



## Tweco<sup>®</sup> Velocity<sup>™</sup>

Medium and Heavy Duty  
MIG Welding Consumables

*Patents Pending*



- **Ground Breaking Innovation** - Inspired by Welders for Welders
- **Gas Ported Velocity Contact Tips** - Stay Cooler, Last Longer
- **Easy to Use Velocity Tips** - No More Threads, No Tools
- **Smoother Arc** - Improves Stability and Welding Performance
- **Fewer Consumable Parts** - Less Complexity, Fewer Connections

## SPEED MADE EASY.



## Ground Breaking Innovation - Inspired by Welders for Welders

Tweco® has been an industry standard for over 75 years. Whether you're familiar with the 14, 15 or 16 Series, Tweco is the name behind the most widely accepted standard of MIG welding consumables in use today.

After creating the original Tweco standard, we are challenging ourselves again, leading in innovation with the introduction of Velocity™. Inspired by listening to our customers – welders who have used Tweco consumables for decades. Velocity consumables are a direct reflection of their input.



Once you try Velocity tips, we are confident you will extend the Tweco legacy by choosing the welding consumables that outperform anything else available.

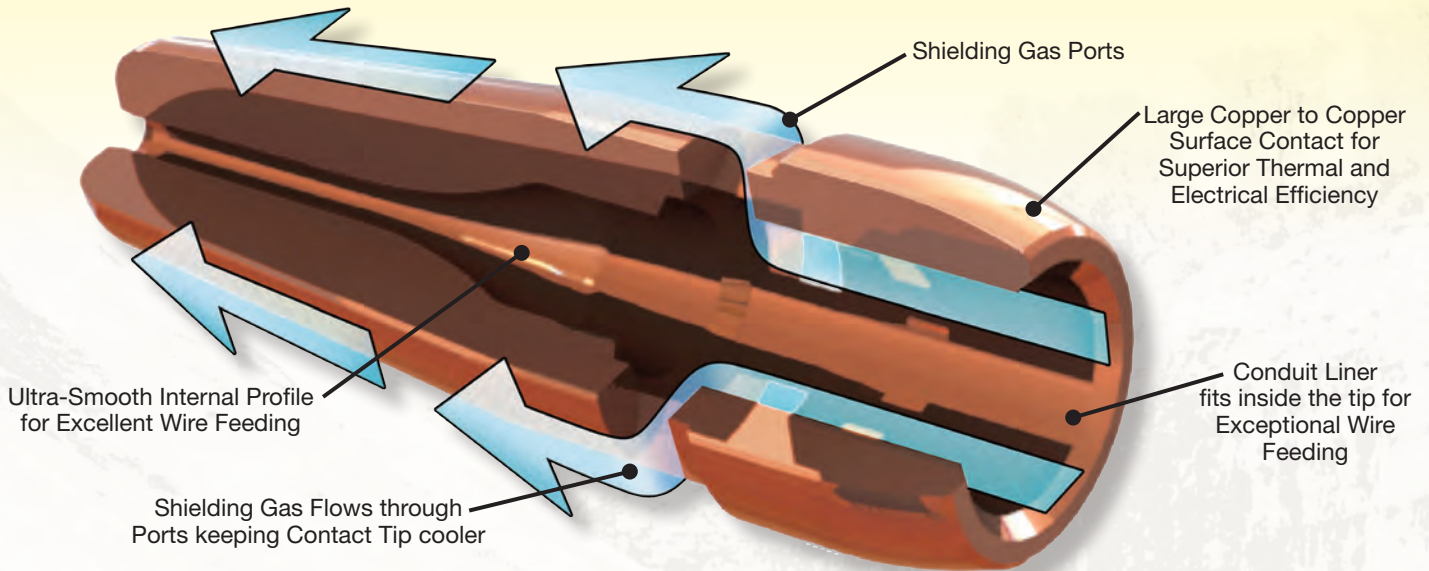
**The best just got better.  
Tweco Velocity.**



**Tweco Standard**

**New Velocity**

# Gas Ported Velocity™ Contact Tips - Stay Cooler, Last Longer



The latest feature of the Velocity contact tip is the addition of gas ports in the solid copper body that channels the shielding gas through the tip. This allows dramatically over normal contact tips.

