

HDT @ 1.8 Mpa (264 psi)

HDT stands for Heat Deflection Temperature or Heat Distorsion Temperature. Following the ASTM D 648 (which is equivalent to the ISO 75) the HDT is the temperature at which a given polymer test bar will be bended of 0.25 mm under a given load.

In the case of the **HDT @ 1.8 MPa the load value is exactly 1820 kPa**, which is commonly referenced as 1.8MPa (264 psi). Practically, the test bar is immersed in an oil bath that is heated in such a way that the increase of the bath temperature is continuous (usually 2°C per minute).

The deflection temperature is also sometimes called the '**deflection temperature under load**' (DTUL). This temperature gives an estimate of the service temperature a given polymer can withstand. However this is only an estimate, and cannot predict how the final part will perform. Other settings like speed of the temperature increase or even part design will significantly influence the final thermal performance of a given part.

As compared to **HDT @ 0.46Mpa**, the HDT @ 1.8Mpa is often useful when predicting maximum service temperature of parts submitted to high mechanical loads.

HDT @ 1.8 Mpa (264 psi) Values of Several Plastics

Polymer Name	Min Value (°C)	Max Value (°C)
ABS - Acrylonitrile Butadiene Styrene	88.0	100.0
ABS Flame Retardant	80.0	110.0
ABS High Heat	85.0	120.0
ABS High Impact	80.0	100.0
ABS/PC Blend - Acrylonitrile Butadiene Styrene/Polycarbonate Blend	100.0	110.0
ABS/PC Blend 20% Glass Fiber	115.0	115.0
ABS/PC Flame Retardant	80.0	110.0
Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (High Flow)	240.0	240.0

Amorphous TPI Blend, Ultra-high heat, Chemical Resistant (Standard Flow)	238.0	238.0
Amorphous TPI, High Heat, High Flow, Lead-Free Solderable, 30% GF	254.0	254.0
Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (High Flow)	235.0	235.0
Amorphous TPI, High Heat, High Flow, Transparent, Lead-Free Solderable (Standard Flow)	235.0	235.0
Amorphous TPI, Highest Heat, Chemical Resistant, 260°C UL RTI	254.0	254.0
Amorphous TPI, Moderate Heat, Transparent	230.0	230.0
Amorphous TPI, Moderate Heat, Transparent (Food Contact Approved)	217.0	217.0
Amorphous TPI, Moderate Heat, Transparent (Mold Release grade)	230.0	230.0
Amorphous TPI, Moderate Heat, Transparent (Powder form)	230.0	230.0
ASA - Acrylonitrile Styrene Acrylate	75.0	80.0
ASA/PC Blend - Acrylonitrile Styrene Acrylate/Polycarbonate Blend	105.0	110.0
ASA/PC Flame Retardant	115.0	115.0
ASA/PVC Blend - Acrylonitrile Styrene Acrylate/Polyvinyl Chloride Blend	75.0	77.0
CA - Cellulose Acetate	44.0	90.0
CAB - Cellulose Acetate Butyrate	45.0	94.0
CP - Cellulose Propionate	44.0	110.0
COC - Cyclic Olefin Copolymer	116.0	151.0

CPVC - Chlorinated Polyvinyl Chloride	85.0	110.0
ECTFE - Ethylene Chlorotrifluoroethylene	63.0	67.0
ETFE - Ethylene Tetrafluoroethylene	70.0	100.0
EVA - Ethylene Vinyl Acetate	23.0	23.0
FEP - Fluorinated Ethylene Propylene	48.0	60.0
HDPE - High Density Polyethylene	45.0	60.0
HIPS - High Impact Polystyrene	75.0	80.0
HIPS Flame Retardant V0	80.0	85.0
Ionomer (Ethylene-Methyl Acrylate Copolymer)	40.0	40.0
LCP - Liquid Crystal Polymer	190.0	190.0
LCP Carbon Fiber-reinforced	220.0	220.0
LCP Glass Fiber-reinforced	210.0	240.0
LCP Mineral-filled	180.0	220.0
LDPE - Low Density Polyethylene	30.0	40.0
MABS - Transparent Acrylonitrile Butadiene Styrene	93.0	94.0
PA 11 - (Polyamide 11) 30% Glass fiber reinforced	170.0	170.0
PA 11, Conductive	46.0	46.0
PA 11, Flexible	40.0	50.0
PA 11, Rigid	46.0	53.0
PA 12 (Polyamide 12), Conductive	50.0	50.0
PA 12, Fiber-reinforced	151.0	170.0
PA 12, Flexible	46.0	50.0
PA 12, Glass Filled	60.0	68.0
PA 12, Rigid	45.0	55.0

