



A REPUTATION FORGED IN

STEEL



PRODUCTION & TECHNOLOGY

As Zambia's largest integrated iron and steel manufacturer and one of the leading producers in Sub-Saharan Africa, UMCIL specializes in the manufacturing of High Tensile Steel rebars using advanced TMT technology in compliance with the **British Standards BS-4449:2005 & SANS 920:2011 & ZABS 433 Grade 500 B**.

UMCIL is also the first Zambian manufacturer to produce steel bars using iron ore from our own mines. 70% of our total iron in iron ore is sourced from our proprietary mines, providing exceptionally high-quality raw material for sponge iron production. In the Direct Reduced Iron (DRI) process, a combination of iron ore, coal, and dolomite is introduced into the tunnel kiln furnace, resulting in the creation of sponge iron. The produced DRI is of premium quality, boasting a metallic iron content of 88%.

UMCIL's manufacturing process is cutting-edge and beginnings with the melting of DRI and recyclable steel in the electric arc furnace. The molten raw steel is then further refined in a ladle furnace, ensuring that we produce the finest steel billets, as per the BS specifications, to roll the steel bars. All while marked under the UMZ Brand, with 500 UMZ 500 rebars being our flagship product.

UMCIL's dedication to stringent quality processes and checks has earned us an ISO 9001: 2015 accreditation and recognition from the **South Africa Bureau of Standards (SABS)** and the **Zambian Bureau of Standards (ZABS)** as a trusted manufacturer of quality TMT re-bars in Zambia. Making UMCIL'S high-quality steel range ideal for the high demands of the contraction & engineering sector.





PRODUCT EXCELLENCE

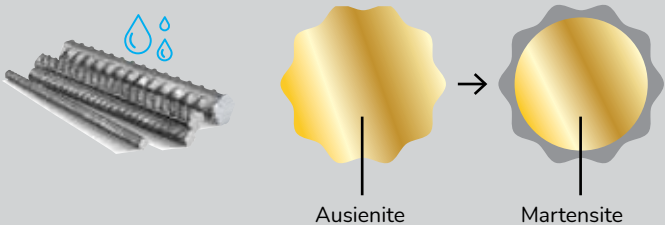
UMCIL uses Thermo Mechanically Treated (TMT) technology in the manufacturing of our UMZ 500 rebars, a cutting-edge approach to enhance the performance of the rebars.

A significant leap forward in the production of high-quality steel products, TMT involves subjecting steel bars to a precise and controlled process of heating and rapid cooling, resulting in a unique microstructure that imparts exceptional strength and durability to the finished product. The rebars are hot rolled before entering these 3 stages.



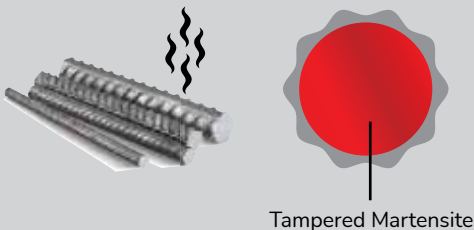
QUENCHING

Plays a pivotal role in the production of rebars, contributing to the enhancement of their strength and durability. This rapid cooling alters the microstructure of the steel resulting in a hardened surface layer. It not only enhances the strength of rebars but also imparts other favorable characteristics, such as improved wear resistance and corrosion resistance.



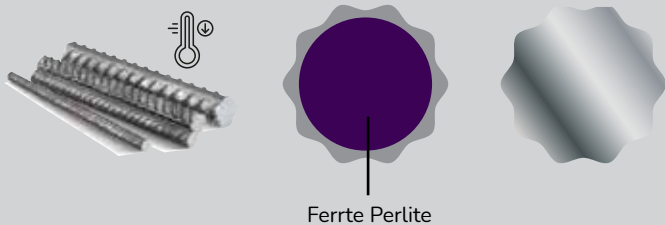
SELF TEMPERING

Involves a unique heat treatment process during rebar production, where the bars are subjected to controlled cooling immediately after the hot-rolling stage. This process allows the rebar to undergo a self-tempering effect, optimizing the mechanical properties of the steel. One of the key advantages of self-tempering is its ability to produce rebars with a more uniform and refined microstructure. This fine-grained structure contributes to improved weldability and bendability.



