A Tradition in Quality and Commitment to Service

Arvan is a manufacturing company specializing in fabricating Mechanical and Electrical Components and Assemblies for the Aircraft, Electronic, Microwave and Electrical Power Industries. Its capabilities include Compression and Injection Molding of Composite Materials, CNC Precision Machining, Sheet Metal and Assembly work. Arvan offers competitive pricing, 50 years industry experience, and an extensive AN, MS, NAS, BAC, LS, and DAC print library. All of this along with superior customer service and trained, qualified sales personnel. Arvan is committed to quality and service.

PRODUCT LINE

Pulleys: Arvan is a QPL’d manufacturer of Military Standard and OEM Specified Aircraft Control Pulleys.

Terminal Blocks: Arvan manufactures a full line of Military Standard Terminal Blocks, Covers and Accessories for electrical power distribution and termination.

Terminal Lugs: Arvan is a QPL’d manufacturer of Military Standard Aluminum Lugs for termination of aluminum aircraft wire.

Compression Molding: Our compression presses, from 100 to 3,300 tons, are capable of molding parts up to 5’x 8’. Our Engineering Department has state of the art CATIA V5 software to engage in Concurrent Engineering in a DPD environment. Our CMM’S are capable of inspecting parts up to 9’ diameter sphere.

Injection Molding: Our 55 ton to 300 ton presses will mold various engineering plastics such as ULTEM, PEEK and NYLON.

Major Customers

- BOEING
- MCDONNELL DOUGLAS
- LOCKHEED
- NORTHROP
- SPIRIT AEROSYSTEMS
- HONEYWELL
- HAMILTON SUNDESTRAND
- BOMBARDIER
- ALIENA
- EMBRAER
- RAYTHEON
- AM GENERAL
- KAWASAKI HEAVY IND.
- MITSUBISHI HEAVY IND.

Manufacturers and Distributors of Custom Molding:

- BOEING
- MCDONNELL
- NORTHROP
- LOCKHEED
- AN, MS, NAS
- CAD/CAM
- TOOL DESIGN
- CATIA V5
- MANUFACTURER
- AN, MS, NAS
- MIL-M-19833
- MIL-P-25518
- MIL-T-55164
- AN-3435
- AN-3438
- MS-3739
- MS-18079
- MS-25046
- MS-25046
- MS-25046
- MS-28934
- NAS 1063
- NAS 1066
- NAS 1093
- ALL MIL-T-55164 TERMINAL BOARDS
Arvan’s engineers are dedicated to providing the most innovative technology possible. In the process of production we are continually developing and testing new components as well as extending the limits of performance. Thus every pulley produced embodies many built-in innovations that make a difference, giving Arvan clients the leading edge.

Arvan’s CAD/CAM computer predicts the maximum deflection to determine the optimal cross section, grooving and bearing size of each new pulley under severe loading conditions.

### 707, 727, 737, 747, 757, 767, 777, 787 AND BEYOND

<table>
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### DC8, DC9, DC10, MD80, MD90, MD11, C17 AND BEYOND

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## Standard Aircraft Control Pulleys with Frictionless Ball Bearings

### Standards Pulleys, Sheave Material

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### Equivalents

| MS20219 = AN219 = NAS376 |
| MS20220 = AN220 = NAS377 |
| MS20221 = AN221 = NAS378 |
| MS20219-A1 = NAS330 |

### Design Considerations:

1. **Temperature Limits Depending on Grease**
   - MIL-PRF-23827: -45°F to +230°F
   - MIL-PRF-81322: -45°F to +330°F

2. **Sheave Material**

3. **Finish**
   - Aluminum sheaves anodized per MIL-A-8625 Type II

4. **Bearings**
   - Conform to AS-7949

5. **Lubricant**
   - Boeing Pulleys: MIL-PRF-23827 & BMS3-33
   - All Others: MIL-PRF-81322 or MIL-PRF-23827
   - Douglas Pulleys: MIL-PRF-81322

### Major Customers

- Boeing
- McDonnell Douglas
- Spirit Aerosystems
- Lockheed
- Honeywell
- Northrop
- Hamilton Sundstrand
- Boeing
- Raytheon
- N.A.
- Emraier
- AM General
- Kawasaki Heavy Ind.
- Mitsubishi Heavy Ind.