In addition to the gas ports, Velocity contact tips **stay cooler** because;

- Greater contact surface area
- All copper contact conductor path to the tip
- Fewer connections in the system

- Copper in the contact tip stays cooler, remains harder
- Harder copper surface wears slower and prevents sticking
- Filler wire does not stick and then seize against the copper

Velocity enjoys significant life improvement benefits over the competition and this depends on what weld transfer mode you might be using. Regardless of your situation, our field trial testing has validated significant benefits in contact tip life.

And Velocity contact tips **last longer** because;

## Contact Tip Life Improvements by Transfer Mode

Short Arc Solid Wire	Spray Transfer	Gas Shielded Flux Core
2 to 3 times Life	4 to 5 times Life	8 to 10 times Life

Rotate Tips



Prolong Life



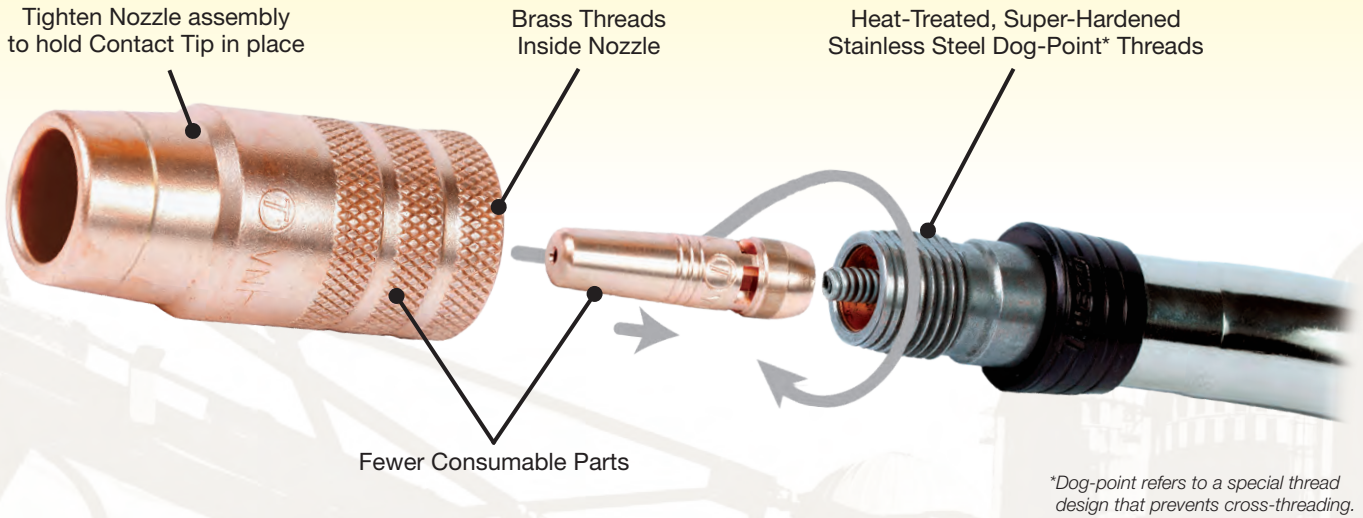
*Data from our Lab and Field Trial studies comparing Velocity contact tip life expectancy versus standard contact tips, using transfer mode.*

## Competitive Comparison of Contact Tip Life Improvement

Velocity versus Tweco style	Velocity versus Competitor A	Velocity versus Competitor B - Brand X	Velocity versus Competitor B - Brand Y	Velocity versus Competitor B - Brand Z
2 to 3 times Life	4 to 5 times Life	5 to 6 times Life	2 to 3 times Life	6 to 7 times Life

*Data from our accelerated Lab and real world Field Trial studies comparing Velocity contact tips versus competitor's contact tip life expectancy.*

## Easy to Use Velocity™ Tips - No More Threads, No Tools



We listened to welders and they said, ‘fewer tools and fewer threads’. The outcome is a design that is simpler, requires no tools, and virtually eliminates problems with threads. Typical MIG consumables have TWO sets of threads and many have THREE – Velocity has reduced this down to ONE set.

Also, Velocity’s mating threads share a soft material (brass) along with a hard material (stainless steel). The combination of soft threads against hard reduces seizing and cross threading. Heat-treated stainless threads on the gooseneck are virtually indestructible and the brass threads on the replaceable nozzle are softer, so they grip and won’t loosen.