COOLING

The cooling phase stands out as a pivotal step, influencing the structural integrity and performance of the final product. Precision in the cooling process is crucial, influencing factors such as the microstructure, strength, and overall durability of the rebars.

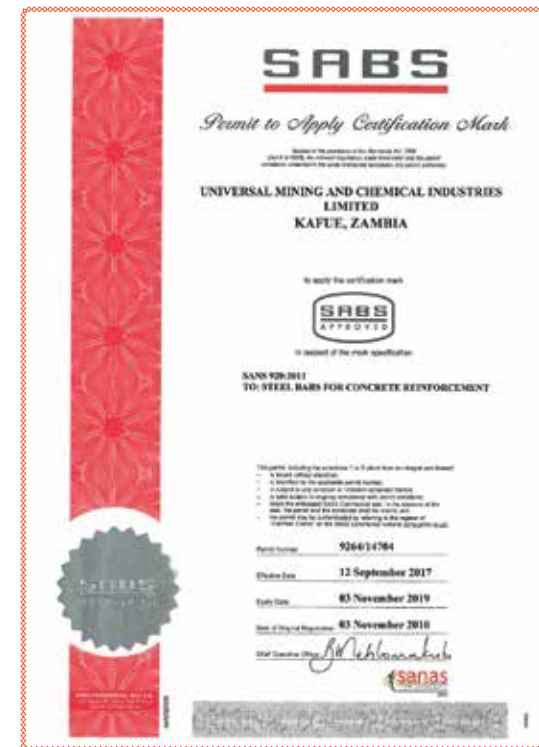


UMZ 500 TMT



PRODUCT CERTIFICATION & ASSURANCE

- All the UMCIL products are developed in compliance with **SANS 920:2011** and **ZS 433:2005** Standard
- UMCIL's Quality Assurance System is **ISO 9001:2015** accredited



PRODUCT FEATURES

Features that sets UMZ 500 TMT apart making it the preferred option.



EXCELLENT BONDING

UMZ 500 TMT has precise, uniform, and parallel rib patterns engraved through precision computer-controlled notch-making machines. This design ensures exceptional grip on concrete, enhancing overall structural reliability.



EXCELLENT BENDABILITY

UMZ 500 TMT with its unique microstructure and soft core of rebar possesses an outstanding bendability feature without compromising its high strength. These bars can be easily bent to precise angles as required by the design.



SUPERIOR WELDABILITY

UMZ 500 TMT due to its low carbon content offers superior weldability allowing for a quicker and simpler welding process without the need for preheating. This contributes to the creation of stronger and safer welding joints.



CORROSION RESISTANT

UMZ 500 TMT is produced by TMT technology, Micro-alloying is a precise process where small amounts of Chromium, Molybdenum, and Copper are added to the steel during its production. The TMT process, which involves controlled cooling after hot rolling, further optimizes the microstructure and properties of the steel, which provides a better corrosion-resistant property compared to other TMT rebars.



EARTHQUAKE RESISTANT

UMZ 500 TMT is designed with heightened ductility to withstand cyclic loads, which makes these rebars ideal for earthquake-prone regions. It meets the UTS/YS ratio (Ultimate tensile strength to Yield strength) while offering a significant elongation percentage.



FIRE RESISTANT

UMZ 500 TMT with its consistent and thick tempered martensitic rim layer on the outer surface equips it with an elevated capacity to retain strength even at elevated temperatures. This property makes it resilient in fire-prone situations.



MARK OF AUTHENTICITY

Inspect the rebars for the **UMZ 500 TMT** marking to verify that you are purchasing the authentic steel bar produced by UMCIL.



UMZ 500 TMT

Steel rebars are the lifeline of construction, where resilience is woven into every reinforced strand. In the crucible of building dreams, these unyielding bars stand as a testament to the enduring strength that underpins our aspirations, shaping structures that reach for the sky while remaining rooted in the unbreakable. Thermo-mechanically treated (TMT) bars play a crucial role in ensuring the structural integrity of reinforced concrete constructions.

