | 3 | 17000 | | | 85 (c) | | | | | TECAMID 66/ X GF 50 sw |
| TECAMID 66 | PA 66 | | 100 | 1,14 | 80/60* | | 40/150* | 3100/2000* | 2830 | 170/100* | n. b. (c) | 55 | 8 | 0,35-0,42 | 0,9 | TECAMID 66 |
| TECAMID 66 HI | PA 66 | heat stabilisator, brown | 115 | 1,14 | 80/60* | | 50/150* | 2700/1600* | | 170/100* | n. b. (c) | | 6 | | | TECAMID 66 HI |
| TECAMID 66 GF 30 | PA 66 GF 30 | 30% glass fibre, black | 110 | 1,35 | | 160/130* | 3/5* | 8000/7500* | | 175 ⁽²⁾ | 70 (c) | | 40 | 0,45-0,5 | | TECAMID 66 GF 30 |
| TECAMID 66 CF 20 | PA 66 CF 20 | 20% carbon fibre, black | 110 | 1,23 | | 190/150* | 2,5/6* | 13500/10000* | | 187/200* | 45 (c) | | | 0,16-0,2 | 0,7 | TECAMID 66 CF 20 |
| TECAMID 66 LA | PA 66 | lubricant | 90 | 1,11 | 60/50* | | 10/40* | 2000/1600* | | 117/100* | 50 (c) | | 3 | 0,18-0,20 | 0,08 | TECAMID 66 LA |
| TECAMID 66 MH | PA 66 | MoS ₂ , black ⁽¹⁾ | 100 | 1,14 | 75 | | > 25 | 2500 | | 107 ⁽²⁾ | n. b. (c) | | 8,5 | 0,20-0,25 | 0,08 | TECAMID 66 MH |
| TECAST HI | PA 6 G | heat stabilizer, brown | 115 | 1,15 | 80/60* | | 5/50* | 4000/3300* | | 170 | | | | | | TECAST HI |
| TECAST ST | PA 6 G | toughness modifier | 100 | 1,15 | 50 | | 50/70* | 2000 | | 95 | | | | | | TECAST ST |
| TECAST R | PA 6 G | | 100 | 1,15 | 85/60* | | 5/50* | 4000/3300* | | 170 | | | | | | TECAST R |
| TECAST T | PA 6 G | natural | 100 | 1,15 | 85/60* | | 3/50* | 3300/1700* | | 160/90* | n. b. (c) | 50 | 5 | 0,4 | | TECAST T |
| TECAST M | PA 6 G | MoS ₂ , anthracite | 100 | 1,15 | 90 | | 5/30* | 3500 | | 175 | | | | | | TECAST M |
| TECAST TM | PA 6 G | MoS ₂ , anthracite | 100 | 1,15 | 75 | | 40/60* | 2800 | | 145 | | | | | | TECAST TM |
| TECAST L | PA 6 G | lubricant, natural | 100 | 1,15 | 70 | | 20/40* | 2500 | | 125 | | | | | | TECAST L |
| TECARIM 1500 | PA 6 G | 15% elastomere natural | 95 | 1,12 | 54/44* | | 90/320* | 2100/900* | 2280/1100* | 77/73*(d) | 20/42*(k) | | | | | TECARIM 1500 |
| TECARIM 4000 | PA 6 G | 40% elastomere natural | 95 | 1,13 | 26/22* | | 420/420* | 450/230* | 500/240* | 59/52*(d) | | | | | | TECARIM 4000 |
| TECAM 6 MO | PA 6 | MoS ₂ , black | 100 | 1,14 | 75 | | > 25 | 2700 | | 107/85*(2) | n. b. (c) | | 5 | 0,32-0,37 | 0,16 | TECAM 6 MO |
| TECAMID 6 | PA 6 | natural | 100 | 1,13 | 85/60* | | 70/200* | 3000/1800* | | 160/70* | n. b. (c) | 45 | 4,5 | 0,38-0,45 | 0,23 | TECAMID 6 |
| TECAMID 6 GF 30 | PA 6 GF 30 | 30% glass fibre, black | 100 | 1,35 | | 140/110* | 2,5/5* | 8500/6000* | | 147 ⁽²⁾ | 55 (c) | | 21-35 | 0,46-0,52 | | TECAMID 6 GF 30 |
| TECAMID TR | PA 6-3-T | transparent | 100 | 1,12 | 90 | | > 50 | 2800 | | 100 | n. b. (c) | 50 | 12 | | | TECAMID TR |
| TECAMID 12 | PA 12 | natural | 112 | 1,02 | 40 | | 240 | 1200 | | 72 (d) | n. b. (c) | 23 | 3,5 | 0,32-0,38 | 0,8 | TECAMID 12 |
| TECAMID 12 GF 30 | PA 12 GF 30 | 30% glass fibre | 112 | 1,24 | | 105 | 6 | 5900 | | 113 R (r) | 70 (c) | | 28 | | | TECAMID 12 GF 30 |
| TECAMID 11 | PA 11 | natural | 80 | 1,04 | 40/42* | | 230/280* | 1000 | | 90 | n. b. (c) | 23 | 3,5 | 0,32-0,38 | 0,8 | TECAMID 11 |
| TECAMID 11 GF 30 | PA 11 GF 30 | 30% glass fibre | 80 | 1,26 | | 100/95* | 6/4* | 5000 | 3200 | 115 R (r) | 70 (c) | | 28 | | | TECAMID 11 GF 30 |

The information corresponds with current knowledge, and indicates our products and possible applications. We cannot give you a legally binding guarantee of the physical properties or the suitability for a specific application. Existing commercial patents are to be taken into account. A definite quality guarantee is given in our general conditions of sale. Tests are carried out in a standard atmosphere of 23 °C/50% r.h. according to DIN 50 014. We reserve the right to make technical alterations.

Remark: For polyamides the values strongly depend on the humidity contents.

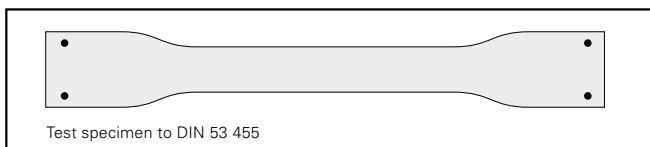
* humid, after storage in standard atmosphere 23 °C/50% r.h. (DIN 50 014) until saturation.

- (1) When plastics are listed under "additives and colour" as available "also in black", the electrical properties are not valid for the black variant. The black variants are resistant to weathering.
- (2) Testing of semi-finished products
- (3) Expected values.
- (4) Impact resistance is measured with different methods.

The values in the following tables are marked with the following letters:

- (c) Charpy: DIN EN ISO 179: a, kJ/m²
- (ai) Izod: ASTM D 256: a, J/m
- (di) Izod: DIN EN ISO 180, a, kJ/m²
- (k) Notch impact strength: DIN EN ISO 179: a, kJ/m²

