GUIDEBOOK TO

SEAMLESS ROLLED RINGS

McINNES ROLLED RINGS

ROLLED RINGS

At McInnes Rolled Rings, we specialize in seamless rolled rings up to 144” OD and forged discs up to 60” in diameter. We work with a variety of carbon, alloy and stainless steels.

This Guide Book will better assist you in understanding our product and terminology of forgings.

If there are any additional questions, please contact us at McInnes, and we will gladly help.

ADVANTAGES OF

SEAMLESS RINGS

No Waste

No drops of expensive plate

Superior Quality

Circumferential grain flow

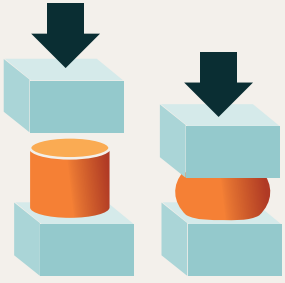
Lower Cost

Eliminate costly handling, layout and production time

McINNES ROLLED RINGS

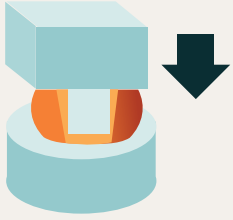
THE FORGING PROCESS
HOW WE ROLL RINGS

THE PREFORM STAGES



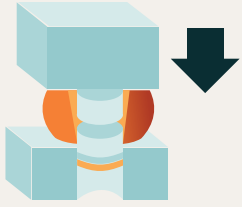
UPSETTING

The ring rolling process begins with the upsetting of the starting stock on flat dies at its plastic deformation temperature.



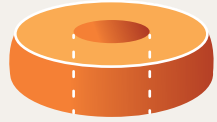
PIERCING

Piercing involves forcing a punch into the hot upset stock displacing metal radially and leaving a thin web of metal at the bottom.



SHEARING

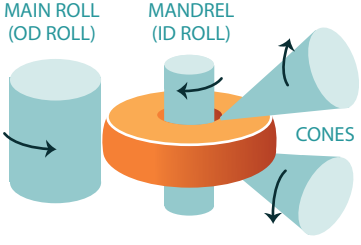
A subsequent operation, shearing, removes the thin web producing a completed hole through the stock.



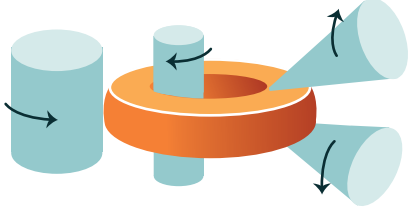
PREFORM

This stock, referred to as a blank or preform, is now ready for the ring rolling process.

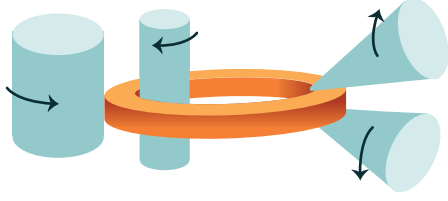
THE FORMING STAGES



The doughnut-shaped preform is placed over the mandrel.



As the preform is rotated in the mill, the mandrel begins to apply pressure toward the main roll. At the same time, the axial cones apply pressure toward each other.



As a result of the radial and axial pressure, the ring's OD and ID gradually increase while the thickness and wall section are reduced.

MATERIAL GRADES
WHAT WE ROLL

CARBON

1010	1040	ASTM A350 LF2
1018	1045	ASTM A350 LF6
1020	1050	ASTM A266 CL2
1022	1070	ASTM A266 CL4
1029	1552	ASTM A694
1030	ASTM A105	ASTM A707 L2
1035	ASTM A181 CL70	

ALLOY

3310	4320	ASTM A182 F9
3311	4340	ASTM A182 F11
3312	4820H	ASTM A182-F22
4130	8620H	Cr-Mo-V
4140	8630	NiCrMoV
4145	8822H	H-13
4150	9310	HY-80
4170	ASTM A182 F5	HY-100