<b>Industry Standard</b>	Velocity Difference – more convenience for the welder.
<b>Threads</b>	No threads on the contact tip. And nozzle threads are properly designed to eliminate hassles with seizing and cross threading.
<b>Welpers**</b>	You will still need your welper for cutting wire, but not to remove contact tips or worse ‘burnback’ contact tips.
<b>Adjustable Pliers or Channel Lock†</b>	Velocity nozzles are designed to be hand tightened. Before seating against the contact tip, the spring loaded collar keeps the nozzle threads in pre-tension so they do not loosen.
<b>Allen Wrench‡</b>	You will only need an allen wrench to set your liner and replace the threaded stainless sleeve on rare occasions.

\*\*Welpers are MIG Pliers aka “welding helpers.”

†Channellock is a registered trademark of Channellock Inc. of Meadville, PA.

‡Allen is a registered trademark of the Apex Tool Group of Sparks, MD.

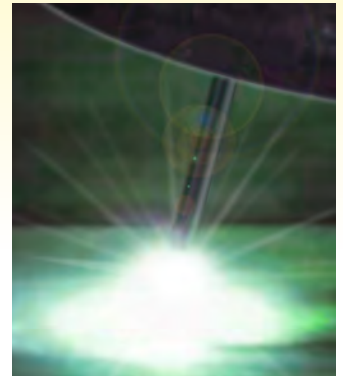
The aforementioned registered trademarks are in no way affiliated with Victor Technologies International, Inc.

## Smoother Arc - Improves Stability and Welding Performance

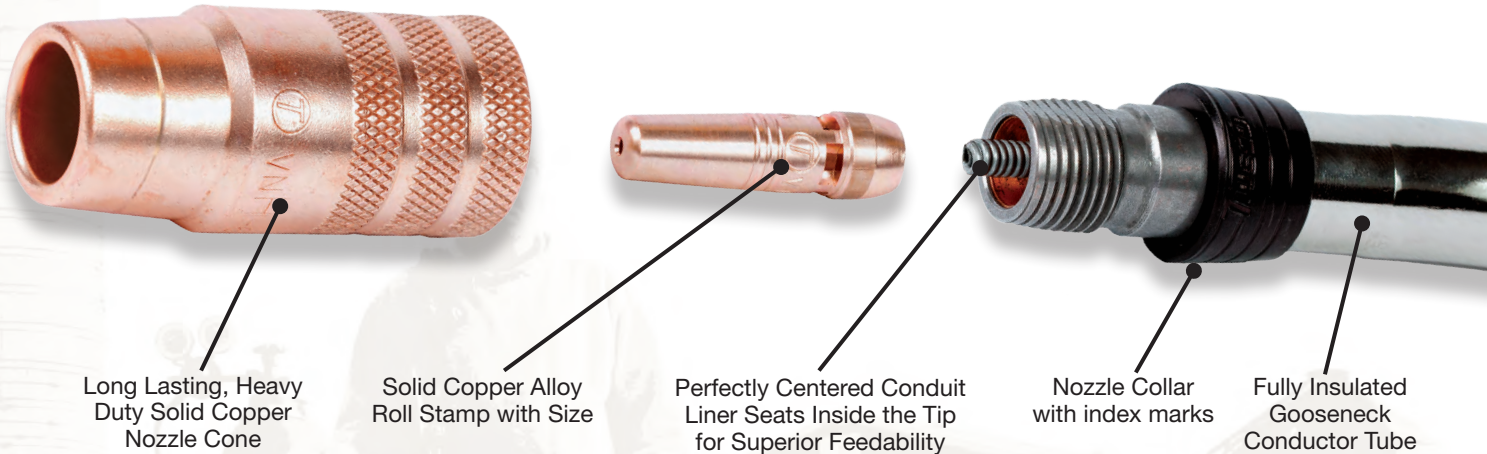


Welders who really need smooth arc performance told us, 'reduce the number of connections, each connection is a chance for poor conductivity' ... and we did. In addition, we took brass out of the conductor path, keeping it all copper, which is better for thermal and electrical conductivity.

The result is a more stable arc that provides more precision for the discerning welder. If your throughput is dependent upon precision and control and you are trying to maximize your deposition rate, then Velocity™ is the MIG welding consumable of choice.



### Solid Copper Conductor Path



Long Lasting, Heavy Duty Solid Copper Nozzle Cone

Solid Copper Alloy Roll Stamp with Size

Perfectly Centered Conduit Liner Seats Inside the Tip for Superior Feedability

Nozzle Collar with index marks

Fully Insulated Gooseneck Conductor Tube

## Fewer Consumable Parts - Less Complexity, Fewer Connections

Shop-owners, distributors, and welders alike all told us that they prefer less complexity. Velocity achieves this compared to its competition. Fewer parts to order, inventory, and ration in a typical welding shop environment is a bonus for everyone involved.

