

Opening and Closing Watch Cases



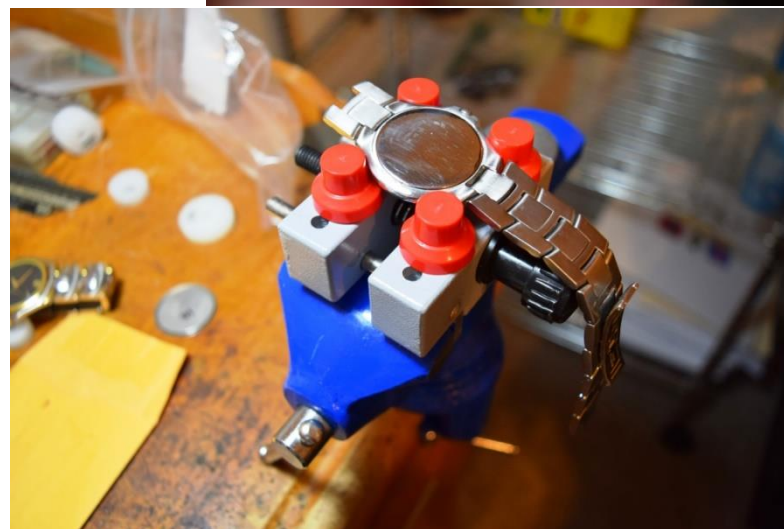
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NAWCC San Jacinto Chapter 139

Introduction

- There are a number of different types of watch cases – both for pocket watches and wrist watches
 - Today we'll focus mainly on wrist watches
- The two most commonly found types are screw-down (waterproof) and snap back.
 - Certain manufacturers have their own methods and require specialized tools:
 - Think Bulova, Breitling, Omega, Rolex and Baume & Mercier amongst others
 - Here are some of their tools.
- Like all procedures and methods, there are positive and effective ways to open (and close) watch cases, and less effective or incorrect ways that can do a lot of damage to a case – and possibly a movement, bracelet and crystal.
- Usually, only a small bit of force or pressure is needed. In fact if you are struggling, STOP! Something is wrong, and you need to go about this a different way!
- There is no harm in walking a way, rethinking the situation, or asking for help!
- The closer you are to something, the harder it is to be objective!
- Practice on throw-aways, or things that have little value and no significance
- Remember the Hippocratic Oath: Above all, do no harm!

There's more than one way...



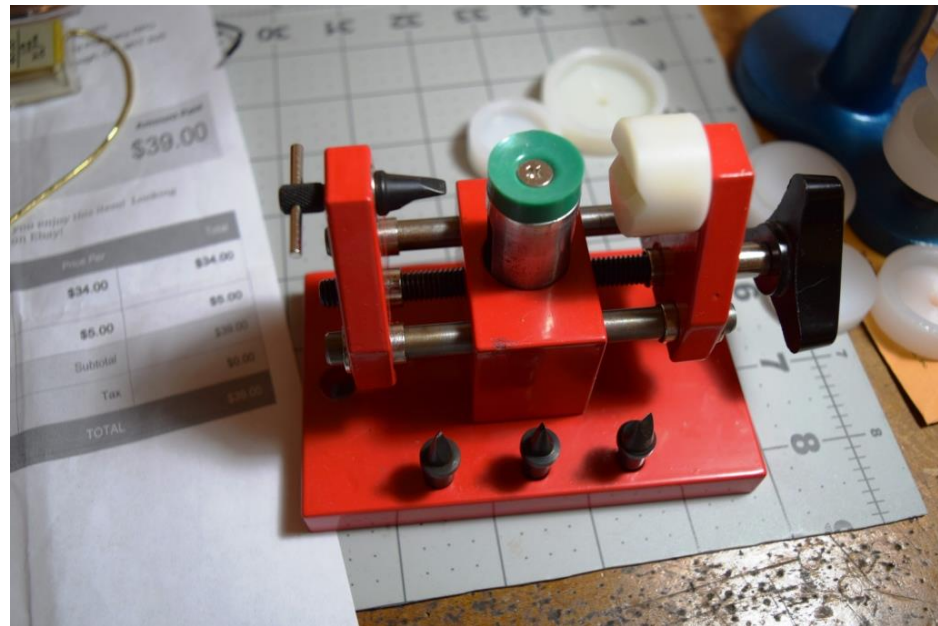
Types of wrist watch cases

- Snap back
- Jaxa (waterproof) screw on
- Fixed with screws
- One piece, one of a kind, oddballs