| Trade name | Thermal properties | | | | | | | | | | | Electrical properties | | | | | Miscellaneous data | | | |
|----------------------------|-------------------------------|--|---|---|-----------------------------------|---------------------------------|--------------------------|--|--|---|---|---|---|---|---|--|---|--|------------|---------------------------|
| | Melting point (DIN 53 765) | Glass transition temperature (DIN 53 765) | Heat distortion temperature (DIN EN ISO 75 method A) | Heat distortion temperature (DIN EN ISO 75 method B) | Service temperature short term | Thermal conductivity (23 °C) | Specific heat (23 °C) | Coefficient of linear thermal expansion (23 °C, ASTM D 695, DIN ISO 7599, ASTM E 831) | Dielectric constant (100 Hz, ASTM D 150, DIN 53 483, IEC 250) | Dielectric loss factor (100 Hz, ASTM D 150, DIN 53 483, IEC 250) | Specific volume resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Surface resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Dielectric strength (ASTM D 149, DIN EN 60093) | Resistance to tracking (DIN EN 60112, VDE 0302 Teil 1) | Moisture absorption to equilibrium 23 °C/50% rel. humidity (DIN EN ISO 62) | Water absorption at saturation washing soda | Resistance to hot water UL-Standard 94 | Flammability acc. to Resistance to weathering ⁶⁾ | Trade name | |
| TECAFLON PTFE | 327 | -20 | 55 | 121 | 260 | 0,25 | 1 | 12 | 2,1 | 0,0002 | 10 ¹⁶ | 10 ¹⁶ | 48 | KA 3c KB>600 | <0,05 | | + | V0 | + | TECAFLON PTFE |
| TECAFLON ETFE | 267 | -100 | 71 | 105 | 150 | 0,24 | 0,9 | 13 | 2,6 | 0,001 | >10 ¹⁶ | >10 ¹⁶ | 40 | | <0,05 | 0,03 | + | V0 | + | TECAFLON ETFE |
| TECAFLON PVDF | 172 | -18 | 95 | 140 | 150 | 0,11 | 1,2 | 13 | 8 | 0,06 | 10 ¹⁴ | 10 ¹³ | 10-60 | KA 1 | <0,05 | <0,05 | + | V0 | + | TECAFLON PVDF |
| TECAMID 46 | 295 | 75 | 160 | | 220 | 0,3 | 2,1 | 8 | | 0,21 0,35 | 10 ¹⁵ | 10 ¹⁶ | 25/15* | KC >425 | 3,7 | 14 | (+) | V2 | - | TECAMID 46 |
| TECAMID s66/ X GF 50 sw | 260 | | | | 200 | | | 1,5 | | | 10 ¹² | 10 ¹³ | | | 1,3 | | (+) | | + | TECAMID 66/ X GF 50 sw |
| TECAMID 66 | 260 | 72/5* | 100 | >200 | 170 | 0,23 | 1,7 | 8 | 3,6-5 | 0,026- 0,200 | 10 ¹² | 10 ¹⁶ | 28*/ 30 | CTI 600 | 2,8 | 8,5 | (+) | HB | - | TECAMID 66 |
| TECAMID 66 HI | 260 | 72/5* | 100 | 200 | 180 | 0,23 | 1,7 | 8 | 3,2-5 | 0,025- 0,200 | 10 ¹² | 10 ¹⁶ | 80*/ 100 | KB>600 KC>600 | 2,8 | 8,5 | (+) | HB | - | TECAMID 66 HI |
| TECAMID 66 GF 30 | 260 | 72/5* | 250 | 250 | 170 | 0,27 | 1,5 | 2-3 ⁽²⁾ | | | 8x10 ¹³⁽²⁾ | 6x10 ¹³⁽²⁾ | | | 1,5 | 5,5 | (+) | HB | + | TECAMID 66 GF 30 |
| TECAMID 66 CF 20 | 260 | 72/5* | 245 | 250 | 170 | 0,43 | 1,8 | 5,5 ⁽²⁾ | | | 10 ¹² - 10 ¹²⁽²⁾ | 10 ¹² - 10 ¹²⁽²⁾ | | | 2,2 | 6,5 | (+) | HB | + | TECAMID 66 CF 20 |
| TECAMID 66 LA | 260 | 72/5* | 85 | 185 | 120 | 0,23 | 1,7 | 15 ⁽²⁾ | 3,3 | 0,015 | 6x10 ¹³⁽²⁾ | 10 ¹⁴⁽²⁾ | 80*/ 120 | CT >600 | 2,5 | 7,5 | (+) | HB | - | TECAMID 66 LA |
| TECAMID 66 MH | 260 | 72/5* | 105 | >200 | 170 | 0,23 | 1,8 | 12 ⁽²⁾ | | | 7x10 ¹³⁽²⁾ | 5x10 ¹³⁽²⁾ | | | 2,6 | 7 | (+) | HB | + | TECAMID 66 MH |
| TECAST HI | 220 | 40/5* | | | 180 | | | 8 | 3,7 | 0,03 | | 5x10 ¹² | 50 | | 2,5 | 7 | (+) | HB | - | TECAST HI |
| TECAST ST | 220 | 40/5* | | | 150 | 0,24 | | 10 | | | | | | | | 5-6 | (+) | HB | - | TECAST ST |
| TECAST R | 220 | 40/5* | | | 180 | 0,24 | | 8 | | | | | | | 2,5 | 6-7 | (+) | HB | - | TECAST R |
| TECAST T | 220 | 40/5* | 95 | 195 | 180 | 0,24 | 1,7 | 7,5/9,5* | 3,7 | 0,03- 0,30 | 10 ¹² - 5x10 ¹⁴ | 5x10 ¹² | KA 3c KA 3b | | 2,5 | 6-7 | (+) | HB | - | TECAST T |
| TECAST M | 220 | 40/5* | | | 180 | | | 8,5 | | | | | | | | 6-7 | (+) | HB | + | TECAST M |
| TECAST TM | 210 | 40/5* | | | 170 | | | 9,5 | | | | | | | 2,5 | 6 | (+) | HB | + | TECAST TM |
| TECAST L | 220 | 40/5* | | | 180 | | | 9 | | | | | | | | 6 | (+) | HB | - | TECAST L |
| TECARIM 1500 | 214 | | | | 160 | | | ca. 7-8 | 4,2 | 0,1 | 5x10 ⁹ | 4x10 ⁹ | | 500 | 2,5 | | (+) | HB | | TECARIM 1500 |
| TECARIM 4000 | 214 | | | | | | | ca. 7-8 | 4,8 | 0,1 | 2x10 ⁹ | 2x10 ⁹ | | 600 | 1,6 | | (+) | HB | | TECARIM 4000 |
| TECAM 6 MO | 220 | 40 | 100 | 195 | 160 | 0,23 | 1,7 | 18 ⁽²⁾ | | | 6x10 ¹³⁽²⁾ | 3x10 ¹³⁽²⁾ | | | 3 | 8-9 | (+) | HB | + | TECAM 6 MO |
| TECAMID 6 | 220 | 60/5* | 75 | 190 | 160 | 0,23 | 1,7 | 8 | 3,7-7 | 0,031- 0,300 | 10 ¹³ | 10 ¹² | 20*/50 | CTI 600 | 3 | 9,5 | (+) | HB | | TECAMID 6 |
| TECAMID 6 GF 30 | 220 | 60/5* | 210 | 220 | 180 | 0,28 | 1,5 | 2-3 ⁽²⁾ | | | 9x10 ¹³⁽²⁾ | 5x10 ¹³⁽²⁾ | | | 2,1 | 6,6 | (+) | HB | + | TECAMID 6 GF 30 |
| TECAMID TR | | 150 | 130 | 140 | 120 | 0,23 | 1,45 | 5 | 3-4 | 0,02- 0,03 | 10 ¹⁵ | 10 ¹⁵ | 25 | KC>600 | 3 | 5,6-6,4 | (+) | HB | - | TECAMID TR |
| TECAMID 12 | | 45 | 50 | 140 | 150 | 0,23 | 2,1 | 10 | 3,1-3,6 | 0,03- 0,04 | 10 ¹⁴ | 10 ¹⁴ | 24-30 | KA 38 CTI 600 | 0,7 | 1,6 | + | HB | - | TECAMID 12 |
| TECAMID 12 GF 30 | 175 | 45 | 120 | 165 | 150 | 0,23 | 1,7 | 5 | 4 | < 0,04 | 10 ¹³ | 10 ¹⁴ | >45 | KB 400 CTI 600 | 0,4 | 1 | (+) | HB | - | TECAMID 12 GF 30 |
| TECAMID 11 | 183 | 43 | 55 | 150 | 150 | 0,23 | 2,1 | 10 | 3,2-3,6 | 0,03- 0,08 | 10 ¹³ - 2x10 ¹⁵ | 10 ¹⁴ | 40 | KC 600 | 0,9 | 1,9 | + | HB | - | TECAMID 11 |
| TECAMID 11 GF 30 | 185 | 43 | 120 | 165 | 150 | 0,23 | | 5 | | | 10 ¹⁴ | > 10 ¹⁴ | 45 | KB 600 KC 600 | 0,45 | 1,3 | (+) | HB | - | TECAMID 11 GF 30 |



+ = Resistant (+) = Limited resistance - = Not resistant
(depending on concentration, time and temperature)

These values represent the average of a number of individual measurements. Unless otherwise stated the test results apply to injection moulded samples.