STAINLESS

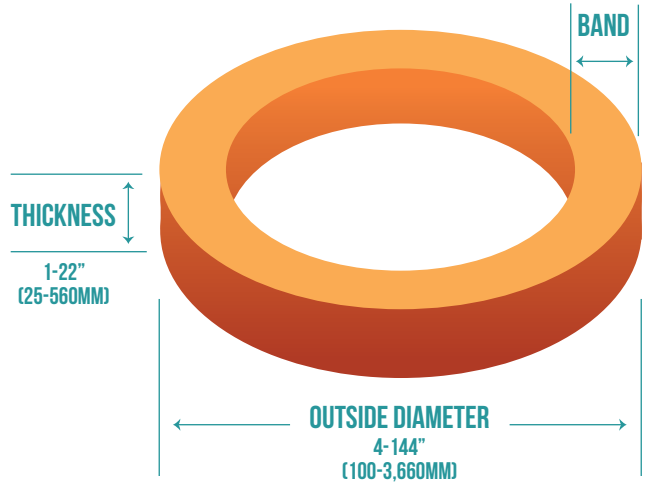
300 SERIES	400 SERIES	Duplex

BEARING GRADES

52100 GRADE 1 (ASTM A485)	M-50
52100 GRADE 2 (ASTM A485)	440C
52100 (ASTM A295)	

PRECIPITATION HARDENING

17-4 PH	15-5 PH



4-144" RINGS

DISCS UP TO 60"