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1. Requires QPL-conformance by manufacturer.
2. Requires FAA-PMA status.

Arvan approval numbers:
- PQ1915NM - McDonnell Douglas
- PQ1079NM - Boeing
1. MATERIAL, SHEAVE
   Non-Metallic: Molded Nylon Composite
2. BEARINGS: BAC, MS, AN, LS Series conform to AS-7949,
3. LUBRICANT: Boeing; MIL-PRF-23827 & BMS3-33
   All Others: MIL-G-81322
   Temp: –65°F to +250°F
   Boeing & Douglas series meet BACP30M AND BACP30MF Spec.

### STANDARD PULEYS, SHEAVE MATERIAL

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<tr>
<th>Military Standard, Composite</th>
<th>Boeing Standard, Molded Composite</th>
<th>Boeing Standard, Aluminum</th>
<th>Arvan’s 4000 Series, Composite</th>
<th>Arvan’s 7000 Series, Composite</th>
<th>Arvan’s High Temp.</th>
<th>Bearing Size</th>
<th>Cable Size</th>
<th>A Dia. +.000 –.010</th>
<th>B Groove Dia. +.000 –.010</th>
<th>E Rad</th>
<th>F</th>
<th>G (b)</th>
<th>J</th>
<th>K</th>
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<th>Maximum Allowable Design Load Lb.</th>
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**NAS STANDARD PULEYS**
- Bearing: Oil Impregnated Bronze
- Sheave: Molded Composite

**ARVAN’S 5000 SERIES PULEY**
- Bearing: Dry Lubed Steel Busing
- Sheave: Molded Composite

**ARVAN’S 6000 SERIES PULEY**
- Bearing: None. Composite provides self lubrication.
- Sheave: Molded Composite

---

**Standard Aircraft Control Pulleys with Frictionless Ball Bearings**
Terminal Blocks, Boards, Lugs, Insulators, Bus Bars

Designed & manufactured to aerospace standards with the following features:

- Quality & performance proven
- Superior corrosion resistance in all operating environments
- Impact & abrasive tough
- Much lighter than any competitive product
- Can be used with or without cover assembly
- Several terminal stud quantity configurations available from stock
- Optional bus bars (jumpers) & terminal insulating strips available.
- Need special markings/ part numbers or company identifications?
- Custom configurations are possible
- Bulk packaging standard, individual skin pack for hang up display available

Terminal Blocks
Arvan's terminal blocks are molded in high quality, dimensionally stable DAP thermost. They consistently outperform most other engineering plastics in electrical use with excellent dielectric strength, even at high temperatures and in moist environments.

Arvan also offers extensive services and custom molding of electronic and industrial components tailored to customers' requirements. With its advanced equipment, over 25 years of experience in transfer, compression and injection molding, thermoforming and its strong engineering team, Arvan is prepared to fulfill your specific molding needs - from simple reinforced fiberglass terminal block shields to high temperature poly sulphur connectors.

Terminal Lugs
Arvan is a QPL'd manufacturer of Military Standard Aluminum Lugs for termination of aluminum electrical wires

Insulating Strips
MS 3373

Major Customers
Boeing
McDonnell Douglas
Spirit Aerosystems
Honeywell
Bombardier
Aliena
Embraer
Raytheon
AM General
Kawasaki Heavy Ind.
Mitsubishi Heavy Ind.

Terminal Blocks
AN 3435
MS 27212
MS 25045
MS 25123
LS 35076
HS 20-524250
HS 20-624250
HS 20-324375
HS 20-6W175
HS 20-5W250
HS 20-624500
HS 27212
HS 20-3W960

Terminal Block Covers
MS 18029
MS 25046
LS 3850
LS 3851
LS 3853
LS 7005
LS 7007
LS 7008
HS3-6W

Connecting Link / Bus Bars
MS25226
AN3433

Nut Insulating Strips
MS 3373

Block Insulating Strips
NAS 1063
LS 4999

Fuse Holders
HS 20-934-34
HS 20-934-38
HS 20 934-39
MS 28934

Terminal Boards
MS 27249

Lugs
HS 20-5436
MS 25435
HS 20-5439
**Terminal Blocks, Boards, Lugs, Insulators, Bus Bars**