ENSINGER Engineering plastics. Material standard values.

Mechanical properties

| Trade name | DIN-abbreviation | Additives and/or colour | Service temperature °C long term | ρ g/cm ³ | σ _S MPa | σ _T MPa | ε _B % | E _T MPa | E _M MPa | H _k MPa | a kJ/m ² | σ _{B/1000} MPa | σ _{T/1000} MPa | μ - | V μ/km | Trade name |
|----------------------|------------------|---|----------------------------------|---------------------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|---------------------|-------------------------|-------------------------|-----------|--------|----------------------|
| | | | | | | | | | | | | | | | | |
| TECANAT HT | PC-HT | transparent | 140 | 1,15 | 65 | | 7 | 2300 | 2200 | 115 | n. b. (c) | | | | | TECANAT HT |
| TECANAT | PC | transparent | 120 | 1,20 | 60 | | | 2300 | | 100 | n. b. (c) | 48 | 18 | 0,52-0,58 | 22 | TECANAT |
| TECANAT GF 30 | PC GF 30 | 30% glass fibre | 120 | 1,42 | | 130 | 2,5 | 7500 | | 148 ^(a) | 55 (c) | >50 | | | | TECANAT GF 30 |
| TECAFINE PMP | PMP | transparent | 120 | 0,83 | | 15 | | | 1500 | 85 | n. b. (c) | | | | | TECAFINE PMP |
| TECADUR PET | PET | natural, also in black ⁽¹⁾ | 110 | 1,37 | 88 | | | 2700 | | 95 | n. b. (c) | | 13 | 0,25 | 0,35 | TECADUR PET |
| TECAPET | PET | natural, also in black ⁽¹⁾ | 110 | 1,37 | 88 | | | 3200 | | 95 | 40 (c) | | 13 | 0,25 | 0,35 | TECAPET |
| TECAPET TF | PET | solid lubricant, grey | 110 | 1,44 | 73 | | | 2900 | | | 40 (c) | | | 0,1 | | TECAPET TF |
| TECADUR PBT | PBT | natural | 110 | 1,31 | 55 | | | 2500 | | 125 | n. b. (c) | 36 | 12 | 0,24 | 0,2 | TECADUR PBT |
| TECADUR PBT GF 30 | PBT GF 30 | 30% glass fibre grey white | 110 | 1,53 | | 135 | 2,5 | 10000 | | 190 | 60 (c) | | 57 | 0,24 | | TECADUR PBT GF 30 |
| TECAFORM AH | POM-C | natural, also in black ⁽¹⁾ | 100 | 1,41 | 62 | | 30 | 2700 | | 145 | n. b. (c) | 40 | 13 | 0,32 | 8,9 | TECAFORM AH |
| TECAFORM AH GF 25 | POM-C GF 25 | 25% glass fibre | 100 | 1,58 | | 130 | 3 | 9000 | | 195 | 40 (c) | | | | | TECAFORM AH GF 25 |
| TECAFORM AH LA | POM-C | solid lubricant, blue | 100 | 1,35 | 45 | 25 | | 1600 | 2100 | 90 ⁽²⁾ | > 40 (c) | | | ~0,2 | | TECAFORM AH LA |
| TECAFORM AH ELS | POM-C | conductive carbon, black | 100 | 1,45 | 50 | | 15 | 2000 | | M97 ^(r) | >1000 (di) | | | | | TECAFORM AH ELS |
| TECAFORM AH SD | POM-C | beige | 100 | 1,33 | 45 | | > 25 | 1400 | 1450 | | 100 (ai) | | | 0,18 | | TECAFORM AH SD |
| TECAFORM AH MT color | POM-C | also in black ⁽¹⁾ | 100 | 1,41 | 55 | | 30 | 2100 | | 145 | n. b. (c) | 40 | 13 | 0,32 | 8,9 | TECAFORM AH MT color |
| TECAFORM AD | POM-H | natural | 110 | 1,42 | 70 | | 25 | 3000 | 2620 | 170 | n. b. (c) | 40 | 13 | 0,34 | 4,6 | TECAFORM AD |
| TECAFORM AD AF | POM-H | PTFE, brown | 110 | 1,54 | 50 | | 10 | 2900 | 2410 | | 40 (c) | | | 0,14 | | TECAFORM AD AF |
| TECAPRO MT | PP | heat stabilisator, also in black ⁽¹⁾ | 100 | 0,92 | 35 | | | | 1470 | 100 (r) | 41,9 (ai) | | | | | TECAPRO MT |
| TECAFINE PP | PP | also in black ⁽¹⁾ and grey | 100 | 0,91 | 30 | | > 50 | 1600 | | 80 | n. b. (c) | 22 | 4 | 0,3 | 11 | TECAFINE PP |
| TECAFINE PP ELS | PP | conductive carbon, black | 100 | 0,98 | 26 | 18 | 27 | 1200 | | 71 | 30 (c) | | | | | TECAFINE PP ELS |
| TECAFINE PP GF 30 | PP GF 30 | 30% glass fibre | 100 | 1,14 | | 85 | 3 | 5500 | | 110 | 40 (c) | | | 0,5 | 8,4 | TECAFINE PP GF 30 |
| TECAFINE PE 10 | PE-UHMW | natural | 90 | 0,93 | 17 | 40 | > 50 | 650 | 800 | 35 | n. b. (c) | | | 0,29 | | TECAFINE PE 10 |
| TECAFINE PE 5 | PE-HMW | natural | 90 | 0,95 | 25 | 40 | > 50 | 1100 | 900 | 52 | n. b. (c) | | | 0,29 | | TECAFINE PE 5 |
| TECAFINE PE | PE-HD | also in black ⁽¹⁾ | 90 | 0,96 | 25 | | | 1000 | 1000 | 50 | n. b. (c) | 12,5 | 3 | 0,29 | | TECAFINE PE |
| TECARAN ABS | ABS | grey | 75 | 1,06 | 50 | | | 2400 | | 85 | n. b. (c) | 28 | 17 | 0,5 | 8,4 | TECARAN ABS |
| TECANYL | PPE | grey | 85 | 1,06 | 55 | | | 2300 | | 125 | n. b. (c) | | 21 | 0,4 | 90 | TECANYL |
| TECANYL GF 30 | PPE GF 30 | 30% glass fibre, beige | 85 | 1,29 | | 105 | 2 | 8000 | | | 30 (c) | | 47 | | | TECANYL GF 30 |

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Remark: For polyamides the values strongly depend on the humidity contents.

* humid, after storage in standard atmosphere 23 °C/50% r.h. (DIN 50 014) until saturation.

(1) When plastics are listed under "additives and colour" as available "also in black", the electrical properties are not valid for the black variant. The black variants are resistant to weathering.

(2) Testing of semi-finished products
(3) Expected values.

(4) Impact resistance is measured with different methods.