50-8,000 LBS

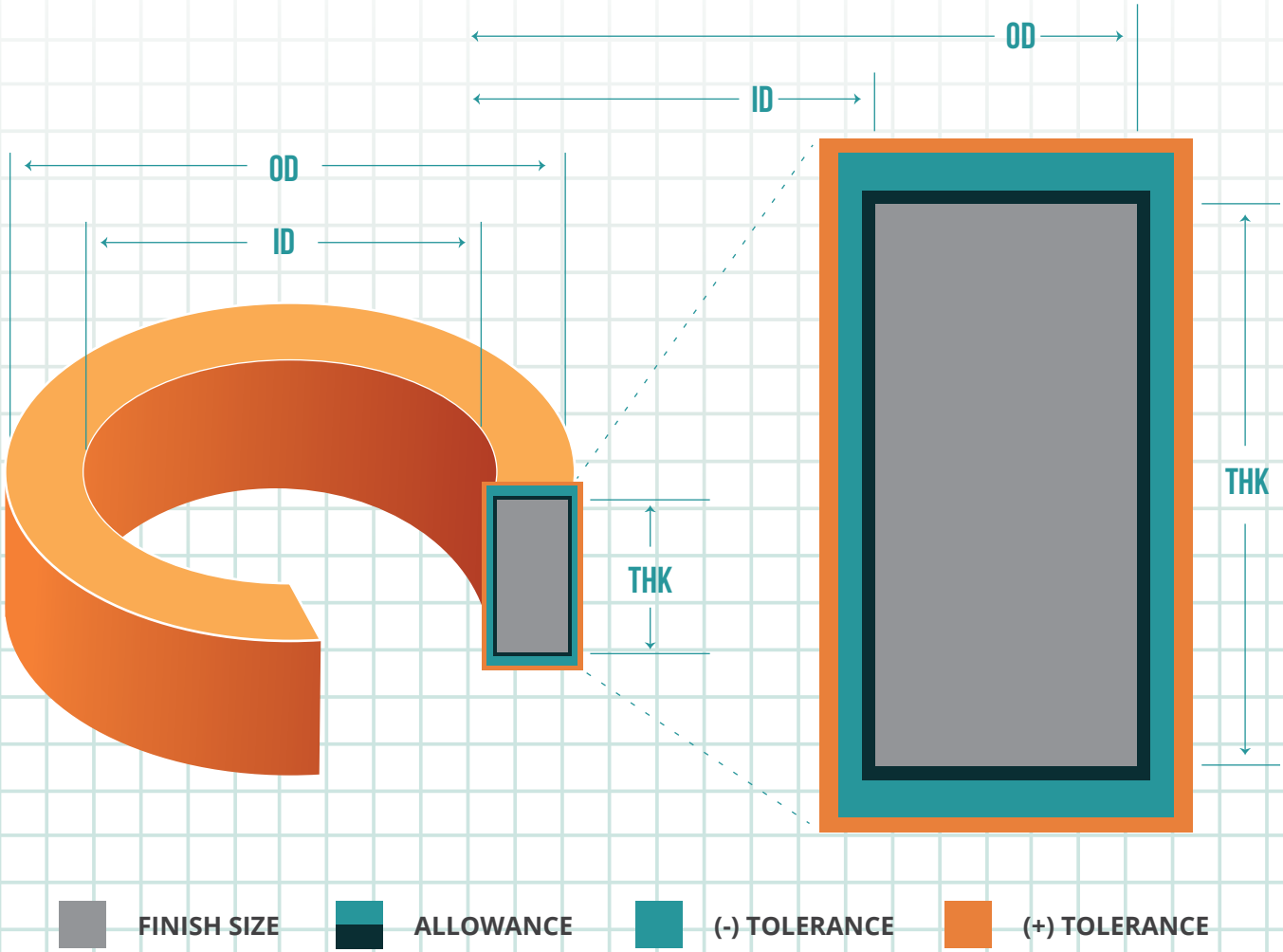
HEAT TREATMENT

MACHINING

DESTRUCTIVE & NONDESTRUCTIVE TESTING

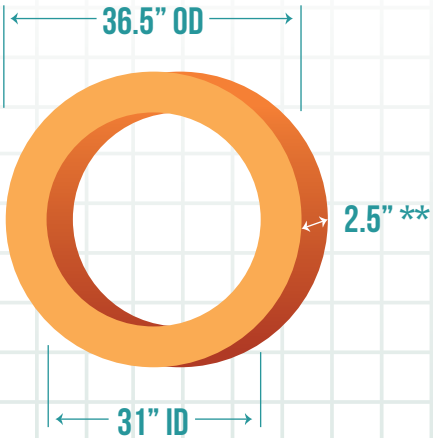
FORGED SIZES
TOLERANCES & ALLOWANCES

When you provide us your finish sizes, we add the appropriate allowance to your OD, ID & THK to guarantee clean up to your finish sizes.



FORGINGS VS PLATE

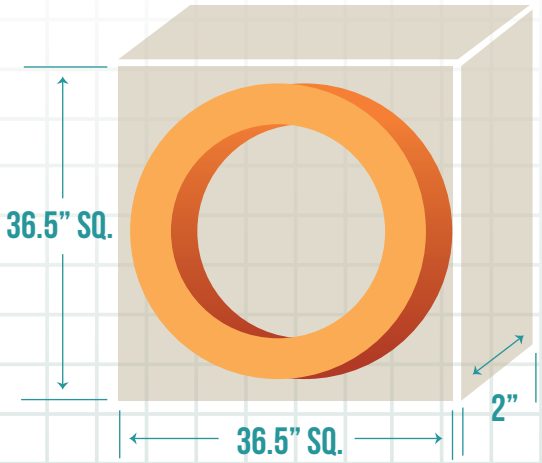
FORGING FROM RING ROLLING PROCESS



ROLLED RING WEIGHT **206** LBS

** .5" OF ROLLING ALLOWANCE ADDED TO THICKNESS

FABRICATED RING FROM PLATE



CUT PLATE WEIGHT* **754** LBS

* TOTAL WEIGHT OF THE PLATE INCLUDING THE CENTER DROP

MAKE YOUR OWN COMPARISON

Required to make a ring

PLATE (WIDTH) X (WIDTH) X (THICKNESS) X .283 WT OF STEEL = LBS

RING ((OD X OD X .2225) - (ID X ID X .2225) X THICKNESS) = LBS

USE OUR ONLINE TOOL

www.McInnesRolledRings.com/compare

RING ROLLING SAVINGS LBS

McInnesRolledRings.com

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