**Terminal Lugs - Aluminum**
- MS25435
- HS20-5439
- HS20-5436 (90°)

**Nut Insulating Strip**
- NUT INSULATING STRIP FOR MS27212 TERMINAL BLOCKS
- MS 3373
- LOCK WASHER
- FLAT WASHER
- TYPICAL INSTALLATION
- NUT
- INSULATION STRIP
- TERMINAL BOARD
- TYP B
- TYP C

**Sectional Terminal Boards**
- SECTIONAL TERMINAL BOARDS MS 27249
- TERMINAL MOUNTING HOLE
- TERMINAL BOARD

**Bus Bar**
- BUS BAR TERMINAL CONNECTING LINK
- MS25226, NAS1060

**Two Stud Terminal Block**
- COVER: MS25046-1 BLOCK: MS25045-1
- MAX CAPACITY AMPS TERMINAL BLOCK MS27212
- DASH B
- -2X - M 0.594 40 - 1
- -4X - M 0.750 70 - 2
- -6X - M 1.500 90 - 3
- -8X - M 1.500 90 -4, 5
- -10X - M 0.750 50 - 6

**Insulating Strip**
- TERMINAL BLOCK BASE NAS1063

**Fuse Holder**
- MS 28934 (HS20-934)
- NUT, MS21044BS
- NUT, MS25042BS
- DC, 500 AMPERE MAXIMUM, BOLT DOWN TYPE

**Material:** Silicone Glass - Temperature: 500°F
**Application:** MS27212 Terminal Blocks - G=Nominal Length of Block
Terminal Blocks & Cover Assemblies

Specification Summary for MS (Military Standard) Terminal Blocks & Cover Assemblies

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Notes:
1. All dimensions in inches ± .016 inch unless otherwise noted.
2. “N” indicates number of studs
3. (*) indicates “L” or “S” type of cover
4. Material:
   - Terminal Block: Dially Dap Phthalate GDI-30F, ASTM 5948
   - Studs: CRES
   - Cover: Plastic Laminate, MIL-P-25518 type I
5. Operating Temperature Range:
   - Cover 475°F max
   - Block: 425°F max
6. Typical Part Numbers:
   - MS27212-6-5 is terminal block with five 8-32 UNC-2A studs
   - MS18029-6-5 is cover assembly with MS18029-14L-5
   - type “L” cover and MS18029-26 nuts (2)
7. Detailed drawings and specifications available upon request
8. Arvan will cut to requested length

(*) = “L” Type  ( ) = “S” Type

Major Customers
- Boeing
- McDonnell Douglas
- Lockheed
- Northrop
- Honeywell
- Spirit Aerosystems
- Hamilton Sundstrand
- Bombardier
- Aliena
- Embraer
- Raytheon
- AM General
- Kawasaki Heavy Ind.
- Mitsubishi Heavy Ind.
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<th>CONVENTIONAL NOMENCLATURE</th>
<th>MS TERMINAL BLOCK</th>
<th>PRE-ASSEMBLED MS COVER / KNOB ASSEMBLY</th>
<th>FIELD ASSEMBLED</th>
<th>MS KNOB</th>
<th>MS BUSS BAR</th>
<th>PRIMARY HI TEMP BASE INSULATOR</th>
<th>SECONDARY HI TEMP BASE INSULATOR</th>
<th>MS INSULATING STRIP</th>
<th>BLOCK STUD/MOUNTING SPACING</th>
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Arvan is a manufacturer of plastic parts by injection, compression and transfer molding. Arvan serves the aerospace, automotive and consumer industries as a custom molder and a QPL’d manufacturer of military standards and “specials”.