The values in the following tables are marked with the following letters:

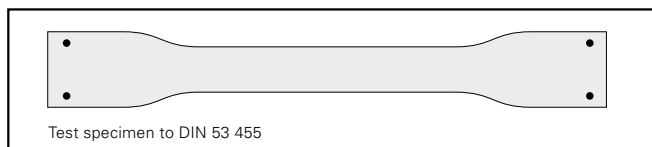
(c) Charpy: DIN EN ISO 179: a, kJ/m²

(ai) Izod: ASTM D 256: a, J/m

(di) Izod: DIN EN ISO 180, a, kJ/m²

(k) Notch impact strength: DIN EN ISO 179: a, kJ/m²

| Trade name | Thermal properties | | | | | | | | | | | Electrical properties | | | | | | Miscellaneous data | | |
|-----------------------|-------------------------------|--|---|---|-----------------------------------|---------------------------------|--------------------------|--|--|---|--|---|---|---|---|--|---|--|---|-----------------------|
| | T _g °C | T _d °C | HDT/A °C | HDT/B °C | °C | λ W/(K·m) | c J/(g·K) | α 10 ⁻⁵ 1/K | ε _r - | tan δ - | ρ _v Ω·cm | R _o Ω | E _d kV/mm | Stufe | W(H ₂ O) % | W _s % | - | - | - | Trade name |
| | Melting point (DIN 53 765) | Glass transition temperature (DIN 53 755) | Heat distortion temperature (DIN EN ISO 75 method A) | Heat distortion temperature (DIN EN ISO 75 method B) | Service temperature short term | Thermal conductivity (23 °C) | Specific heat (23 °C) | Coefficient of linear thermal expansion (23 °C, ASTM D 695, DIN ISO 7599, ASTM E 831) | Dielectric constant (106 Hz, ASTM D 150, DIN 53 483, IEC 250) | Dielectric loss factor (106 Hz, ASTM D 150, DIN 53 483, IEC 250) | Surface volume resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Surface resistance (ASTM D 257, IEC 93, DIN IEC 60093) | Dielectric strength (ASTM D 149, DIN EN 60093) | Resistance to tracking (DIN EN 60112, VDE 0302 Teil 1) | Moisture absorption to equilibrium 23 °C / 50% rel. humidity (DIN EN ISO 62) | Water absorption to equilibrium (DIN EN ISO 62) | Resistance to hot water washing soda | Flammability acc. to UL-Standard 94 | Resistance to weathering ^{en} | |
| TECANAT HT | | 180 | 161-197 | 173-195 | 170 | | | 7 | 2,9 | 0,01 | > 10 ¹⁵ | 10 ¹⁵ | 35 | CTI 600 | 0,2 | | | HB | - | TECANAT HT |
| TECANAT | | 148 | 135 | 140 | 140 | 0,19 | 1,2 | 7 | 3 | 0,006 | 10 ¹³ | 10 ¹⁵ | 27 | KA 1 | 0,15 | 0,36 | - | HB | - | TECANAT |
| TECANAT GF 30 | | 148 | 142 | | 140 | 0,26 | | 3 ⁽²⁾ | 3,3 | 0,009 | 10 ¹⁰⁽²⁾ | 10 ¹⁴⁽²⁾ | 30 | KB 160 | 0,1 | 0,28 | - | HB | - | TECANAT GF 30 |
| TECAFINE PMP | | 20 | 51 | 85 | | 0,17 | 2,18 | 12 | 2,12 | | 10 ¹⁴ | 10 ¹³ | 65 | KA 3c KB>600 KC>600 | <0,05 | 0,01 | + | HB | - | TECAFINE PMP |
| TECADUR PET | 245 | 70 | 95 | 170 | 170 | 0,24 | 1,1 | 7 | 3,2 | 0,0021 | 10 ¹³ | 10 ¹⁵ | 60 | KC 350 | 0,25 | 0,5 | - | HB | - | TECADUR PET |
| TECAPET | 255 | 70 | 95 | 170 | 170 | 0,24 | 1,1 | 7 | 3,2 | 0,0021 | 10 ¹³ | 10 ¹⁵ | 60 | KC 350 | 0,25 | 0,5 | | HB | - | TECAPET |
| TECAPET TF | 255 | | 70 | | | | | | | | | | | | 0,25 | 0,5 | | | | TECAPET TF |
| TECADUR PBT | 225 | 60 | 80 | 165 | 170 | 0,21 | 1,21 | 8 | 3 | 0,012 | >10 ¹³ | > 10 ¹⁵ | >45 | KB 425 KC>600 | 0,25 | 0,4 | - | HB | - | TECADUR PBT |
| TECADUR PBT GF 30 | 225 | 60 | 210 | 225 | 200 | | 1,5 | 3,5 | 3,8 | 0,009 | 10 ¹³ | 10 ¹⁵ | 50 | KB 225 KC 550 | 0,15 | 0,35 | - | HB | - | TECADUR PBT GF 30 |
| TECAFORM AH | 165 | -60 | 110 | 160 | 140 | 0,31 | 1,5 | 10 | 3,5 | 0,003 | 10 ¹⁴ | 10 ¹⁴ | >50 | KA 3c | <0,3 | 0,5 | (+) | HB | - | TECAFORM AH |
| TECAFORM AH GF 25 | 165 | -60 | | | 140 | | | 3 | 4,8 | 0,005 | 10 ¹⁴ | 10 ¹² | >50 | | 0,15 | | | | | TECAFORM AH GF 25 |
| TECAFORM AH LA | 165 | -60 | 88 | | 140 | | 1,5 | 16 ⁽²⁾ | 3,8 | 0,007 | 7x 10 ¹⁰⁽²⁾ | 9x10 ¹³ | 35 | CTI 600 | 0,2 | 0,8 | (+) | HB | - | TECAFORM AH LA |
| TECAFORM AH ELS | 165 | -60 | 89 | | 140 | | | 11 | | | 10 ² -10 ⁴ | 10 ² -10 ⁴ | | | <0,3 | 0,5 | (+) | HB | + | TECAFORM AH ELS |
| TECAFORM AH SD | 165 | -60 | 88 | | 140 | 0,3 | | 6,5 | | | 10 ³ -10 ¹¹ | 10 ³ -10 ¹¹ | | | 0,25 | ~0,8 | (+) | HB | - | TECAFORM AH SD |
| TECAFORM AH MT farbig | 165 | -60 | 110 | 160 | 140 | 0,31 | 1,5 | 10 | 3,5 | 0,003 | 10 ¹⁴ | 10 ¹⁴ | > 50 | KA 3c | < 0,3 | 0,5 | (+) | HB | - | TECAFORM AH MT farbig |
| TECAFORM AD | 175 | -60 | 124 | 170 | 150 | 0,31 | 1,5 | 10 | 3,7 | 0,005 | >10 ¹⁴ | > 10 ¹⁴ | >50 | KA 3c | <0,3 | 0,5 | - | HB | - | TECAFORM AD |
| TECAFORM AD AF | 175 | -60 | 118 | 168 | 150 | | | 8 | 3,1 | 0,009 | >10 ¹⁵ | > 10 ¹⁵ | 15 | | 0,18 | 0,72 | - | HB | - | TECAFORM AD AF |
| TECAPRO MT | 163 | 86 | | | 140 | | | | | | 10 ¹⁵ | | >40 | | >0,05 | 0,1 | - | HB | - | TECAPRO MT |
| TECAFINE PP | 165 | -18 | 65 | 105 | 130 | 0,22 | 1,7 | 17 | 2,25 | 0,0002 | >10 ¹⁴ | > 10 ¹³ | >40 | KA 3c C>600 | <0,1 | <0,1 | + | HB | - | TECAFINE PP |
| TECAFINE PP ELS | 165 | -18 | 150 | 90 | 120 | 0,2 | | | | | <10 ⁹ | <10 ⁴ | | | <0,1 | <0,1 | (+) | HB | - | TECAFINE PP ELS |
| TECAFINE PP GF 30 | 165 | -18 | 120 | 155 | 140 | 0,27 | 1,47 | 6 | 2,64 | | >10 ¹⁴ | >10 ¹³ | | KA3c KB>600 KC>600 | <0,1 | <0,1 | + | HB | - | TECAFINE PP GF 30 |
| TECAFINE PE 10 | 135 | | 42 | ~70 | 120 | 0,41 | 1,84 | 20 | 3 | | 10 ¹⁴ | 10 ¹² | 45 | KA3c KB>600 KC>600 | 0,01 | 0,02 | + | HB | - | TECAFINE PE 10 |
| TECAFINE PE 5 | 136 | | 44 | ~70 | 120 | 0,41 | 1,84 | 20 | 2,9 | 0,0004 | 10 ¹⁵ | 10 ¹³ | >150 | KC>600 | 0,01 | | + | HB | - | TECAFINE PE 5 |
| TECAFINE PE | 130 | -95 | 42-49 | 70-85 | 90 | 0,35-0,43 | 1,7-2 | 13-15 | 2,4 | 0,0002 | >10 ¹⁵ | > 10 ¹³ | >50 | KA 3c | <0,05 | 0,05 | + | HB | - | TECAFINE PE |
| TECARAN ABS | | 115 | 82-104 | 96-108 | 100 | 0,17 | 1,2 | 8-11 | 3,3 | 0,015 | 10 ¹⁵ | 10 ¹³ | >22 | KA 3b | 0,4 | 0,7 | - | HB | - | TECARAN ABS |
| TECANYL | | 150 | 130 | 138 | 110 | 0,22 | 1,2 | 7 | 2,6 | 0,001 | 10 ¹³ | 10 ¹⁵ | 50 | KA 1 | 0,1 | 0,2 | + | HB | - | TECANYL |
| TECANYL GF 30 | | 150 | 135 | 143 | 110 | | 1,34 | 3 | 3,1 | 0,0021 | 10 ¹⁵ | 10 ¹⁵ | 50 | KB 250 | 0,05 | 0,18 | (+) | HB | - | TECANYL GF 30 |