Welders particularly like it because it means fewer parts to keep handy while welding. In a standard fixed threaded nozzle arrangement, Velocity uses only a contact tip and nozzle as regularly exchanged consumables, while the traditional Tweco standard and most of its competitors require a diffuser as a third part.

<b>Traditional Consumable</b>	Velocity Difference – Less Complexity, Fewer Connections.
<b>Original Tweco or 'Tweco knock-offs'</b>	Velocity does not require the brass diffuser. Soft threads on diffusers results in their relatively frequent replacement, while Velocity's heat-treated, super tough threaded sleeve lasts substantially longer than a typical diffuser.
<b>Bernard Centerfire*</b>	Although the tip is threadless, Bernard continues to require a diffuser/ tip holder. More parts to stock with the disadvantage of brass and more connections.
<b>Tregaskiss*</b>	Again, a brass diffuser is an additional part to stock over Velocity.
<b>Binzel*</b>	A brass tip holder and ceramic diffuser shield require two more consumables to regularly replace compared to Velocity.

\*Bernard Centerfire and Tregaskiss are registered trademarks of Illinois Tool Works, Inc. Binzel is a registered trademark of ABICOR BINZEL Group, part of Alexander Binzel Schweisstechnik GmbH & Co. KG.

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# VELOCITY™ CONSUMABLES REFERENCE

## Medium Duty Range Overview

Wire sizes .023" (0.6 mm) → 1/16" (1.6 mm)  
Optimized for .035" (0.9 mm) & .045" (1.2 mm)  
200 – 350 Amps @ 60% Duty Cycle

**Fixed Threaded** maintains a fixed, consistent flushness relationship between nozzle opening and contact tip.

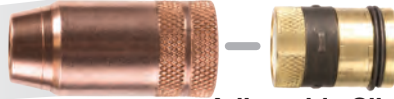
**Adjustable Slip** allows welder to adjust the flushness relationship and provides improved access for cleaning.

**Spot Weld** provides a solution for tack and spot welding with MIG.

### Nozzles



Fixed Threaded



Adjustable Slip



Spot Weld

### Contact Tips



Medium Duty

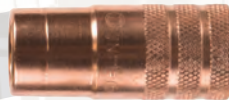
## Heavy Duty Range Overview

Wire sizes .030" (0.8 mm) → 1/8" (3.2 mm)  
Optimized for .045" (1.2 mm) & 5/64" (2.0 mm)  
300 – 600 Amps @ 80% Duty Cycle

**Fixed Threaded** maintains a fixed, consistent flushness relationship between nozzle opening and contact tip.

**Adjustable Slip** allows welder to adjust the flushness relationship and provides improved access for cleaning.

**Fixed Threaded (2 piece)** maintains flushness relationship and provides for easier cleaning and maintenance.



Fixed Threaded



Adjustable Slip



Fixed Threaded (2 piece)



Heavy Duty

## Flux Core Overview

**Flux Core Tip Holder** provides open sight line and the best solution for gasless flux core welding.



Flux Core Tip Holder  
Part # VNLFC



Medium & Heavy Duty

## Extended Taper Range Overview

### For Root Pass and Confined Access

Wire sizes .030" (0.8 mm) → 1/16" (1.6 mm)  
Optimized for .045" (1.2 mm)  
200 – 350 Amps @ 60% Duty Cycle



Extended Taper

# SPEED MADE EASY.

All of the features of Velocity™ result in more convenience and higher productivity for the welder.



## VELOCITY NOZZLE IDENTIFICATION

S=Small  
M=Medium  
H=Heavy  
ET=Extended Taper

Blank=Fixed Threaded  
S=Adjustable Slip

**V N M 5 0 F S**

Velocity  
Nozzle

Orifice Opening Size:  
37=3/8" 62=5/8"  
50=1/2" 75=3/4"

Blank=Standard Recess  
F=Flush  
P=Protrude  
R= Recess 1/4" (6.35 mm)  
FAS=Spot Weld  
FC=Flux Core

## VELOCITY CONTACT TIP IDENTIFICATION

S=Small  
M=Medium  
H=Heavy  
ET=Extended Taper

A=Aluminum  
Blank=Other

**V T M A 3 0**

Velocity  
Tip

Wire Size: 364=3/64"  
23=0.023" 116=1/16"  
30=0.030" 564=5/64"  
35=0.035" 332=3/32"  
40=0.040" 764=7/64"  
45=0.045" 18=1/8"

Velocity Conductor Tubes  
fit Tweco® Spray Master®  
V250, V350 & V450 MIG Guns.