Choosing High Tensile UMZ 500 TMT rebars for your structure is a commitment to excellence. With an unwavering dedication to quality standards and an impeccable manufacturing procedure, UMZ 500 TMT rebars stand as the epitome of reliability, ensuring your project is built on a foundation of precision and durability.

CHEMICAL PROPERTIES

Standard	Grade	% C (±0.02)	% S (±0.005)	% P (±0.005)	% Ce (±0.03)
SANS 920:2011	Mild Steel	0.30 Max	0.060 Max	0.060 Max	
SANS 920:2011	High-Yield Stress Steel	0.30 Max	0.060 Max	0.050 Max	0.51 Max
500 UMZ	Mild Steel	0.24 Max	0.035 Max	0.035 Max	0.40 Max

MECHANICAL PROPERTIES

	Yield Strength	Tensile Strength	Elongation	Mandrel Diameter
Specification	(Min.) [MPa]	(min.) [MPa]	(min. [%])	For 180° Bend Test
ZS 433:2005 275-460 Mpa	275-450	>1,10xActual Yield Strength	16	3D and Re-bend 5d
SANS 920:2011 450 MPa	450	>1,15xActual Yield Strength	14	3D and Re-bend 5d
*BS 4449:1997 460 B	460	>1,10xActual Yield Strength	12	3D and Re-bend 5d
*BS 4449:2005 Gr B500B	500-650	>1,08xActual Yield Strength	Agt =5Min.	Re-bend </=16 4D
500 UMZ	450	>1,15xActual Yield Strength	14	3D and Re-bend 5d

PRODUCT SIZES:

- Diameter Produced (mm): **8,10,12,16,20, 23,32.**
- Length Produced (Mtr) : **6, 12, 13.**

PRODUCT PACKAGING:

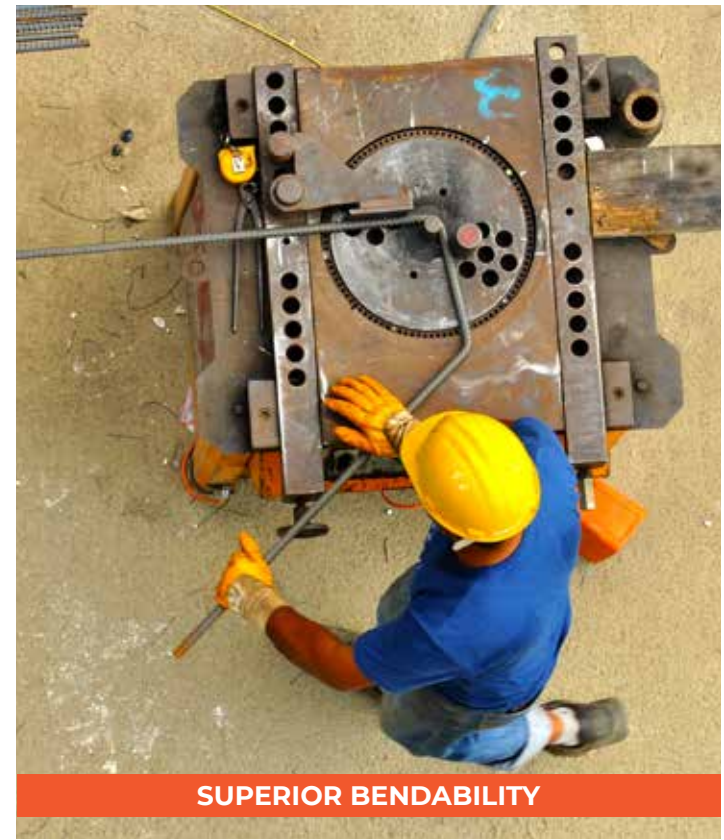
- Packaged in unfolded /straight bundles weighing up to 2 MT and tolerance in the length is -0, +50mm.
- Bundles containing a standard number of bars per size and length are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating, Trade Name, Date of Production, Batch No / Heat No, Size of the rebar, Number of Pieces, and Weight of the Bundle.