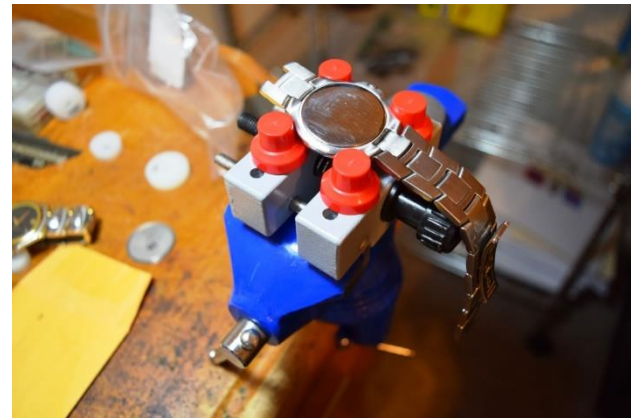


Usual procedures to open cases

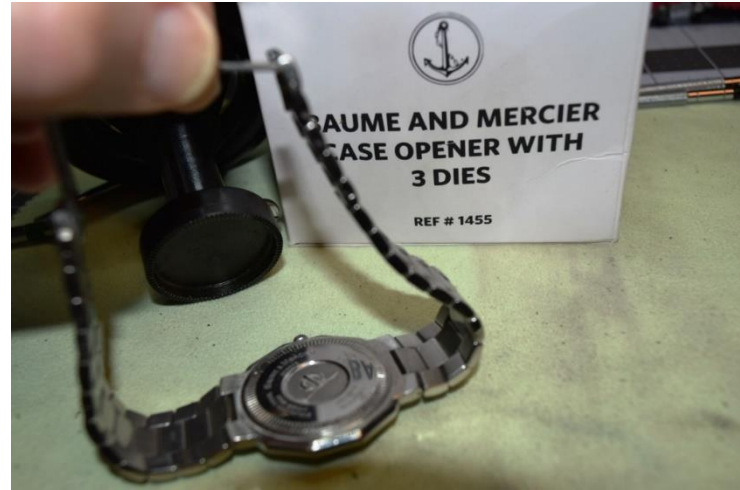
- Bench knife
- Screwdriver
- Bench Case Back Tool
- Jaxa wrench
 - There's a right way and a wrong way!
 - 2 prong hand held
 - V-tool
 - Other
- Proprietary
 - Rolex
 - Baume & Mercier
 - Bulova
 - Others
- Exceptions
- What does not work well
- Above all: Do no harm!



Variations on a Theme

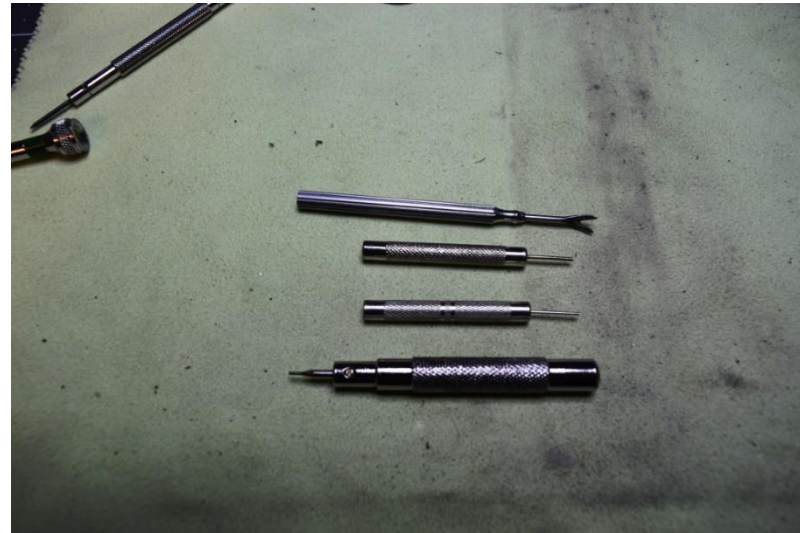
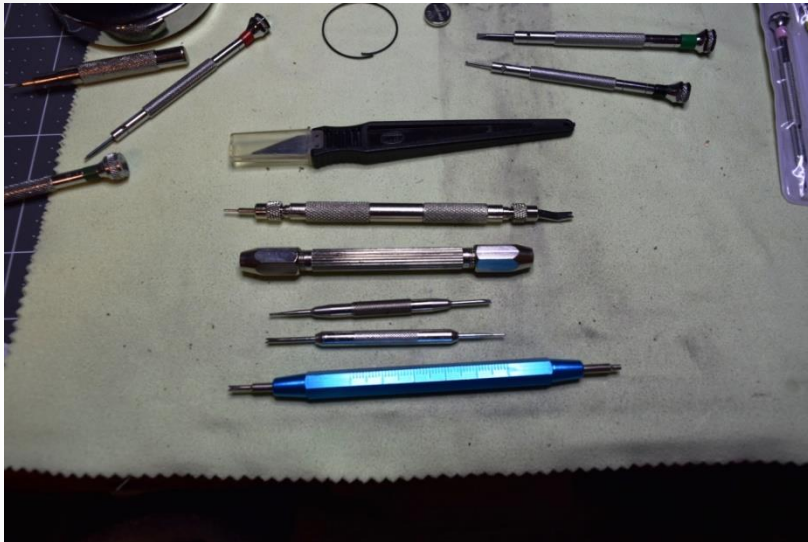