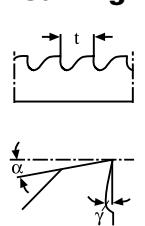
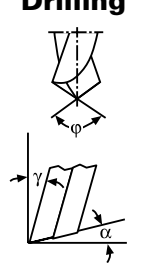
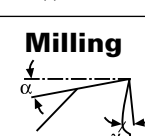
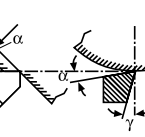


+ = Resistant (+) = Limited resistance - = Not resistant
(depending on concentration, time and temperature)

These values represent the average of a number of individual measurements. Unless otherwise stated the test results apply to injection moulded samples.

Processing of Plastics

Machining guidelines

| | | TECAMID TECAST | TECAFINE PE, PP, PMP | TECAFORM AH, AD | TECADUR PET, PBT | TECAMAT | TECANYL | TECAMID TR | TECARAN ABS | TECARLON ETFE PVDF, PTFE | TECASON S, P, E | TECAPEI | TECATRON | TECAPEEK | SINTIMID, PI | SINTIMID, TECATOR PAI | VESPEL* | Reinforced/filled ENSINGER materials* | |
|---|---|--|----------------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|-----------------|-------------------|-----------------------|-------------------|--|--|
| Sawing  α Clearance angle (°) γ Rake angle (°) V Cutting speed m/min t Pitch mm | α | 20 - 30 | 20 - 30 | 20 - 30 | 15 - 30 | 15 - 30 | 15 - 30 | 15 - 30 | 20 - 30 | 15 - 30 | 15 - 30 | 15 - 30 | 15 - 30 | 5 - 10 | 5 - 10 | 5 - 10 | 15 - 30 | | |
| | γ | 2 - 5 | 2 - 5 | 0 - 5 | 5 - 8 | 5 - 8 | 5 - 8 | 5 - 8 | 0 - 5 | 5 - 8 | 0 - 4 | 0 - 4 | 0 - 5 | 0 - 5 | 0 - 3 | 0 - 3 | 0 - 3 | 10 - 15 | |
| | V | 500 | 500 | 500 - 800 | 300 | 300 | 300 | 300 | 300 | 300 | 500 | 500 | 500 - 800 | 500 - 800 | 800 - 900 | 800 - 900 | 800 - 900 | 200 - 100 | |
| | t | 3 - 8 | 3 - 8 | 2 - 5 | 3 - 8 | 3 - 8 | 3 - 8 | 3 - 8 | 2 - 8 | 2 - 5 | 2 - 5 | 2 - 5 | 3 - 5 | 3 - 5 | 10 - 14 | 10 - 14 | 10 - 14 | 3 - 5 | |
| Drilling  α Clearance angle (°) γ Rake angle (°) φ Point angle (°) V Cutting speed m/min S Feed mm/rev The twist angle β of the drill bit should be approx. 12° to 16° | α | 5 - 15 | 5 - 15 | 5 - 10 | 5 - 10 | 8 - 10 | 8 - 10 | 8 - 10 | 10 - 12 | 10 - 16 | 3 - 10 | 3 - 10 | 5 - 10 | 5 - 10 | 5 - 10 | 5 - 10 | 5 - 10 | 6 | |
| | γ | 10 - 20 | 10 - 20 | 15 - 30 | 10 - 20 | 10 - 20 | 10 - 20 | 10 - 20 | 10 - 30 | 5 - 20 | 10 - 20 | 10 - 20 | 10 - 30 | 10 - 30 | 5 - 10 | 5 - 10 | 5 - 10 | 5 - 10 | |
| | φ | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 130 | 90 | 90 | 90 | 90 | 120 | 120 | 90 - 120 | 90 - 120 | 120 | |
| | V | 50 - 150 | 50 - 150 | 50 - 200 | 50 - 100 | 50 - 100 | 50 - 100 | 50 - 100 | 50 - 200 | 150 - 200 | 20 - 80 | 20 - 80 | 50 - 200 | 50 - 200 | 80 - 100 | 80 - 100 | 80 - 100 | 80 - 100 | |
| | S | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,2 - 0,3 | 0,2 - 0,3 | 0,2 - 0,3 | 0,2 - 0,3 | 0,2 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,02 - 0,1 | 0,02 - 0,1 | 0,05 - 0,15 | 0,1 - 0,3 | |
| Milling  α Clearance angle (°) γ Rake angle (°) χ Side angle (°) V Cutting speed m/min The feed can be up to 0.5 mm/tooth | α | 10 - 20 | 10 - 20 | 5 - 15 | 5 - 15 | 10 - 20 | 10 - 20 | 10 - 20 | 5 - 10 | 5 - 15 | 2 - 10 | 2 - 10 | 5 - 15 | 5 - 15 | 2 - 5 | 2 - 5 | 2 - 5 | 15 - 30 | |
| | γ | 5 - 15 | 5 - 15 | 5 - 15 | 5 - 15 | 5 - 15 | 5 - 15 | 5 - 15 | 0 - 10 | 5 - 15 | 1 - 5 | 1 - 5 | 6 - 10 | 6 - 10 | 0 - 5 | 0 - 5 | 0 - 5 | 6 - 10 | |
| | V | 250 - 500 | 250 - 500 | 250 - 500 | 300 | 300 | 300 | 300 | 300 | 250 - 500 | 250 - 500 | 250 - 500 | 250 - 500 | 250 - 500 | 90 - 100 | 90 - 100 | 90 - 100 | 80 - 100 | |
| | χ | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 15 | 10 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 7 - 10 | 7 - 10 | 7 - 10 | 45 - 60 | |
| Turning  α Relief angle (°) γ Rake angle (°) χ Side angle (°) V Cutting speed m/min S Feed mm/rev The tip radius r must be at least 0.5 mm | α | 6 - 10 | 6 - 10 | 6 - 8 | 5 - 10 | 5 - 10 | 5 - 10 | 5 - 15 | 10 | 6 | 6 | 6 - 8 | 6 - 8 | 2 - 5 | 2 - 5 | 2 - 5 | 6 - 8 | | |
| | γ | 0 - 5 | 0 - 5 | 0 - 5 | 0 - 5 | 6 - 8 | 6 - 8 | 6 - 8 | 25 - 30 | 5 - 8 | 0 | 0 | 0 - 5 | 0 - 5 | 0 - 5 | 0 - 5 | 0 - 5 | 2 - 8 | |
| | χ | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 15 | 10 | 45 - 60 | 45 - 60 | 45 - 60 | 45 - 60 | 7 - 10 | 7 - 10 | 7 - 10 | 45 - 60 | |
| | V | 250 - 500 | 250 - 500 | 300 - 600 | 300 - 400 | 300 | 300 | 300 | 200 - 500 | 150 - 500 | 350 - 400 | 350 - 400 | 250 - 500 | 250 - 500 | 100 - 120 | 100 - 120 | 100 - 120 | 150 - 200 | |
| | S | 0,1 - 0,5 | 0,1 - 0,5 | 0,1 - 0,4 | 0,2 - 0,4 | 0,1 - 0,5 | 0,1 - 0,5 | 0,1 - 0,5 | 0,2 - 0,5 | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,3 | 0,1 - 0,5 | 0,1 - 0,5 | 0,05 - 0,08 | 0,05 - 0,08 | 0,05 - 0,25 | 0,1 - 0,5 | |
| Special measures | | Heat before sawing: from 60 mm diameter from 80 mm diameter from 100 mm diameter | | | | | | | | Heat before drilling in the centre: from 60 mm diameter from 80 mm diameter from 100 mm diameter | | | | | | | | | |
| | | TECAPEEK GF/PVX, TECATRON | | | | | | | | TECAPEEK GF/PVX, TECATRON GF/PVX | | | | | | | | | |
| | | TECAMID 66 GF, TECADUR PET/PBT | | | | | | | | TECAMID 66 MH, 66 GF, TECADUR PET/PBT | | | | | | | | | |
| | | TECAMID 6 GF, 66, 66 MH | | | | | | | | TECAMID 6 GF, 66, TECAM 6 Mo, TECANYL GF | | | | | | | | | |
| | | Preheat material to 120 °C | | | | | | | | Caution when using coolants: susceptible to stress cracking | | | | | | | | Use carbide-tipped tools | |