For more specific information about Tweco Velocity Nozzle and Contact Tip varieties visit our website at [Tweco.com](http://Tweco.com).

## Easy to Identify Velocity™ Consumables - No More Guesswork

Velocity Medium and Heavy Duty Consumables are different from what you may be accustomed. Nozzles have a specific number of knurled bands and contact tips have rings to indicate their compatibility and correct usage.



### Medium Duty

has two knurled bands on the nozzles and two rings on the contact tips.



### Heavy Duty

has three knurled bands on the nozzles and three rings on the contact tips.



### Extended Taper

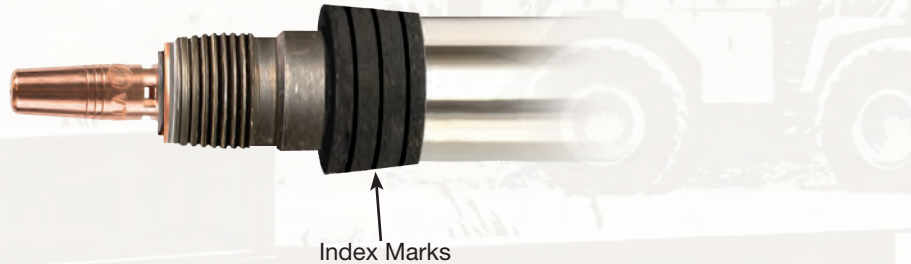
has four knurled bands on the nozzles and four rings on the contact tips.



## Flushness Relationship - Using the Adjustable Slip Nozzle



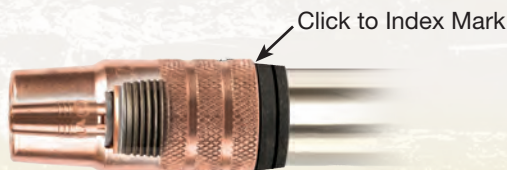
Adjustable Slip Nozzle



Index Marks

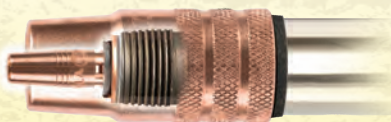


Recessed



Flush

Click to Index Mark



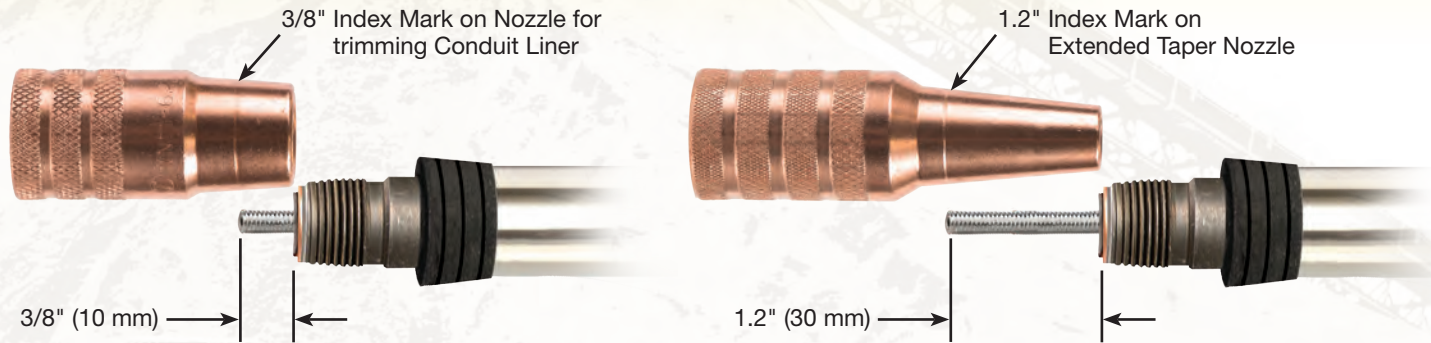
Protruding

One of the Velocity consumable offerings is the Adjustable Slip Nozzle that provides positive indexing to all positions whether you require recessed, flush or protruding tips. The nozzle clicks into place just by sliding to the index marks on the collar of the conductor tube. Each index mark allows the operator to adjust the tip by 1/8" increments.