More Variations on a Theme



Bracelets, straps, pins, tools & more

- Some common tools



Hints, tips, and in my experience

- The Best thing to do is study a method before attempting it –
 - YouTube is a great help
 - Watch parts suppliers, like Esslinger.com
 - Ask a friend, colleague, chapter member, someone with experience
 - Get some education!
 - Practice
 - Use the 70-20-10 rule
 - We aren't experts overnight!
 - We're humans – we make mistakes!
 - Use good judgement and a steady hand
 - If at first you don't succeed...
 - The rule of TTT

Questions?

Replacing a Crystal

Crystal replacement tools

- Digital Calipers
- Crystal Press (plugs and dies)
- Adhesives
 - Ultraviolet glue
 - G-S Hypo cement
- UV light
- Crystal Lift and Crystal Base Plate
- Selvyt (Lint-Free) Cloth



Replacing a Crystal

Measuring a crystal

- Measure the existing crystal
- Measure the bezel (if crystal is missing)
 - Clean bezel ledge first
 - Measure in 2-3 different places
- Select correct crystal
 - Thick/Thin
 - Low Dome/High Dome
 - Magnifier
 - Plastic/Mineral/Sapphire
- Sizing
 - Exact size for glued-in crystal
 - +0.1mm for crystals to fit a gasket
 - +0.1mm-0.3mm for plastic crystals