* Reinforcing agents/fillers: Glass fibres, glass beads, carbon fibres, graphite, mica, talcum, etc.

I General information*

Non-reinforced thermoplastic polymers can be machined using high speed steel tools. For reinforced materials, carbide-tipped tools are necessary.

In all cases, only correctly sharpened tools should be used. Due to the poor thermal conductivity of plastics, good heat dissipation must be ensured. The best form of cooling is heat dissipation via the chip.

I Dimensional stability

Dimensionally accurate parts presuppose the use of stress relieved semi-finished products. Heat from machining will otherwise result in the release of machining stresses and distortion of the part. If large amounts of material are to be removed, an interstage annealing may be necessary after rough machining to relieve the resulting thermal stresses. Materials with high moisture absorption (e.g. polyamides) may have to be conditioned in water before machining. Plastics require higher production tolerances than metals. Furthermore, the very much higher thermal expansion needs to be taken into consideration.

I Machining methods

1. Turning

Guide values for tool geometry are given in the table. For surfaces with particularly high quality demands, the tool must be designed as a wide smoothing tool as shown in Figure 1.

For parting off, the lathe tool should be ground as shown in Figure 4 to prevent the formation of burrs.

For thin-walled and particularly flexible workpieces, on the other hand, it is better to work with tools that are ground to a knife-like cutting geometry. (Figures 2 and 3).

2. Milling

For plane surfaces, face milling is more economical than peripheral milling. For peripheral and profiling milling, the tools should not have more than two cutters so that vibrations caused by the number of cutters are kept low and the gaps between the chips are sufficiently large.

Optimum cutting performances and surface finishes are obtained with single-cutter tools.

3. Drilling

Twist drills can generally be used. These should have a twist angle of 12° to 16° and very smooth spiral grooves for good chip removal.

Larger diameters should be predrilled or should be produced using hollow drills or by cutting out. Particular attention should be paid to properly sharpened drills when drilling into solid material, as otherwise the resulting compressive stresses can increase to the extent that the material splits. Reinforced plastics have higher residual processing stresses and a lower impact resistance than non-reinforced plastics and are therefore particularly susceptible to cracking. Where possible, they should be heated to around 120° C before drilling. (Heating time approx. 1 hour per 10 mm cross-section). This method is also to be recommended for polyamide 66, polyester and large diameter cast nylon.

4. Sawing

Unnecessary heat generation caused by friction must be avoided, as thick-walled parts are generally cut with relatively thin tools during sawing. Well sharpened sawblades with large tooth offsets are therefore expedient.

5. Thread cutting

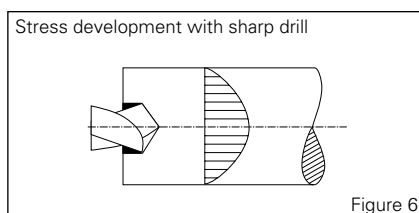
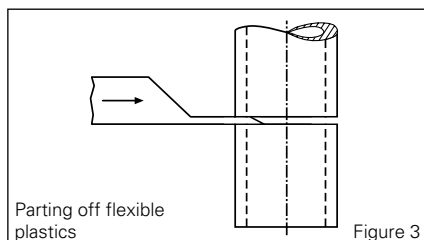
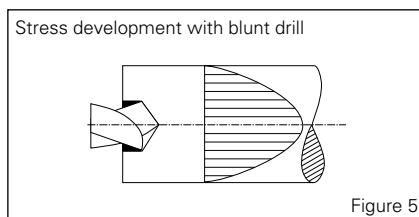
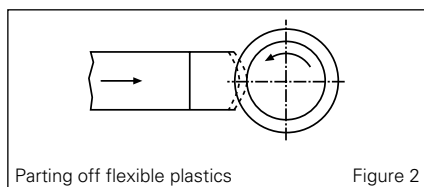
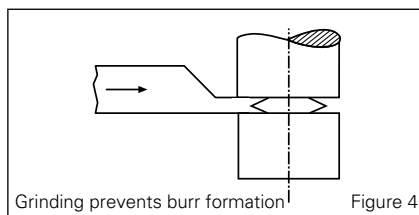
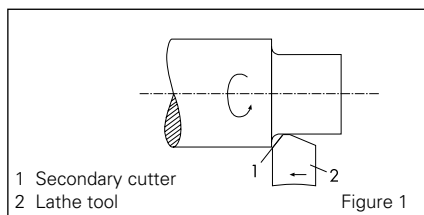
Threads are best cut using thread chasers. Burr formation can be avoided by using twin-toothed chasers.

Die nuts are not to be recommended as post-cutting must be anticipated during removal of the nut.

A machining allowance (dependent on material and diameter; guide value: 0.1 mm) must frequently be made when using tap drills.

6. Safety precautions

Failure to observe the machining guidelines can result in localised overheating which can lead to material degradation. Released decomposition products, e.g. from PTFE fillers, must be removed using extraction facilities. In this context, tobacco products must be kept out of the production area due to the risk of polymer flu fever.



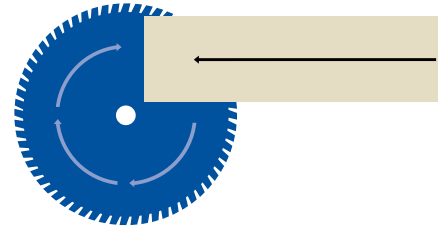
* Our applications advice, both written and oral, is intended to help you in your work. It must be regarded as a recommendation without obligation, also with respect to possible third-party property rights. We can assume no liability for any damage occurring during machining.