EXCELLENT BONDING



BETTER WELDABILITY



SUPERIOR BENDABILITY

Bar Size	Cross Section Area	Mass Per Length (Kg/M)	One Bar Mass	Number Of Pcs/Mt (6 Mtr)	Number Of Pcs/Mt (12 Mtr)	Number Of Pcs/Mt (13 Mtr)
Mm	Mm2	Kg/M	Kg/M	Pcs/2mt	Pcs/2mt	Pcs/Mt
8	50.29	0.395	4.73	844	422	390
10	78.57	0.617	7.40	540	270	250
12	113.14	0.888	10.66	376	188	174
16	201.14	1.58	18.96	212	106	98
20	314.29	2.47	29.64	136	68	69
25	491.07	3.85	46.25	88	44	40
32	804.57	6.31	75.76	53	26	24

ANGLES

PRODUCT PACKAGING

- Packaged in unfolded /straight bundles weighing up to 2 MT
- Bundles containing a standard number of angles per the size are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating Trade Name, Date of Production, Batch No / Heat No, Size of the angles, Number of Pieces, and Weight of the Bundle.



CHEMICAL PROPERTIES

STANDARD		% C	% Mn	% S	% P	% Cu	% CE
SANS 50025-1-2-3:2009	S275JR	0.24 Max	1.60 Max	0.045 Max	0.045 Max	0.60 Max	0.40 Max
SANS 50025-1-2-3:2009	S355JR	0.27 Max	1.70 Max	0.045 Max	0.045 Max	0.60 Max	0.45 Max
UMCIL	S275JR	0.20 Max	1.60 Max	0.040 Max	0.040 Max	0.50 Max	0.40 Max
UMCIL	S355JR	0.24 Max	1.60 Max	0.040 Max	0.040 Max	0.50 Max	0.45 Max

MECHANICAL PROPERTIES

Specification	Grade	Yield Strength (Min.) [MPa]	Tensile Strength (min.) [MPa]	Elongation (min. [%])
SANS 50025-1-2-3:2009	S275JR	275	410/560	23
SANS 50025-1-2-3:2009	S355JR	355	470/630	22
UMCIL	S275JR	275	410/560	23
UMCIL	S355JR	355	470/630	22

WEIGHT CHART

Standard Size	Standard Weight/m	13 Meter Pieces/ 2 Ton	12 Meter Pieces/2 Ton	6 Meter Pieces/2 Ton
A40X40X3	1.84	83	90	180
A40X40X4	2.42	64	70	140
A40X40X5	2.97	52	57	114
A40X40X6	3.52	44	48	96
A50X50X3	2.36	65	70	140
A50X50X4	3.06	50	55	110
A50X50X5	3.77	41	45	90
A50X50X6	4.47	35	38	76
A60X60X5	4.57	34	37	74
A60X60X6	5.42	29	31	62
A60X60X8	7.09	22	24	48
A70X70X5	5.38	29	31	62
A70X70X6	6.38	24	26	52
A70X70X8	8.36	18	20	40
A80X80X6	7.34	21	23	46
A80X80X8	9.63	16	18	36



CHANNELS

PRODUCT PACKAGING

- Packaged in unfolded /straight bundles weighing up to 2 MT
- Bundles containing a standard number of angles per size are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating, Trade Name, Date of Production, Batch No / Heat No, Size of the angles, Number of Pieces, and Weight of the Bundle.

CHEMICAL PROPERTIES

STANDARD		% C	% Mn	% S	% P	% Cu	% CE
SANS 50025-1-2-3:2009	S275JR	0.24 Max	1.60 Max	0.045 Max	0.045 Max	0.60 Max	0.40 Max
SANS 50025-1-2-3:2009	S355JR	0.27 Max	1.70 Max	0.045 Max	0.045 Max	0.60 Max	0.45 Max
UMCIL	S275JR	0.20 Max	1.60 Max	0.040 Max	0.040 Max	0.50 Max	0.40 Max
UMCIL	S355JR	0.24 Max	1.60 Max	0.040 Max	0.040 Max	0.50 Max	0.45 Max