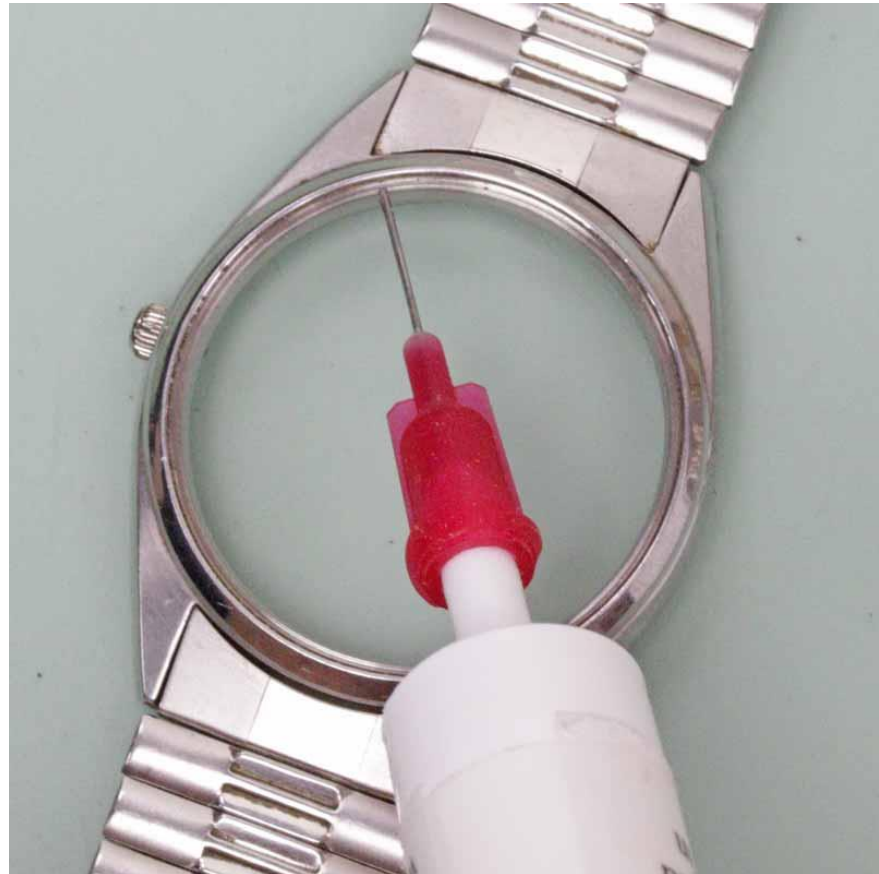


Replacing a Crystal

Replacing Crystals

Glued-In Crystals

- Remove watch movement from the watch case
- Clean the bezel ledge
- Apply UV glue to the entire bezel ledge
- Press crystal into the bezel so all edges of the crystal are sitting in the glue
- Wipe away any excess glue
- Place watch bezel under UV light for 3 minutes



Replacing a Crystal

Replacing Crystals



Compression Fit Crystals (Wristwatch)

- Place the new crystal flat on the crystal holding base
- Grip the crystal using the *Crystal Lift*
- Turn it upside down so that the bottom of the crystal is facing up
- Place watch case face down onto the crystal
- If the crystal does not fit, tighten the lift a little more
- Slowly release the tension in the lift so that the crystal fits into place in the watch

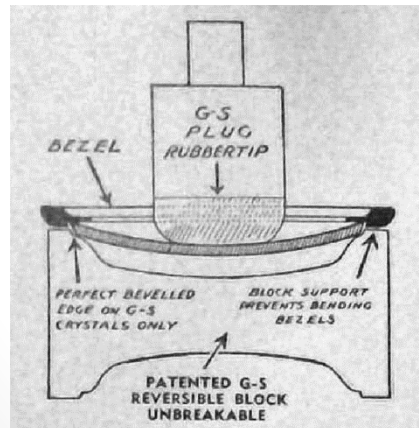
Replacing a Crystal

Replacing Crystals



Plastic Compression Fit Crystals

- Select the correct size *Plug* and *Die* for the crystal you are installing
- Place the plastic crystal curved side down on the *Die*
- Place the bezel over the crystal
- Grip the handle of the *Crystal Press* and gently squeeze down to flex the crystal
- While pressing down, manipulate the bezel over the crystal
- Slowly release the tension so that the crystal fits into the bezel lip



Replacing a Crystal

Replacing Crystals

Tension Ring Crystals

- Remove watch movement from the watch case
- Select straight walled die for the back of the watch case and an upper die with angled inner walls
- Take loose new crystal and position it over the opening in the top of the watch case
- Grip the handle of the *Crystal Press* and gently squeeze down bringing the two dies together until you hear the crystal click into place



Case Closing

Case Back Tools

- Screwdrivers, tweezers
- Jaxa wrench
- Watch Case Press
- Case Holder
- Silicone Sealant Box
- Waterproof Tester



Case Closing

Replacing Gaskets

O-ring watch back gaskets

- Inspect gasket to see if it need to be replaced
- Measure gasket; Inside Diameter, Outside Diameter (-0.1mm to ensure tight seal)
- Lubricate the gasket with silicone grease
- Slip the gasket over one side of the case back lip
- Stretch the gasket slightly to allow it to slip around the rest of the case back lip
- Inspect the case back once closed to ensure gasket has not deformed



