

# HiMo88®



**The Energy of**

for all users of **A4-80/A4L80 316L**  
**Stainless Steel Fasteners**



[www.ts-fasteners.net](http://www.ts-fasteners.net)  
[www.himo88.net](http://www.himo88.net)



# High Strength Stainless Steel Fasteners

Stainless steels are well known for their excellent corrosion resistance. The austenitic 300 and A2 series are covered by ASTM Specification F593/594 and ISO 3506. Both series are essentially 18-8 (18% chromium and 8% nickel) materials, with compositions very close to the nominal composition of Type 304/A2. If an application calls for a material with better corrosion resistant properties, type 316/A4 are the next logical choice. Type 316/A4 stainless steel is a higher alloyed material containing a minimum of 2% molybdenum, which provides better pitting and crevice corrosion-resistant properties, especially in environments containing chlorides. For high temperature or high pressure services and other special purpose applications, the B8 and B8M classes of stainless steel alloys are specified in ASTM A193/193M for bolts and ASTM A194/194M for corresponding nuts.

Higher corrosion resistance is achieved by a special steel alloy that has reduced carbon and increased molybdenum of minimum 2.5%. It is called High Molybdenum or just HiMo/HiMo+.

In modern construction there is not only a demand for high corrosion resistance, but also a demand for fasteners with increasing properties of strength, like SAE grade 5 or metric class 8.8/8 (according ISO 898). In the past poor corrosion resistance in aggressive environments has always been a big disadvantage for these types of steels.

But now there is **TS HiMo88®** – another product for maximum performance and high strength stainless steel grade for Fasteners.

With the perfect combination of superior corrosion resistance and high strength like 8.8 (higher than A4-80) **TS HiMo88®** is the perfect choice for all applications related to water, aggressive liquids, vibration, high pressure as well as applications in marine environments.

## Steel Comparison Data

Grade	Standard	C %	Cr %	Ni %	Mo %	Cu %
		max.				max.
A4-70	ISO 3506	0.08	16.0 – 18.5	10.0 – 15.0	2.0 – 3.0	4.0
A4-80	ISO 3506	0.08	16.0 – 18.5	10.0 – 15.0	2.0 – 3.0	4.0
316/316L	ASTM/AISI/UNS	0.08/0.03	16.0 – 18.0	10.0 – 14.0	2.0 – 3.0	n/a
A193-B8M	ASTM A193/A194	0.08	16.0 – 18.0	10.0 – 14.0	2.0 – 3.0	n/a
Bumax88®	Bufab trademark	0.03	16.5 – 18.0	11.0 – 14.0	2.5 – 3.0	0.6
<b>HiMo88®</b>	<b>TS trademark</b>	<b>0.03</b>	<b>17.0 – 18.0</b>	<b>12.5 – 14.0</b>	<b>2.5 – 3.0</b>	<b>0.4</b>

## Mechanical properties and PRE-values

Grade	Standard	Tensile	Yield	PREN
		MPa min	MPa min	min
SAE Gr 5/8.8	ISO 898	800	640	0.00
A4-70	ISO 3506	700	450	22.60
A4-80	ISO 3506	800	600	22.60
316/316L	ASTM/AISI/UNS	750	300	22.60
B8M2 (<M20)	ASTM A193/A194	760	655	22.60
Bumax88®	Bufab trademark	800	640	24.75
<b>HiMo88®</b>	<b>TS trademark</b>	<b>800</b>	<b>655</b>	<b>25.25</b>

PREN = Pitting Resistance Equivalent Number = %Cr + 3.3x %Mo  
(for e.g. HiMo88® = 17%Cr + 3.3x 2.5%Mo = 25.25)

## Product Range TS HiMo88®

- ISO 4017 Hex head screws: M 8 to M 20
- ISO 4032 Hexagon nuts: M 6 to M 20
- ISO 7089 Flat washers HV250: 8 to 20
- ISO 10642 Countersunk hex screws M 6 to M 12
- DIN 938/939 Engineering studs: up to M 30
- DIN 975/976 Threaded bars and studbolts: up to M 30
- Raw material up to 30mm diameter available to manufacture numerous parts according to various standards and drawings on request

## Benefits of HiMo fasteners and the TS HiMo88®

- Superior resistance to corrosion
- **TS HiMo88®** can replace Grade 5 or class 8.8/8
- Higher strength in fasteners tends to result in lower weights
- For low and high temperature applications from -200 to +400 °C
- Non-magnetic (permeability <1.01)
- Full traceability and certificates EN 10204/3.1 available
- Triple certifications and marking available (e.g. HiMo88 A4L-316L80)
- Approval for Pressure Vessel applications according PED 2014/68/EU optional

## TS HiMo88® a secure connection for many applications

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