**Capability**
- Injection Presses from 5
- Compression / Transfer
- DPD approved to interc
- Assemblies to include DN
- CNC Machining to custom

**Typical Parts Manufactured**
- Aircraft Control Pulleys
- Electrical Terminal Blocks and Interconnects
- Airframe Fairings and Accessories
- Specialized Brackets
- Composite Assemblies
- Electrical Connectors
- Bobbins for APU
- Aircraft Interiors
- Military Standards

**Major Customers**
- Boeing
- McDonnell Douglas
- Spirit Aerosystems
- Lockheed
- Northrop
- Honeywell
- Hamilton Sundstrand
- Bombardier
- Aliena
- Embraer
- Raytheon
- AM General
- Kawasaki Heavy Ind.
- Mitsubishi Heavy Ind.

**Thermoplastics**
- Injection: ABS, Delrin, Nylon, PEEK, Polycarbonate, PEI, ULTEM
- Compression: Nylon, REINFORCED PEEK, Acetal, Others with custom fiber weave continues: Fiber in sheet form.

**Hand Lay-Up**
- Epoxy/Polyester
- Reinforcements
- Polyester Pre-Preg
- (Vacuum Bag or Closed Mold)

**Thermosets**
- Transfer Mold
- Compression Mold
- Alkyd (BMC)
- Diallylphthalates
  - Epoxy/Vinylester Matrix
  - Glass/Carbon Fiber
  - Phenolic (Melamine)

**Assembly**
- Foam in place polyurethane
- Adhesive bonding
- Solid rivet installation
Arvan, Inc. is a manufacturing company specializing in fabricating Mechanical and Electrical Components and Assemblies for the Aircraft, Electronic, Microwave and Electrical Power Industries. Its capabilities include Compression and Injection Molding of Composite Materials, CNC Precision Machining, Sheet Metal and Assembly work. Arvan offers competitive pricing, 50 years industry experience, and an extensive AN, MS, NAS, BAC, LS, and DAC print library. All of this along with superior customer service and trained, qualified sales personnel. Arvan is committed to quality and service.

**Warranty**

All Arvan, Inc. parts and assemblies carry a limited Warranty period of (30) days money back guarantee. If for any reason parts or assemblies do not meet original manufacturing and engineering requirements, parts or assemblies may be returned to Arvan, Inc. freight prepaid, within 30 days period for full credit. This limited warranty shall not apply to any Arvan, Inc. parts or assemblies that have been subjected to misuse, neglect or accident, nor shall it apply to any Arvan, Inc. parts or assemblies which has been repaired or altered outside our plant. This limited warranty covers repair if applicable or replacement of any Arvan, Inc. parts or assemblies that are found defective as to material or workmanship only. All parts or assemblies must be returned under Arvan, Inc. RMA (Returned Merchandise Authorization) system and must reference our RMA number on all return documentation. All returns are subject to our inspection and approval. A 20% restocking fee will be charged on the return of ordered items. These items must be returned in “like new” condition. No other warranties expressed or implied will be granted or issued that deviate in any way from the written limited warranty above.

**Pulleys:** Arvan is a QPLd manufacturer of Military Standard and OEM Specified Aircraft Control Pulleys.

**Terminal Blocks:** Arvan manufactures a full line of Military Standard Terminal Blocks, Covers and Accessories for electrical power distribution and termination.

**Terminal Lugs:** Arvan is a QPLd manufacturer of Military Standard Aluminum Lugs for termination of aluminum aircraft wire.

**Compression Molding:** Our compression presses, from 100 to 3,300 tons, are capable of molding parts up to 5’x 8’. Our Engineering Department has state of the art CATIA V5 software to engage in Concurrent Engineering in a DPD environment. Our CMM’s are capable of inspecting parts up to 9’ diameter sphere.

**Injection Molding:** Our 55 ton to 300 ton presses will mold various engineering plastics such as ULTEM, PEEK and NYLON.

**Quality & Layout Inspection Services**

Arvan, Inc. manufacturing processes conform to:
- ISO 9001:2008/AS9100 REv B/EN9100/JISQ9100
- FAA Approved Title 14 part 21 & K
- DFARS Compliant
- ROHS Compliant

**Major Customers**

- Boeing
- McDonnell Douglas
- Lockheed
- Northrop
- Spirit AeroSystems
- Honeywell
- Hamilton Sundstrand
- Boeing
- Alien
- Embraer
- RAYTHEON
- AM General
- Kawasaki Heavy Ind.
- Mitsubishi Heavy Ind.
Custom Composite & Plastic Molding