Case Closing

Replacing Gaskets



Crown gaskets

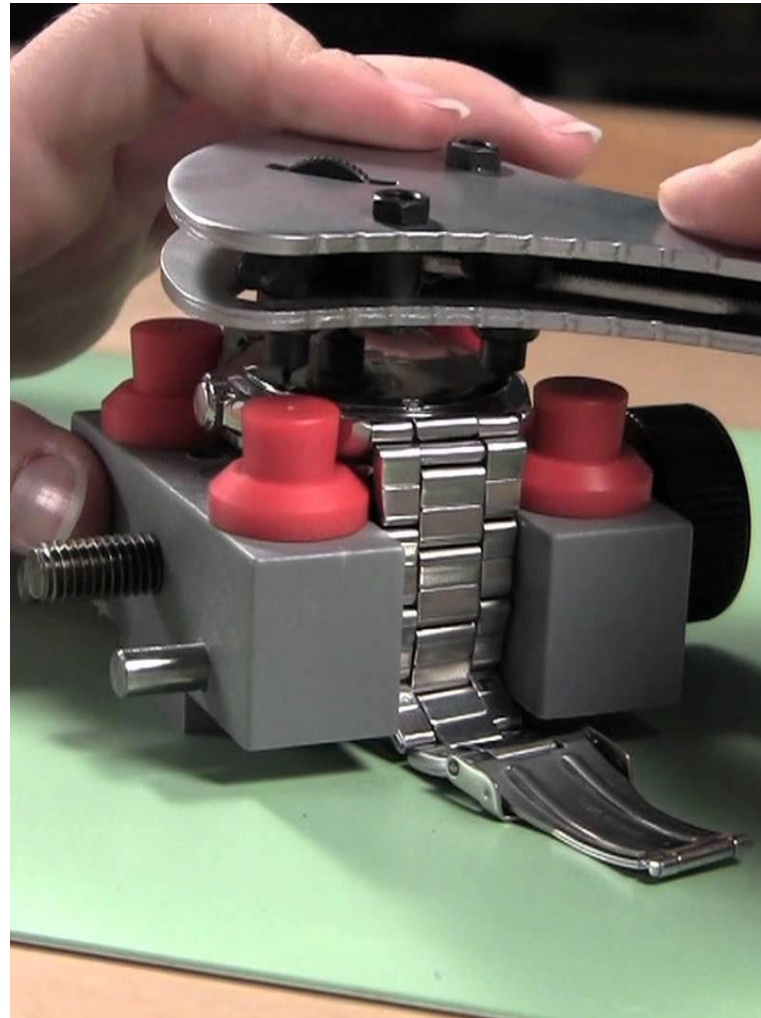
- Remove the existing crown gasket using plastic pick or a toothpick
- Measure the diameter of the groove, where the gasket will sit on the stem
- Lubricate the new gasket with silicone grease, and roll it up the stem until it settles in the groove
- Test the stem in the case; there should be slight resistance so the crown will sit firmly in place

Case Closing

How to Close a Case

Screw off watch back (Jaxa Wrench)

- Placing the back on the case and begin tightening with your fingers
- Select the tips that best fit the notches in the case and insert them into the wrench
- Place the watch in a *Case Holder*
- Position the wrench over the case back and adjust the 3 tips to fit the notches
- Turn clockwise to tighten, ensuring the wrench is kept level

