

Doctor Blade Product Information



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INTRODUCTION

Allison Systems Corporation is a manufacturer of doctor blades for rotogravure, flexographic, and other doctoring applications worldwide. Doctor blade performance is 'mission critical' to the success of your printing process. While the doctor blade's material, edge configuration, and edge quality/consistency are important parameters that must be considered when choosing a doctor blade, proper performance and control of the doctor blade system is also essential to achieving the needed print quality at an affordable cost. This document provides information regarding the doctor blade material and edge configuration control values. For more information on other related variables regarding doctor blades and successful doctoring, please contact Allison Systems Corp.

Allison Systems combines over 50 years of experience with doctor blades and doctor blade systems with modern technology to provide doctor blades that address today's doctoring issues. Allison's proprietary blade manufacturing process and procedures not only control and document bevel finishing quality, but also verify critical base material properties to assure quality blades are delivered to the customer.

Allison Systems specifies the following properties for doctor blades:

- Mechanical properties
- Material composition
- Width tolerance
- Thickness tolerance
- Length tolerance
- Straightness tolerance
- Bevel configuration

METAL BLADE SPECIFICATIONS

General Alloy Composition:

Iron (Fe)	< 99%
Aluminum (Al)	< 2.1%
Carbon (C)	< 3.6%
Chromium (Cr)	< 27.3%
Cobalt (Co)	< 65.8%
Copper (Cu)	< 3.3%
Manganese (Mn)	< 19.3%
Molybdenum (Mo)	< 9.5%
Nickel (Ni)	< 84.6%
Silicon (Si)	< 3%
Titanium (Ti)	< 3.1%
Tungsten (W)	< 18.0%
Vanadium (V)	< 10.1%

Some or various combinations of these components may appear in grades provided. Use general alloy composition information when specific information is not given under material types.

Material Types:

Carbon Steel (Material codes: CX; CB)
Alloy Composition: 1% C; 0.45% Mn; 0.3% Si
Hardness: Rc 50-57
Surface: White or Blue polished

Carbon Steel (Material code: CSV)
Alloy Composition: 1% C; 0.35% Mn; 0.3% Si; 1.45% Cr
Hardness: Rc 54-57
Surface: White polished

Tool Steel (Material codes: QR; QRH; QRE)
Alloy Composition: 0.5% C; 0.8% Mn; 1% Si; 2.8% Cr; 2.3% Mo; 0.9% V
Hardness: Rc 53-57 base material; Rc 62 at working edge of QRH
Surface: Gold polished

Stainless Steel (Material code: SS)
Alloy Composition: 0.38% C; 0.55% Mn; 0.5% Si; 13.5% Cr; 1% Mo
Hardness: Rc 51-55
Surface: Bright polished

Coated steel blade (Material codes: CXP4; QRP4)
Alloy Composition: Base material as above; Coating: Metallic based
Hardness: Base material as above
Surface: Dull metallic

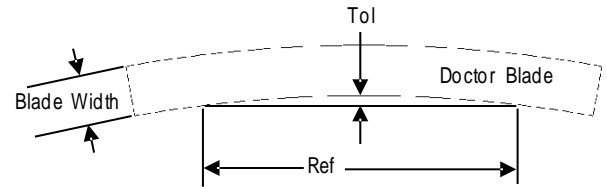
All of Allison Systems' doctor blades made from carbon steel, tool steel, and martensitic stainless steel come from ISO certified mills. Strict and proprietary means of controlling material composition and inclusion size is provided by all of our doctor blade steel suppliers. In addition, the following finishing tolerances apply:

Width tolerance: Nominal width ± 0.010 "

Thickness tolerance: Nominal thickness ± 0.0005 " for thicknesses ≤ 0.012 "
Nominal thickness ± 0.0008 " for thicknesses > 0.012 "

Length tolerance: Nominal length $\pm 1/16$ " for lengths ≤ 144 "
Nominal length $\pm 1/4$ " for lengths > 144 "
Nominal length ± 5 " for lengths ≥ 600 "
Nominal length $\pm 1/4$ " for .050 CB material

Straightness tolerance (Tol / Ref): 0.078 " / 120 " *

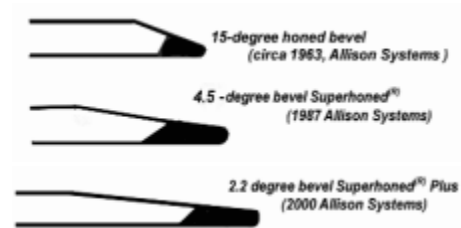


*Note: Other straightness tolerances may apply for specific products. Consult Allison Systems for more information.

To calculate straightness tolerance values at lengths other than the reference length, use the formula: $R1/R2 = (L1/L2)^2$
R1 = Straightness tolerance on measured length L1
R2 = Straightness tolerance on measured length L2

Bevel configurations: Allison bevel configurations represent a range of tip deflection control plus effectively small doctoring 'footprints' and are an improvement over the 'lamella' in gravure and flexo doctoring applications.

- RND: Rounded edge (no bevel)
- STD: Standard 15° bevel for thickness ≤ 0.010 "
(Contact us for other sizes)
- SUP: Superhoned 4.5° bevel
- SUS: Superhoned Plus 2.2° bevel



Tip configurations:

Allison Systems' beveled metal blade products are available with 30 - 100 micron (0.0012" - 0.0039") precision tips. Consult Allison Systems for tip thickness availability for specific products.

PLASTIC AND COMPOSITE BLADE SPECIFICATIONS

Material Types:

- Fiberglass (Material code: FR)
- Fiberglass Plus (Material code: FRS)
- Graphite (Material code: GR)
- Mylar (Material code: MY)
- Polyester (Material code: PY)
- Delrin (Material code: DE)
- Delrin Plus (Material code: DET)
- Nylon Plus (Material code: NY)
- UHMW (Material code: PE; K1W)
- UHMW PLUS (Material code: K2B)
- ONYX (Material code: ONX)

Width tolerance:

- Material codes: DE; DET; MY; NY; PY; PE; K1W; K2B; ONX; FR; FRS; GR
- Nominal width + 0.015" / - 0.020"

Thickness tolerance:

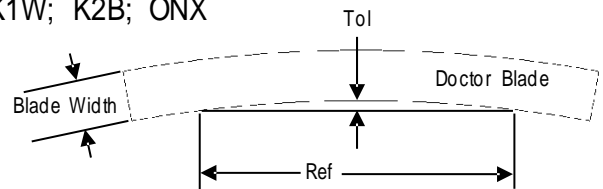
- Material codes: DE; DET; MY; NY; PY; PE; K1W; K2B; ONX
- Nominal thickness ± 10%
- Material codes: FR; FRS; GR
- Nominal thickness ± 20%

Length tolerance:

- Material codes: DE; DET; MY; NY; PY; PE; K1W; K2B; ONX
- Nominal length ± 1/8" for lengths ≤ 144"
- Nominal length ± 1/4" for lengths > 144"
- Nominal length ± 5" for lengths ≥ 600"
- Material codes: FR; FRS; GR
- Nominal length ± 1/16"

Straightness tolerance: (Tol / Ref)

- Material codes: DE; DET; MY; NY; PY; PE; K1W; K2B; ONX
- 1/4" / 72"
- Material codes: FR; FRS; GR
- 1/16" / 72"



Bevel configurations:

- UNH: Un-honed (no bevel)
- STD: Standard bevel
- SLR: Seal Relief bevel

Notes for all blades: Metric dimensions may be converted to the closest standard imperial measurement.