



# DMV 304LMC

## 1. Applications

- Fittings and Valves:  
Bodies and components for pipe and tube fittings
- Pump components:  
Pump shafts and impellers that handle corrosive fluids.
- Bushings and Sleeves:  
Processing equipment components.

Carbon <b>C</b> ≤ 0.03	Chromium <b>Cr</b> 18.5	Nickel <b>Ni</b> 9
<b>IMCO®</b>		
Sulfur <b>S</b> ≤ 0.03		

Chemical composition nominal %

IMCO® Designation	DMV Designation	USA	Europe EN 10216-5			Others		
		UNS	Designation (grade)	Standard ASTM	Steel No.	Designation	Standard (SS)	Standard (BS)
IMCO® 304L	DMV 304LMC	S 30403	MT 304L (TP 304L)	A 511 A (312)	1.4307	X2CrNi18.9	2352	304S 11

## 2. Main Features

DMV 304LMC is an austenitic chromium-nickel steel with improved machinability using IMCO® technology.

## 3. Standards

- ASTM: MT 304L
- UNS: S30400, S30403
- EN Number: 1.4301, 1.4307
- EN Name: X5CrNi18-10, X2CrNi18-9
- JIS: SUS304TKA

Product standards with applicability:

- EN 10216-5, EN 10297-2, EN 10294-2
- ASTM A511

## 3.2 Chemical Composition

DMV 304LMC typical values:

	Weight
<b>C</b>	≤ 0.03
<b>Si</b>	≤ 1.00
<b>Mn</b>	≤ 2.00
<b>P</b>	≤ 0.040
<b>S</b>	0.015 to 0.030
<b>Cr</b>	17.5 to 19.5
<b>Ni</b>	8.0-10.0

## 3.3 Mechanical Properties

Tensile Strength (Rm)		Yield Strength (Rp0.2)		Elongation (RA5)
MPa	ksi	MPa	ksi	(in 50 mm gauge length)
460 to 680	70-102	min. 180	25-30	≥ 40%

## 3.4 Physical properties

Density	
g/cm <sup>3</sup>	lbs / in <sup>3</sup>
7.9	0.29

Thermal Conductivity			
Temp °C	W/m °C	Temp °F	Btu/ft h °F
20	15	68	8.5

Specific heat capacity			
Temp °C	J/kg °C	Temp °F	Btu/lb °F
20	475	68	0.11

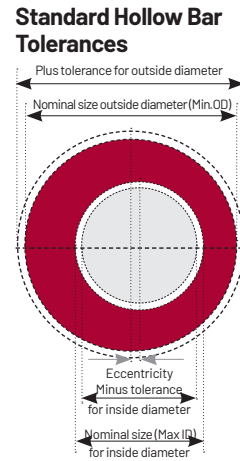
( ) = calculated values

## 3.5 Machining

IMCO® Grades: as an integrated manufacturer within the COGNE group we control the non-metallic inclusions to give them characteristics that improve the machinability. We convert the inclusions from hard, abrasive particles to softer self-lubricating particles without comprising important aspects such as corrosion resistance.

# The diagram gives a general idea of the production related tolerances for Hollow Bar

Outside diameter range mm	Dimensional tolerances			
	For the outside diameter  D	For the inside diameter  d	For eccentricity (centre offset) E	For out-of-straightness  h
32 # D # 275	-0/+2% (min. 1 mm)	+0/-2% (min. 1 mm)	10%	1 mm/m



Outside diameter range mm	Machining allowances	
	For the outside diameter	For the inside diameter
32 # D # 70	1.0 mm	1.0 mm
70 # D # 132	1.0 mm	1.0 mm
132 # D # 200	1.0 mm	2.0 mm
200 # D # 275	1.0 mm	2.0 mm

Note: The machining allowances are recommended minimum values and are related to short-length mechanical parts (L < 2.5 x D, max. 250mm). Machining allowances for longer parts or special machining procedures can be customised. Machining allowances when ordering Mechanical Tubing to ASTM A 511 are different to those for Hollow Bar.

## IMCO® – Machinability trials prove enhanced performance

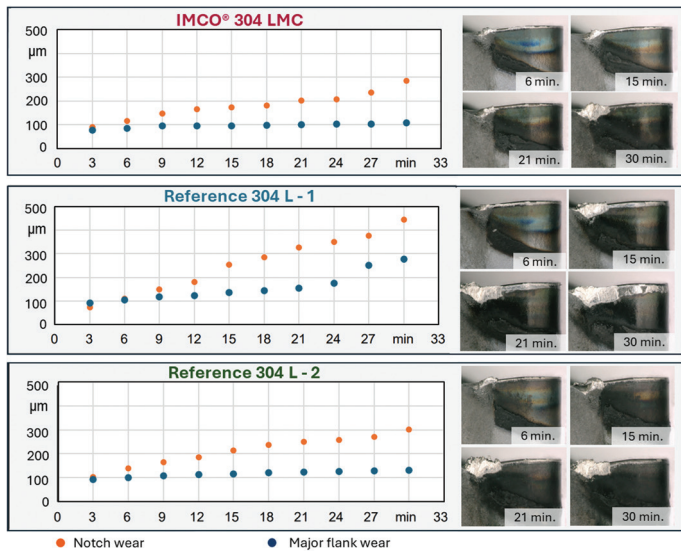
To evaluate the performance of the newly developed IMCO® material, we conducted comparative tests with two other materials that are also marketed for their improved machinability. The following figures present the results of our tests, providing insight into the performance of IMCO®. For these trials, each material was tested under identical machining conditions for 30 minutes. Every three minutes, an analysis was conducted to assess cutting forces and tool wear.

### IMCO® – Reduced Tool Wear

The test results clearly demonstrate that IMCO® leads to significantly lower tool wear compared to other materials. Measurements were taken at the main cutting edge, focusing on flank wear and notch wear.

Key Benefits:

- Increased machining productivity
- Reduced production costs and production time
- Lower tooling costs
- Shorter chips and improved chip formation

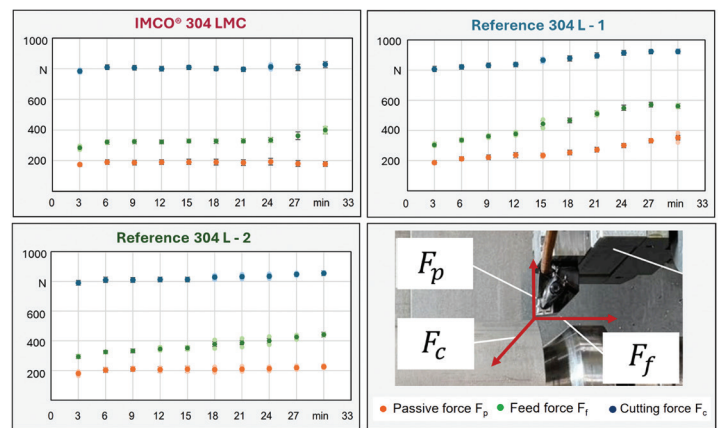


### IMCO® – Optimized Machinability with Reduced Cutting Forces

The use of IMCO® results in significantly lower cutting forces compared to reference materials of grade 304L. This reduction applies to cutting force, feed force, and passive force.

Key Benefits:

- Reduced static and dynamic loads on the machine tool
- Improved dimensional accuracy due to minimized machine element deflection
- Lower residual stresses in the workpiece after machining
- Reduced thermomechanical stress



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## Material solutions and tube expertise

DMV  
tubes@dmvtubes.com  
Tel. +49 208 458 01  
www.dmv tubes.com