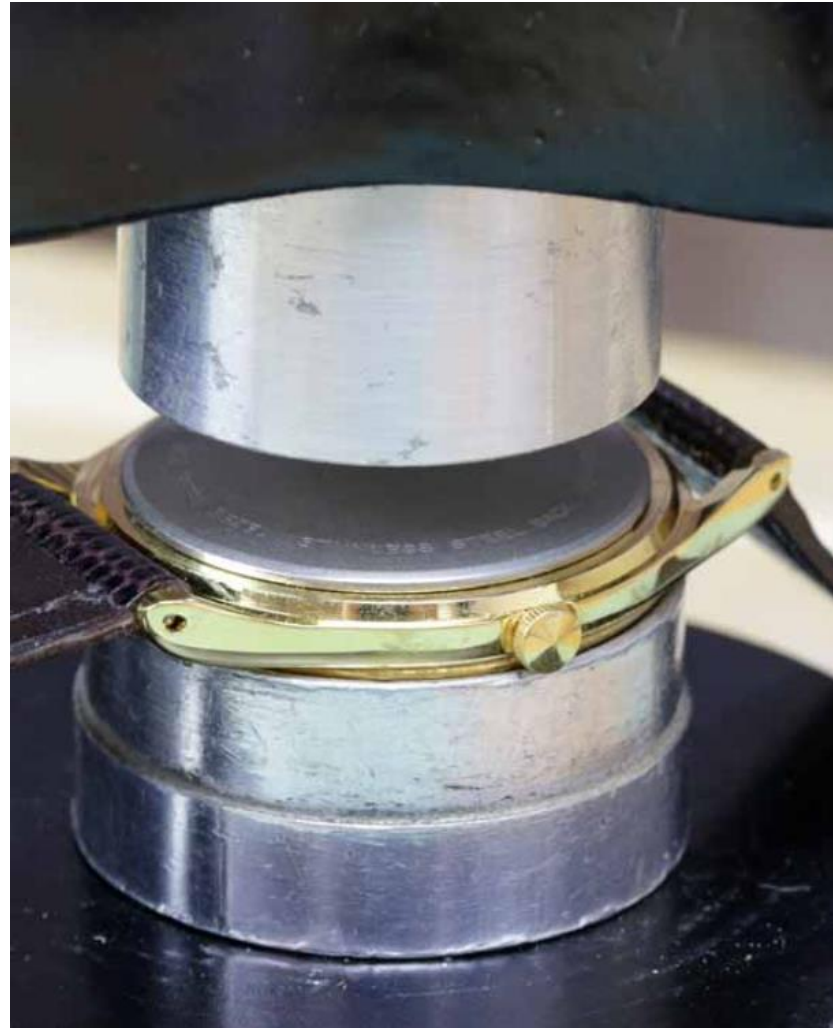


Case Closing

How to Close a Case

Snap off watch back

- Check/lubricate watch back gasket
- Select right size dies for *Watch Press*
- Align case back notch with the watch stem
- Place watch in the press (dial down)
- Grip handle to apply pressure to close the watch back
- Listen/feel the back snap into place



Case Closing

How to Close a Case



Case back with screws

- Check/lubricate watch back gasket
- Replace case back and align holes
- Replace first screw in the watch back using tweezers
- Partially tighten screw
- Replace remain screws in diagonal pattern
- Once all screws are installed, tighten fully into position

Pressure Testing

Waterproof Tester Tool

Water resistance rating	Suitability
Water Resistant 3 atm or 30 m	Suitable for everyday use. Splash/rain resistant.
Water Resistant 5 atm or 50 m	Suitable for swimming, white water rafting, and fishing.
Water Resistant 10 atm or 100 m	Suitable for recreational surfing, swimming, snorkeling, sailing and water sports.
Water Resistant 20 atm or 200 m	Suitable for professional marine activity, serious surface water sports and skin diving.
Diver's 100 m	Minimum ISO standard for scuba diving at depths not suitable for saturation diving.
Diver's 200 m or 300 m	Suitable for scuba diving at depths not suitable for saturation diving.
Diver's 300+ m for mixed-gas diving	Suitable for saturation diving (helium enriched environment).



Pressure Testing

Testing Process



- Fill the cylinder with distilled water
- Hang the watch on the plunger above the water line and seal the chamber
- Use the pump handle to raise the pressure in the chamber to the desired ATM
- Lower the watch into the water and slowly release the pressure
- If it leaks, air will leave the watch and bubbles will be seen at the point of the leak

Recap



- Inspect the case carefully, to understand how it opens
- Invest in the right tools for the job
- Measure twice, order once
- Keep it clean
- Don't force it
- Make friends with the owner of a Waterproof Tester
- Do no harm!

Bibliography



Esslinger has an excellent blog on common watch repair tasks:

<https://blog.esslinger.com/category/watch-repair/watch-repair-guides/>

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WATCH REPAIR GUIDES

Case Chart

Case Size	Case Ht	Case Wd	Case Depth	Case Thickness	Case Weight	Case Material
38mm	48mm	48mm	12mm	1.5mm	35g	Stainless Steel
40mm	50mm	50mm	12mm	1.5mm	40g	Stainless Steel
42mm	52mm	52mm	12mm	1.5mm	45g	Stainless Steel
44mm	54mm	54mm	12mm	1.5mm	50g	Stainless Steel
46mm	56mm	56mm	12mm	1.5mm	55g	Stainless Steel
48mm	58mm	58mm	12mm	1.5mm	60g	Stainless Steel
50mm	60mm	60mm	12mm	1.5mm	65g	Stainless Steel
52mm	62mm	62mm	12mm	1.5mm	70g	Stainless Steel
54mm	64mm	64mm	12mm	1.5mm	75g	Stainless Steel
56mm	66mm	66mm	12mm	1.5mm	80g	Stainless Steel
58mm	68mm	68mm	12mm	1.5mm	85g	Stainless Steel
60mm	70mm	70mm	12mm	1.5mm	90g	Stainless Steel

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