Flexible and versatile – the finished solution for your application.

Semi-finished products can be further processed to meet individual requirements. We have available all the necessary manufacturing techniques within our production facilities.

I Cutting:

Small blocks and billets are cut at right-angles and exactly to size by numerically controlled machines.



Rod cutting

| | | |
|--------------------|-------------------------|-------------|
| Diameter: | 3 – 150 mm | 50 – 360 mm |
| Smallest length: | 10 mm (5 mm on request) | 20 mm |
| Length tolerances: | +/- 0,1 mm | +/- 0,5 mm |

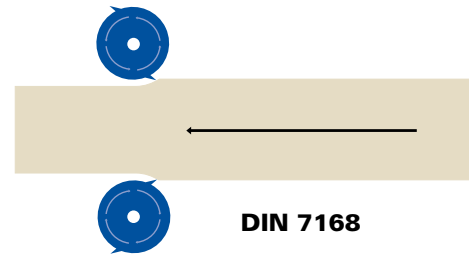
Plate cutting

| | |
|------------|-------------------|
| Length: | from 20 – 3200 mm |
| Width: | from 10 – 1200 mm |
| Thickness: | from 1 – 120 mm |

Tolerances unfilled materials: +/- 0,3 mm
Tolerances materials filled with glass fibres: +/- 0,5 mm

I Planing:

Parallel planing is performed on 2 sides. Angular planing is performed on 4 sides. Very close tolerances and optimum surface finishes are possible even with fibre-reinforced plastics.

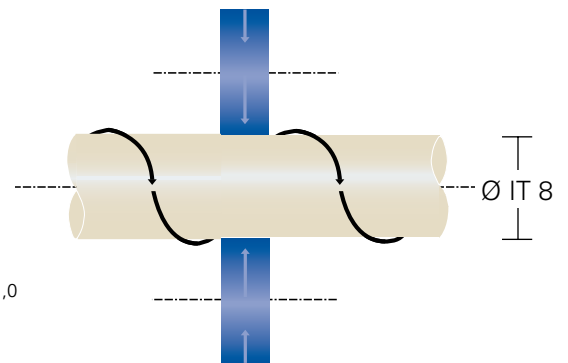


I Grinding:

Rods, heavy and thin wall tubes are ground to give an excellent surface finish characterised by close tolerances. In special cases rods may be ground to IT 7 tolerance. They have very good concentricity properties.

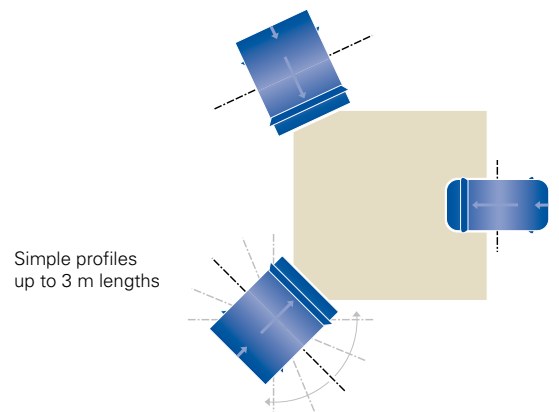
| | | |
|-------------|--------------|-----|
| Tolerances: | to 30 mm Ø | h9 |
| | 30 - 50 mm Ø | h11 |

Diameter: 2 - 60 mm
Max. surface quality: Ra 1,0



I Profiling:

Even small quantities of a semi-finished product can be further processed at short notice by profile planing. The finished products have simple geometries and good dimensional and positional tolerances.



General Terms of Delivery of ENSINGER GmbH

These General Terms of Delivery apply to our parent company in Germany.

If you obtain goods from one of our subsidiary or associate companies then their General Terms of Delivery will apply.

I. Scope, Rejection of external GDC

1. We provide goods and services solely on the basis of these General Terms of Delivery, no matter whether the case in question is based on a purchase agreement, work agreement or factory supply contract or any other contractual relationship. This also applies for future transactions.
2. We only agree to the inclusion of the General Terms and Conditions of our customers if we have expressly confirmed them in writing.

II. Technical Documentation, Moulds and Tools

1. If we send the customer technical documentation and specifications on our products, such as diagrams or technical drawings, then the customer is only allowed to use these for the purpose we intended and is not permitted to copy or give third parties access to them apart from government authorities and courts. We retain the title and copyright of such documentation. As requested by us, the customer has to return them to us immediately free of charge.
2. Providing no alternative agreement has been reached, moulds and any other tools remain our property, even if the customer bears the cost of them.

III. Material provision

If the customer has to provide materials, then these are to be supplied by him on time, at his risk and expense with an appropriate quantity surplus of at least 5% and of a quality suitable for its purpose and specification. If the customer provides too little or defective material or provides it late, then he is responsible for the additional costs resulting from this including those resulting from interruption in production, with the exception of cases of force majeure.

IV. Confirmation of order

1. The contract is made binding by our confirmation of order in so far as we confirm the transaction directly, by whatever means, after oral, written or telephonic negotiations and the customer is a commercial entity or, as an independent trader, does not only play a minor part in business life and concludes the transaction within the operations of his company.
2. This does not apply if we could not expect customer's consent or customer objects to our confirmation immediately.

V. Prices and Price Increases

1. Unless our prices and charges are agreed as fixed on ordering, our prices or remuneration rates shall be those valid on the day of delivery.
2. Our prices are set ex works and not including VAT. Packaging, transport and other additional services (such as customs clearance) will be charged separately.
3. For subsequent orders we are not bound by price agreements for preceding orders.
4. If part-deliveries are agreed to be delivered within a certain period of time or on certain dates or to be called off by the customer, then once 4 months after placing the order has passed, we reserve the right to increase the price for deliveries in accordance with our current pricing policy.
5. If the order is not executed within a year from it being placed, and this delay is not due to circumstances that are our responsibility, we reserve the right to increase the price with the customer to the same extent and to deliver the goods to complete the order and receive payment for the same.

VI. Terms of payment, offsetting

1. On complete receipt of payment within 14 days of the invoice date, we will grant a 2% discount on the amount invoiced deducting expenses listed in the invoice (e.g. transport).
2. If payment is delayed, interest of 5% above the base rate, or if the customer is a trading company or business, 8% above the base rate, shall be paid on our remuneration. This shall not affect our claim for further damages.
3. We accept bills of exchange and cheques only for payment purposes. The customer bears the cost of discounting and collection. In the case of payment by bill, we will not grant any cash discount.
4. Payments are only effective when the sum of money is finally at our disposal. The customer may only offset undisputed or legally agreed liabilities against payments due to us under this contract.

VII. Performance time, delay, retention, place of performance, part services

1. Delivery times do not start until we have agreed with the customer on all details of execution and all conditions for the transaction. Delivery times do not begin until the materials and technical documentation to be provided by the customer have been received, including all authorisations, technical specifications and approval by the customer. An agreed delivery date is delayed by the period of time by which these pre-requisites are also delayed.
2. If our services are provided late, we are not considered to be in default as long as the delay is based on circumstances which we could not have predicted or prevented given a reasonable level of care and which we cannot overcome by taking reasonable measures.
3. As long as the customer does not fulfil an obligation arising from the business relations, we have the right to defer our performance.
4. If the contract is a commercial transaction for the customer, he may only retain payment for the goods or services if we violate our obligations under the contract by gross negligence or our services are seriously deficient.
5. Placement and fulfilment for our performance is the supplier's plant in Nufingen.
6. We have the right to partial performance.

VIII. Bearing the Risk, Dispatch and Receipt

1. The risk for the goods is passed to the customer at the latest on dispatch of the goods to the customer. This also applies if we bear the transport costs for delivery. We are not obliged to insure the goods against in transit damage. If requested by the customer, we will insure the consignment against theft, transport damage as well as other insurable risks but the customer on placing the order must request this.
2. If dispatch is delayed for reasons beyond our control, then the risk for the goods is passed to the customer as soon as the goods are ready to dispatch.
3. The customer is to take delivery of the goods supplied, even if the goods are damaged, without affecting the customers' statutory rights. Defective goods are to be returned to us should we require it.