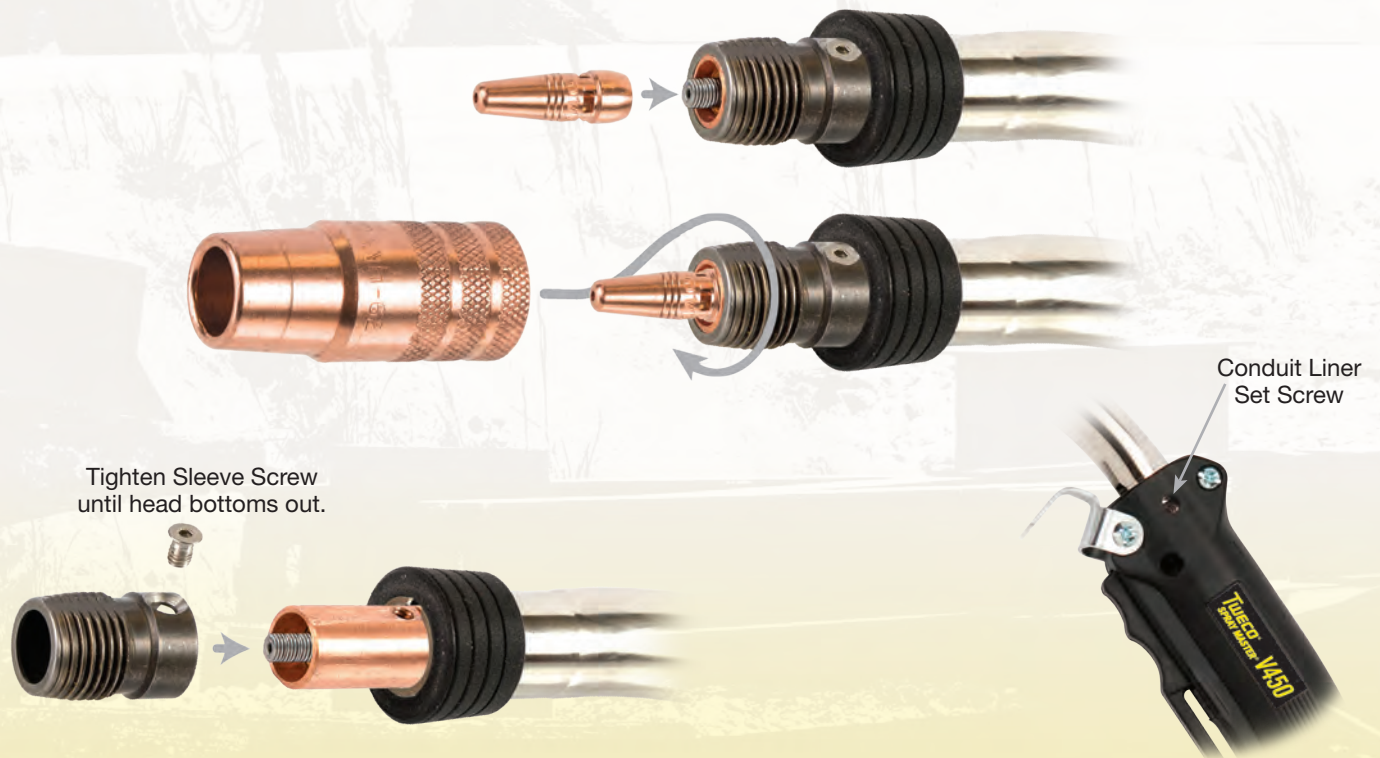
# Velocity™ Consumables Optimum Performance Setup

All Velocity nozzles have an index mark that can be used for trimming the conduit liner to the proper length of 3/8" (10 mm) from the end of threaded stainless sleeve. The only exception is for Velocity Extended Taper which requires the conduit liner to be trimmed 1.2" (30 mm) protruding from the conductor tube.