PA 46 (Polyamide 46)	150.0	155.0
PA 46, 30% Glass Fiber	282.0	285.0
PA 6 - Polyamide 6	60.0	80.0
PA 6-10 - Polyamide 6-10	80.0	85.0
PA 66 - Polyamide 6-6	65.0	105.0
PA 66, 30% Glass Fiber	230.0	255.0
PA 66, 30% Mineral filled	178.0	182.0
PA 66, Impact Modified, 15-30% Glass Fiber	60.0	100.0
PA 66, Impact Modified	60.0	100.0
Polyamide semi-aromatic	88.0	135.0
PAI - Polyamide-Imide	275.0	280.0
PAI - 30% Glass fiber-reinforced	280.0	280.0
PAI -Low Friction	279.0	280.0
PAN - Polyacrylonitrile	66.0	72.0
PAR - Polyarylate	110.0	174.0
PARA - Polyarylamide 30-60% Glass Fiber-reinforced	230.0	230.0
PBT - Polybutylene Terephthalate	50.0	85.0
PBT, 30% Glass Fiber	195.0	225.0
PC (Polycarbonate) 20-40% Glass Fiber	140.0	150.0
PC (Polycarbonate) 20-40% Glass Fiber Flame Retardant	140.0	150.0
PC - Polycarbonate, high heat	140.0	180.0
PC/PBT Blend - Polycarbonate/Polybutylene Terephthalate Blend	60.0	121.0

PC/PBT blend, Glass Filled	121.0	193.0
PE - Polyethylene 30% Glass Fiber	121.0	121.0
PEEK - Polyetheretherketone	150.0	160.0
PEEK - 30% Carbon Fiber-reinforced	230.0	315.0
PEEK - 30% Glass Fiber-reinforced	230.0	315.0
PEI - Polyetherimide	190.0	200.0
PEI, 30% Glass Fiber-reinforced	200.0	210.0
PEI, Mineral Filled	200.0	210.0
PEKK - Polyetherketoneketone, Low cristallinity grade	139.0	143.0
PESU - Polyethersulfone	195.0	203.0
PESU 10-30% glass fiber	210.0	216.0
PET - Polyethylene Terephthalate	65.0	80.0
PET, 30% Glass Fiber-reinforced	220.0	240.0
PET, 30/35% Glass Fiber-reinforced, Impact Modified	220.0	220.0
PETG - Polyethylene Terephthalate Glycol	63.0	63.0
PFA - Perfluoroalkoxy	90.0	90.0
PHB - Polyhydroxybutyrate	77.0	79.0
PI - Polyimide	240.0	360.0
PMMA - Polymethylmethacrylate/Acrylic	70.0	100.0
PMMA (Acrylic) High Heat	85.0	160.0
PMMA (Acrylic) Impact Modified	70.0	95.0
PMP - Polymethylpentene	49.0	55.0
PMP 30% Glass Fiber-reinforced	149.0	166.0
POM - Polyoxymethylene (Acetal)	110.0	136.0

POM (Acetal) Impact Modified	64.0	90.0
POM (Acetal) Low Friction	118.0	136.0
POM (Acetal) Mineral Filled	100.0	140.0
PP - Polypropylene 10-20% Glass Fiber	90.0	127.0
PP, 10-40% Mineral Filled	50.0	68.0
PP, 10-40% Talc Filled	56.0	75.0
PP, 30-40% Glass Fiber-reinforced	125.0	140.0
PP (Polypropylene) Copolymer	50.0	60.0
PP (Polypropylene) Homopolymer	50.0	60.0
PP, Impact Modified	46.0	57.0
PPA, - Polyphthalamide	120.0	138.0
PPA, 30% Mineral-filled	278.0	280.0
PPA, 33% Glass Fiber-reinforced	296.0	298.0
PPA, 45% Glass Fiber-reinforced	900.0	902.0
PPE - Polyphenylene Ether	90.0	130.0
PPE, 30% Glass Fiber-reinforced	134.0	144.0
PPE, Flame Retardant	90.0	150.0
PPE, Impact Modified	90.0	120.0
PPE, Mineral Filled	90.0	110.0
PPS - Polyphenylene Sulfide	100.0	135.0
PPS, 20-30% Glass Fiber-reinforced	250.0	260.0
PPS, 40% Glass Fiber-reinforced	260.0	270.0
PPS, Conductive	225.0	230.0
PPS, Glass fiber & Mineral-filled	170.0	260.0
PS (Polystyrene) 30% glass fiber	77.0	122.0

PS (Polystyrene) Crystal	70.0	90.0
PS, High Heat	85.0	100.0
PSU - Polysulfone	160.0	174.0
PSU, 30% Glass fiber-reinforced	175.0	185.0
PSU Mineral Filled	175.0	180.0
PTFE - Polytetrafluoroethylene	45.0	50.0
PTFE - 25% Glass Fiber-reinforced	200.0	200.0
PVC (Polyvinyl Chloride), 20% Glass Fiber-reinforced	75.0	78.0
PVC, Plasticized	30.0	53.0
PVC, Plasticized Filled	30.0	53.0
PVC Rigid	54.0	75.0
PVDC - Polyvinylidene Chloride	54.0	65.0
PVDF - Polyvinylidene Fluoride	50.0	125.0
SAN - Styrene Acrylonitrile	90.0	100.0
SAN, 20% Glass Fiber-reinforced	95.0	100.0
SMA - Styrene Maleic Anhydride	35.0	45.0 1.650
SMA, 20% Glass Fiber-reinforced	105.0	120.0 1.650
SMA, Flame Retardant V0	110.0	110.0 1.650
SMMA - Styrene Methyl Methacrylate	80.0	95.0
TPI-PEEK Blend, Ultra-high heat, Chemical Resistant, High Flow, 240°C UL RTI	235.0	235.0
SRP - Polyphenylene (Self reinforced)	154.0	159.0
UHMWPE - Ultra High Molecular Weight Polyethylene	40.0	50.0
XLPE - Crosslinked Polyethylene	40.0	63.0