MECHANICAL PROPERTIES

Specification	Grade	Yield Strength (Min.) [MPa]	Tensile Strength (min.) [MPa]	Elongation (min. [%]
SANS 50025-1-2-3:2009	S275JR	275	410/560	23
SANS 50025-1-2-3:2009	S355JR	355	470/630	22
UMCIL	S275JR	275	410/560	23
UMCIL	S355JR	355	470/630	22

WEIGHT CHART

Standard Size	Standard Weight/m	13 Meter Pieces/ 2 Ton	12 Meter Pieces/2 Ton	6 Meter Pieces/2 Ton
LC 76X38	5.70	27	29	59
HC 76X38	6.70	23	25	50
LC 100X50	8.80	18	19	38



WINDOW SECTION

PRODUCT PACKAGING

- Packaged in unfolded /straight bundles weighing up to 2 MT
- Bundles containing a standard number of angles per size are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating, Trade Name, Date of Production, Batch No / Heat No, Size of the angles, Number of Pieces, and Weight of the Bundle.



CHEMICAL PROPERTIES

STANDARD		% C	% Mn	% S	% P	% Cu	% CE
UMCIL	0.30 Max	1.00 Max	0.060 Max	0.060 Max	0.50 Max	0.45 Max	0.40 Max

MECHANICAL PROPERTIES

Specification	Grade	Yield Strength (Min.) [MPa]	Tensile Strength (min.) [MPa]	Elongation (min. [%]
UMCIL	275	410	23	22