IX. Transport damage

1. The customer must give notification of damage caused in transport or losses immediately, or within twenty four hours of receipt of goods, and must leave the consignment for inspection to be viewed as soon as possible. This also applies if the transport damage does not become apparent until the goods are unpacked or at a later date.

X. Notice of defects and guarantee

1. The customer must notify us of obvious defects in our performance within a week of receipt of the same; if he misses this deadline, our performance shall be deemed to be in accordance with the contract. If the contract is a commercial transaction for the customer, then Clauses 377, 381 Para. 2 of the Commercial Code shall apply.
2. If our performance is deficient on transfer of risk, we shall meet this obligation subsequently, either, as we choose, by repairing the defect or by supplying an item free from defects in exchange for the defective item. Replaced parts become our property. If the attempt to meet this obligation fails, the customer may reduce payment to us or, as he chooses, withdraw from the contract. If a defect is maliciously concealed or if a guarantee is undertaken for the properties of the item, the statutory provisions will apply.
3. We do not take any responsibility for material supplied by the customer or obtained on the basis of specifications laid down by him or for structures specified by the customer.
4. Any claims on the part of the customer for subsequent fulfilment or for damages expenditure or compensation of expenditure due to defects shall expire, in the case of deliveries, a year from delivery of the goods. If we maliciously conceal the defect or have undertaken a guarantee regarding the properties of the item, the statutory provisions will apply.
5. If there is a consumer goods purchase on the part of the customer, the statutory provisions will apply.

XI. Damages and Statutory Limitation

1. If we should default in our performance, then we will compensate the customer the damages due to ordinary occurrences up to the amount of 1% of the price of the relevant goods ordered for every day of default, with a maximum payable by us of the total price of the relevant goods ordered. We will pay the full damages in the case of intent or gross negligence.
2. If we have to pay damages compensation instead of fulfilment, we will repay to the customer the damages occurring on the basis of the normal course of affairs up to the total sum of the relevant goods ordered. We will pay the full damages in the case of intent or gross negligence.
3. Otherwise we are only liable for gross negligence or intentional infringement of our obligations. This also applies to information provided, advice as well as to unauthorised actions during preparation, conclusion and processing the contract.
4. Our general partner, the managing directors and our employees are liable to the customer for unauthorised actions carried out during preparation, conclusion and processing the contract only in the case of intention or gross negligence.
5. Claims for damages by the customer against us, our directors and our staff arising from the violation of precontractual and contractual obligations and from unauthorised actions committed in the preparation, conclusion and handling of the contract shall lapse a year from the end of the year in which the claim arose and the customer obtained knowledge of the circumstances justifying the claim and the identity of the party liable or should have obtained such knowledge without gross negligence.
6. Any claims by the customer for damages or compensation due to injury to life, body or health based on an intentional or negligent violation of obligations and against the violation of other major obligations which are important by the nature of the contract and for the achievement of the contractual purpose shall remain unaffected in every respect.

XII. Withdrawal and assignment

1. If we do not render service despite its being due or - with the exception of a defect in our goods or services - do not render service in accordance with the contract, the customer may define a reasonable deadline for such service or for subsequent fulfilment. The deadline must allow us to complete the service that has already been started; generally, the deadline period may not be less than two weeks. If we nonetheless do not provide the service or subsequent fulfilment within a reasonable period of time, the customer may withdraw from the contract. This does not apply if the service or fulfilment is not provided due to circumstances beyond our control.
2. If the asset situation of the customer deteriorates materially, if an application for his insolvency is made or if insolvency proceedings have been started, we are entitled to withdraw from the contract.

3. The customer may only assign his rights under this contract without our prior agreement to insurance companies and only in so far as these undertake to pay the damages claimed by the customer. Clause 354 a of the Commercial Code remains unaffected.

XIII. Security

1. Notwithstanding delivery the property in the Goods shall not pass to the Buyer until the Buyer has paid in full the price of the Goods and all outstanding claims in connection with the business relationship.
2. Processing or working with the reserved property by the customer takes place free of charge for us without it resulting in any obligations for us; the new object becomes our property. If the goods are processed with other goods which do not belong to the customer, then we acquire co-ownership of the new object in the ratio of the value of the reserved property to the value of the other goods; in the case of mixing, combining or blending we acquire co-ownership according to legal provisions. If the customer acquires sole ownership through mixing, combining or blending, then he already transfers co-ownership to us now in the ratio of the value of the reserved property to the value of the other goods at the time of the mixing, combining or blending. In the above mentioned cases, the customer has to keep in safe custody and free of charge the objects which we are owners or co-owners of which are also reserved property in the sense of the following provisions.
3. The customer already assigns to us claims arising from resale of the reserved property to the value of the reserved goods with all ancillary rights. The corresponding applies if the reserved property is installed into the property of a third party as a key component. If we retain title to the reserved goods, then the claims are assigned to the amount that corresponds to the value of our share of the overall value. The assignment of future claims also covers a possible balance claim from the current account. The customer is authorised to collect the claim.
4. As long as the customer does not default in his obligations to us, he has the right to avail himself of the reserved property in the ordinary course of business and under retention of title, providing the claims according to fig. XI.3 are effectively transferred. Extraordinary dispositions, such as pledges, chattel mortgage and any assignments are not permitted. We must immediately be informed of access of third parties to the reserved property or assigned claims, in particular pledges.
5. If the customer is in default of a payment due to us for longer than a week or if he undergoes forfeiture of assets, where he in particular ceases payment, our claims shall become payable immediately and any deferral of payment ends. In these cases, we are entitled to take the retention goods and to revoke the collection authorisation. The customer is - with rights of retention excluded - obliged to return same. If the customer is a consumer, he only has to return the retained goods to us if we have withdrawn from the contract. The acceptance and seizure of the retained goods by us shall not be considered as a withdrawal from the contract, except in consumer credit transactions. All the costs of the recovery and realisation shall be borne by the customer; we are entitled to sell the goods in the open market. Upon request, the customer shall provide us immediately with a list of the liabilities assigned to us according to Fig. 3 and shall give us all further information and documents necessary to apply our rights and notify the party liable of the assignment.
6. We undertake to release securities as we choose if the realisable value exceeds the total of our claims under the business arrangement by more than 15%.
7. If the retention of title or the assignment is not legally effective according to the laws of the country which the goods are in, then the security which comes as close as possible to the retention of title or assignment is considered to be agreed, if according to this the co-operation of the customer is required, then he has to undertake all legal transactions necessary to establish and retain such rights.

XIV. Proprietary rights

If we have to render service on the basis of drawings, models, samples or using parts provided by the customer, the customer herewith states that this shall not violate the statutory rights of third parties. The customer releases us from any claims by third parties due to the violation of any rights and will reimburse us any damages arising and our costs and expenses. If the customer and/or we are forbidden to manufacture or deliver by a third party with reference to a proprietary right, we are entitled, without closer examination of the legal position, to cease the works.

XV. Legal system and legal venue

1. If any provision of these conditions and the further agreements reached are or become invalid this shall not affect the validity of the remaining conditions. The contract partners are obliged to replace the invalid provision by a provision that comes as close as possible to it in terms of commercial success.
2. German law shall apply excluding Collision Law and the United Nations Agreement on contracts for the international sale of goods (CISG).
3. If the customer is a commercial entity, legal entity in public law or a special fund under public law, then Nufingen is the legal venue for all disputes arising directly or indirectly from contractual relationships based on these General Terms of Delivery. For legal action against the customer, the court at the customer's registered offices is also competent locally.