## Securing the Consumables - No Tools Required

The nozzle assembly holds the contact tip in position. Slide the contact tip into the copper conductor tube seat, then engage the nozzle assembly and the stainless steel sleeve and tighten by hand to secure the contact tip. The sleeve screw is **NOT** for setting or locking the conduit liner. Depending on which Tweco® MIG Gun you have, the conduit liner set screw is accessed through an alternate location.\*



**Velocity™ Consumables** Wire Process Charts

<b>TWECO</b> AN ESAB BRAND		<b>AMP OUTPUT</b>					
		30 – 100	100 – 200	200 – 300	300 – 400	> 400	> 500
<b>SOLID WIRE SIZE</b>	.023" 0.6 mm	Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed					
	.030" 0.8 mm		Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed				
	.035" 0.9 mm		Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed				
	.040" 1.0 mm		Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed				
	.045" 1.2 mm			Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed Argon or Argon / Helium Mixed			
	.052" 1.3 mm				Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed Argon or Argon / Helium Mixed		
	1/16" 1.6 mm				Straight CO <sub>2</sub> Argon / CO <sub>2</sub> Mixed Argon or Argon / Helium Mixed		

<b>TWECO</b> AN ESAB BRAND		<b>AMP OUTPUT</b>					
		30 – 100	100 – 200	200 – 300	300 – 400	400 – 500	> 500
<b>FLUX CORE WIRE SIZE</b>	.030" 0.8 mm	Self Shielded					
	.035" 0.9 mm	Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed					
	.040" 1.0 mm	Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed					
	.045" 1.2 mm	Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed					
	.052" 1.3 mm		CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				
	1/16" 1.6 mm		Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				
	5/64" 2.0 mm		Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				
	3/32" 2.4 mm		Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				
	7/64" 2.8 mm		Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				
	1/8" 3.2 mm		Self Shielded CO <sub>2</sub> or Argon / CO <sub>2</sub> Mixed				

# Velocity™ Consumables Ordering Information

Medium Duty Contact Tips			Heavy Duty Contact Tips			Extended Taper Contact Tips		
Part No.	Description	Stock No.	Part No.	Description	Stock No.	Part No.	Description	Stock No.
<b>VTM23</b>	.023" (0.6 mm)	1160-1750	<b>VTH30</b>	.030" (0.8 mm)	1160-1760	<b>VTET30</b>	.030" (0.8 mm)	1160-1772
<b>VTM30</b>	.030" (0.8 mm)	1160-1751	<b>VTH35</b>	.035" (0.9 mm)	1160-1761	<b>VTET35</b>	.035" (0.9 mm)	1160-1773
<b>VTM35</b>	.035" (0.9 mm)	1160-1752	<b>VTH40</b>	.040" (1.0 mm)	1160-1762	<b>VTET40</b>	.040" (1.0 mm)	1160-1774
<b>VTM40</b>	.040" (1.0 mm)	1160-1753	<b>VTH45</b>	.045" (1.2 mm)	1160-1763	<b>VTET45</b>	.045" (1.2 mm)	1160-1775
<b>VTM45</b>	.045" (1.2 mm)	1160-1754	<b>VTHA364*</b>	3/64" (1.2 mm)*	1160-1764	<b>VTETA364*</b>	3/64" (1.2 mm)*	1160-1776
<b>VTMA364*</b>	3/64" (1.2 mm)*	1160-1755	<b>VTH52</b>	.052" (1.3 mm)	1160-1765	<b>VTET52</b>	.052" (1.3 mm)	1160-1777
<b>VTM52</b>	.052" (1.3 mm)	1160-1756	<b>VTH116</b>	1/16" (1.6 mm)	1160-1766	<b>VTET116</b>	1/16" (1.6 mm)	1160-1778
<b>VTM116</b>	1/16" (1.6 mm)	1160-1757	<b>VTHA116*</b>	1/16" (1.6 mm)*	1160-1767			
<b>VTMA116*</b>	1/16" (1.6 mm)*	1160-1758	<b>VTH564</b>	5/64" (2.0 mm)	1160-1768			
<b>VTM564</b>	5/64" (2.0 mm)	1160-1759	<b>VTH332</b>	3/32" (2.4 mm)	1160-1769			
			<b>VTH764</b>	7/64" (2.8 mm)	1160-1770			
			<b>VTH18</b>	1/8" (3.2 mm)	1160-1771			