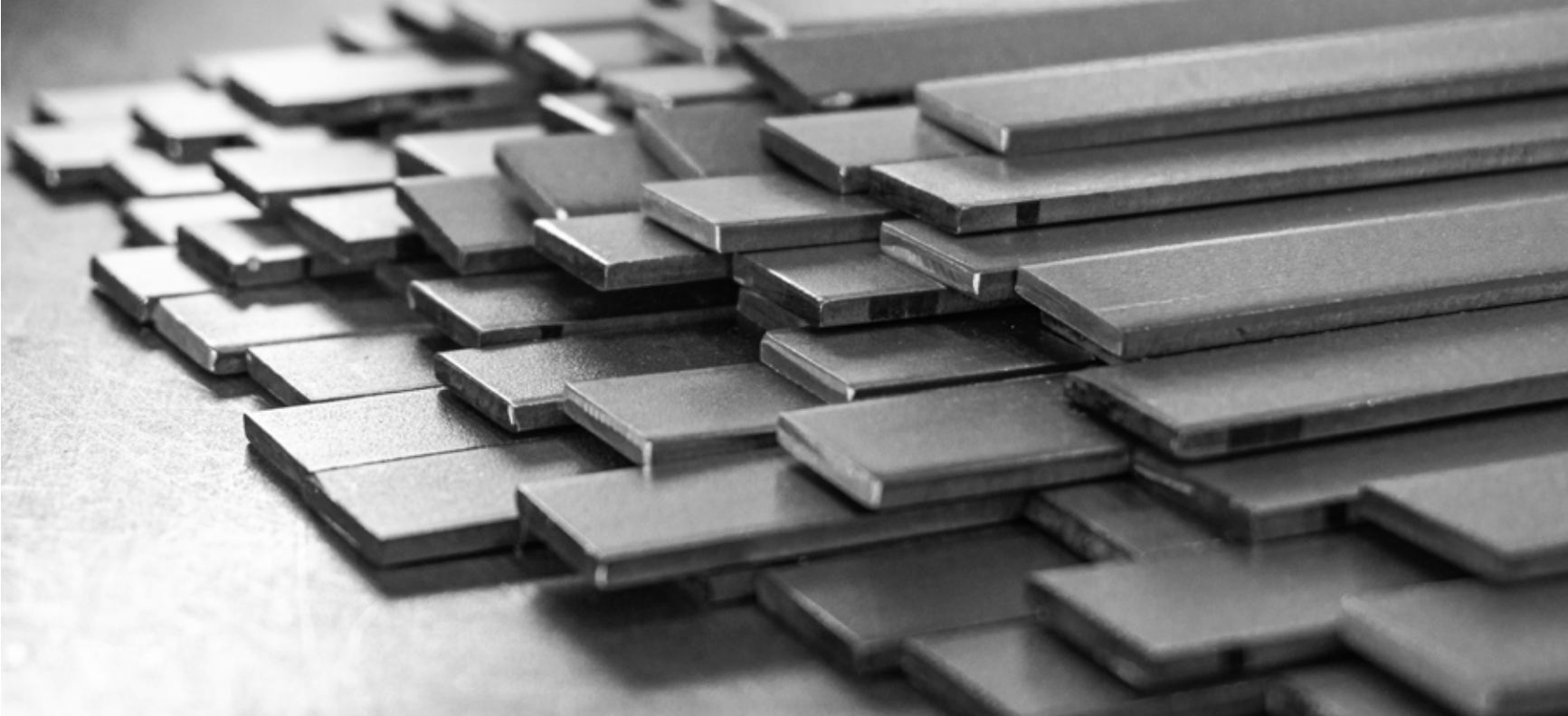
WEIGHT CHART

Standard Size	Pieces/2 Ton (length - 6mtr)	Standard Weight/m	Tolerance (%) on Mass/per pc	Section Size (mm)	Tolerance (mm)	Section Width (mm)	Tolerance (mm)
RT-6	375	0.89	±6%	≤20	-2	≤5	±0.40
L-F7	330	1.01	±6%	≤20	±0.8	≤25	±0.40
L-Fx7	256	1.31	±6%	≤20	±0.8	≤25	±0.40

FLAT BAR

PRODUCT PACKAGING

- Packaged in unfolded /straight bundles weighing up to 2 MT
- Bundles containing a standard number of angles per size are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating, Trade Name, Date of Production, Batch No / Heat No, Size of the angles, Number of Pieces, and Weight of the Bundle.



CHEMICAL PROPERTIES

STANDARD		% C	% Mn	% S	% P	% Cu	% CE
UMCIL	0.30 Max	1.00 Max	0.060 Max	0.060 Max	0.50 Max	0.45 Max	0.40 Max

MECHANICAL PROPERTIES

Specification	Grade	Yield Strength (Min.) [MPa]	Tensile Strength (min.) [MPa]	Elongation (min. [%]
UMCIL	275	410	23	22

WEIGHT CHART

Standard Size	Pieces/2 Ton (length - 6mtr)	Standard Weight/m	Tolerance (%) on Mass/per pc	Section Size (mm)	Tolerance (mm)	Section Width (mm)	Tolerance (mm)
RT-6	375	0.89	±6%	≤20	-2	≤5	±0.40
L-F7	330	1.01	±6%	≤20	±0.8	≤25	±0.40
L-Fx7	256	1.31	±6%	≤20	±0.8	≤25	±0.40

ROUND BAR

PRODUCT PACKAGING

- Packaged in unfolded /straight bundles weighing up to 2 MT
- Bundles containing a standard number of angles per size are securely tied with wire ties at every 2.4 Mtr interval (5 ties).
- Each bundle is identified with a metal label indicating, Trade Name, Date of Production, Batch No / Heat No, Size of the angles, Number of Pieces, and Weight of the Bundle.



CHEMICAL PROPERTIES

STANDARD		% C	% Mn	% S	% P	% Cu	% CE
UMCIL	0.30 Max	1.00 Max	0.060 Max	0.060 Max	0.50 Max	0.45 Max	0.40 Max

MECHANICAL PROPERTIES

Specification	Grade	Yield Strength (Min.) [MPa]	Tensile Strength (min.) [MPa]
UMCIL	275	410	23

WEIGHT CHART

Standard Size (mm)	Pieces/2 Ton (length - 6mtr)	Standard Weight/m	Tolerance (%) on Mass/per pc	Ovality (mm)	Tolerance (mm) Max
R10	540	0.617	±0.4	10	0.8
R12	376	0.888	±0.5	12	1
R16	212	1.58	±0.5	16	1

Notes: