

D & B Injection Moulders Ltd.

Specification For IP 68 Glands

<u>Size</u>	<u>Thread</u>	<u>Thread Length</u>	<u>Cable Range</u>	<u>Spanner A/F</u>
M16	M16 x 1.5	11.0mm	3-7mm	22.0mm
M16	M16 x 1.5	11.0mm	5-10mm	22.0mm
M20	M20 x 1.5	12.5mm	4-9mm	24.0mm
M20	M20 x 1.5	12.5mm	6-12mm	24.0mm
M20	M20 x 1.5	12.5mm	Flat wire 1.5mm Square	24.0mm
M20	M20 x 1.5	12.5mm	Flat wire 2.5mm Square	24.0mm
M20	M20 x 1.5	12.5mm	10-14mm	27.0mm
M25	M25 x 1.5	12.5mm	9-14mm	33.0mm
M25	M25 x 1.5	12.5mm	13-18mm	33.0mm

Rubber Grommets

Rubber grommets are manufactured from extruded neoprene rubber at between 55 & 65 shore hardness on the 'A' scale.

Tightening Torque

M16	8NM
M20	10NM
M25	12NM

These are maximum figures, ensure the gland body thread is engaged at least 10mm if maximum torque is required.

Threads

Gland threads are metric conduit to BS 3643.

Dome cap clamping threads are Acme form with 10 degree flank angles (virtually square) ensuring high tightening torques without thread jumping.

Protection Rating

All glands within this range have been tested to IP 68 4 Bar pressure for extended periods as described in BS 5490.

Temp Range

Max operating temperature 80 degrees C, minimum –20 degrees C, intermittent up to 120 degrees C.

Specification Locknuts

<u>Size</u>	<u>Thread</u>	<u>WidthS</u>	<u>Spanner A/F</u>
M16	M16 x 1.5	7.0mm	19.0mm
M20	M20 x 1.5	7.0mm	23.0mm
M25	M25 x 1.5	8.0mm	28.0mm
M32	M32 x 1.5	10.0mm	36.0mm

Threads

Locknut threads are metric conduit to BS 3643.

Temp Range

Max operating temperature 80 degrees C, minimum –20 degrees C, intermittent up to 120 degrees C.

Colours

Standard colours are :- Black, White, Bright Red to Ral 3020, Light Grey to Ral 7035 and Mid Grey to Ral 7001.

Flammability

The moulded polyamide is generally to UL 94 V2 for most applications, this is a low smoke and fume nylon, but where an application calls for a higher degree of flame protection UL 94 V0 is available which again is low smoke and fume and contains no halogen systems.

For flame retardant glands to UL94 V0 rating colours are reduced to Black, White and Red.

Material

Locknuts are moulded from polyamide 6 as detailed below :-

Specification - Bushes

<u>Size</u>	<u>Thread</u>	<u>Thread Length</u>	<u>Bore</u>	<u>Hex A/F</u>
M16	M16 x 1.5	12.0mm	10.7mm	19.0mm
M20	M20 x 1.5	12.0mm	13.2mm	23.0mm
M25	M25 x 1.5	13.5mm	18.50mm	28.0mm
M32	M32 x 1.5	13.5mm	25.0mm	36.0mm

Specification - Plugs

<u>Size</u>	<u>Thread</u>	<u>Thread Length</u>	<u>Hex A/F</u>
M16	M16 x 1.5	12.0mm	19.0mm
M20	M20 x 1.5	12.0mm	23.0mm
M25	M25 x 1.5	13.5mm	28.0mm
M32	M32 x 1.5	13.5mm	36.0mm

Specification – Reducer Bushes

<u>Size</u>	<u>Thread External</u>	<u>Thread Internal</u>	<u>Thread Length External</u>	<u>Hex A/F</u>
M20-M16	M20 x 1.5	M16 x 1.5	12.0mm	23.0mm
M25-M20	M25 x 1.5	M20 x 1.5	13.5mm	28.0mm
M32-M25	M32 x 1.5	M25 x 1.5	15.0mm	36.0mm

Threads are metric conduit to BS 3643.

Temp Range

Max operating temperature 80 degrees C, minimum –20 degrees C, intermittent up to 120 degrees C.

Colours

Standard colours are :- Black, White, Bright Red to Ral 3020, Light Grey to Ral 7035.

Flammability

The moulded polyamide is generally to UL 94 V2 for most applications, this is a low smoke and fume nylon, but where an application calls for a higher degree of flame protection UL 94 V0 is available which again is low smoke and fume and contains no halogen systems.

For flame retardant glands to UL94 V0 rating colours are reduced to Black, White and Red.

Material

Products are moulded from polyamide 6 as detailed below :-

<u>Properties</u>	<u>Test Method</u>	<u>Units</u>	<u>Dry</u>
Mechanical			
Tensile Strength	ISO R527	Mpa	75
Elongation	ISO R527	%	75
Izod Impact (notched)	ISO R180	J/cm	50
Shore Hardness	ISO R868	-	78
Flexural Modulus	ISO R178	Mpa	2600
Flexural Strength	ISO R178	Mpa	95
Thermal			
Melting Point	ISO R1218	oC	215
Heat Deflection Temp	ISO R75	oC	65
Physical			
Density	ISO R1183	gm/cm ³	1.13
Moisture Absorption	ISO R62	%	1.8
Mould Shrinkage	-	mm/mm ²	0.012
Flammability	UL94	Rating	V2

For products requiring a higher degree of flame protection the following polyamide is used:-

<u>Properties</u>	<u>Test Method</u>	<u>Units</u>	<u>Dry</u>
Physical			
Specific Gravity	ASTM D792	g/cm	1.18
Water Absorption (24hr)	ASTM D570	%	2.1
Mould Shrinkage (flow direction 3mm thick)		%	1.5
Mechanical			
Tensile Strength (at yield)	ASTM D638	MPa	70
Elongation To Break	ASTM D638	%	>25
Flexural Modulus	ASTM D790	Mpa	2100
Shore Hardness	ASTM D2240		76
Charpy Notched	ISO 179/leU	KJ/m2	>70
Charpy Unnotched	ISO 179/leU	KJ/m2	NB
Thermal			
Melting Point		oC	220
Heat Deflection	ASTM D648	oC	60
Flammability	UL94	0.8	VO