\* For Aluminum Wire

Medium Duty Nozzles			Heavy Duty Nozzles		
Part No.	Description	Stock No.	Part No.	Description	Stock No.
<b>VNM50F</b>	1/2" Threaded Nozzle Flush	1240-1856	<b>VNH62</b>	5/8" Threaded Nozzle Recess	1240-1877
<b>VNM62</b>	5/8" Threaded Nozzle Recess	1240-1854	<b>VNH62F</b>	5/8" Threaded Nozzle Flush	1240-1878
<b>VNM62F</b>	5/8" Threaded Nozzle Flush	1240-1855	<b>VNH75</b>	3/4" Threaded Nozzle Recess	1240-1875
<b>VNM75</b>	3/4" Threaded Nozzle Recess	1240-1852	<b>VNH75F</b>	3/4" Threaded Nozzle Flush	1240-1876
<b>VNM75F</b>	3/4" Threaded Nozzle Flush	1240-1853	<b>VNH62S</b>	5/8" Slip Nozzle	1240-1893
<b>VNM50S</b>	1/2" Slip Nozzle	1240-1859	<b>VNH75S</b>	3/4" Slip Nozzle	1240-1894
<b>VNM62S</b>	5/8" Slip Nozzle	1240-1860	<b>VNS</b>	Slip Nozzle Base	1240-1864
<b>VNM75S</b>	3/4" Slip Nozzle	1240-1863	<b>VNH62SC</b>	5/8" Slip Nozzle Cone Only	1240-1895
<b>VNS</b>	Slip Nozzle Base	1240-1864	<b>VNH75SC</b>	3/4" Slip Nozzle Cone Only	1240-1896
<b>VNM50SC</b>	1/2" Slip Nozzle Cone Only	1240-1861	<b>VNH622PC</b>	5/8" 2 Piece Nozzle Assembly Recess	1240-1880
<b>VNM62SC</b>	5/8" Slip Nozzle Cone Only	1240-1862	<b>VNH62C</b>	5/8" 2 Piece Nozzle Cone Only Recess	1240-1884
<b>VNM75SC</b>	3/4" Slip Nozzle Cone Only	1240-1865	<b>VNH62F2PC</b>	5/8" 2 Piece Nozzle Assembly Flush	1240-1881
<b>VNLFC</b>	Flux Core Nozzle	1240-1892	<b>VNH62FC</b>	5/8" 2 Piece Nozzle Cone Only Flush	1240-1885
<b>VNM62FAS</b>	5/8" Spot Nozzle	1240-1866	<b>VNH752PC</b>	3/4" 2 Piece Nozzle Assembly Recess	1240-1882
<b>VNM75FAS</b>	3/4" Spot Nozzle	1240-1868	<b>VNH75C</b>	3/4" 2 Piece Nozzle Cone Only Recess	1240-1886
<b>Extended Taper Nozzle</b>			<b>VNH75F2PC</b>	3/4" 2 Piece Nozzle Assembly Flush	1240-1883
<b>VNET37F</b>	Extended Taper Nozzle	1240-1897	<b>VNH75FC</b>	3/4" 2 Piece Nozzle Cone Only Flush	1240-1887

NOTE: All Contact Tips are packaged in quantities of ten (10) per bag and all Nozzles are packaged in quantities of two (2) per bag.

Velocity conductor tubes or 'goose-necks' include these components, held in place and protected by a heat-treated, super-hardened, threaded stainless sleeve. You will not need to replace these parts as often, typically last far longer than the contact tip or nozzle.

**Threaded Stainless Sleeve**  
Part # VCTLSSL



**Nozzle Collar**  
Part # VCTLSLK



**Wave Spring**  
Part # VCTLSPR



**Retaining Ring**  
Part # PMA64RS



**Sleeve Screw**  
Part # VCT41CS



**Conductor Tube**  
Part # SMVCT45 or SMVCT60



Miscellaneous Components And Service Parts					
Part No.	Description	Stock No.	Part No.	Description	Stock No.
<b>VCTLSSL</b>	Threaded Stainless Sleeve	1640-1397	<b>41CS</b>	Liner Set Screw	2040-2047
<b>VCTLSLK</b>	Nozzle Collar	1640-1398	<b>SMVCT45</b>	45° Conductor Tube Assembly	1240-1373
<b>VCTLSPR</b>	Wave Spring	1640-1399	<b>SMVCT60</b>	60° Conductor Tube Assembly	1240-1374
<b>PMA64RS</b>	Retaining Ring	1640-1396	<b>SMVCT60LM</b>	60° Conductor Tube Long Reach Assembly	1640-1374
<b>VCT41CS</b>	Sleeve Screw	2040-2048	<b>94-710-036</b>	O-Ring Seal	9471-0036

For additional information refer to our catalog or visit us online at [Tweco.com](http://Tweco.com)

