Cemented Carbide Rings – Technical Specification

Grades and related parameters

Grade	Wc(%)	Co(%) Ni(%) Cr (%)	Density g/cm³	Hardness ≥HRA	Flexural strength ≥N/mm³	Compression Strength ≥N/mm³
TR06	94	6	14.9 ± 0.15	88.0	2300	4200
TR08	92	8	14.7 ± 0.15	87.5	2400	4100
TR10	89	11	14.3 ± 0.15	86.5	2500	3900
TR12	86	14	14.0 ± 0.15	85.0	2600	3600
TR14	82	18	13.6 ± 0.15	83.0	2500	3300
YGR60	70	30	12.8 ± 0.15	78.0	2200	2900
YGR55	75	25	13.1 ± 0.15	80.0	2400	3000
YGR45	80	20	13.5 ± 0.15	82.5	2500	3100
YGR40	82	18	13.7 ± 0.15	83.5	2600	3200
YGR30	85	15	14.2 ± 0.15	85.0	2700	3300
YGR25	88	12	14.3 ± 0.15	86.5	2300	3400

YGR20	90	10	14.4 ± 0.15	87.5	2400	3500
YGH55	75	25 Co(%)	12.9 ± 0.15	80.0	2500	3000
YGH45	80	20 Co(%)	13.4 ± 0.15	82.0	2500	3100
YGH40	82	18 Co(%)	13.6 ± 0.15	83.5	2500	3200
YGH30	85	15 Co(%)	13.9 ± 0.15	83.5	2400	3300
YGH25	88	12 Co(%)	14.1 ± 0.15	85.0	2300	3400
YGH20	90	10 Co(%)	14.8 ± 0.15	86.0	2500	3500

Applications recommendation

Grade	Recommendation applications
TR06	It possesses the highest hardness and best wear-resistance among all the varieties of cemented carbide toll rings, thus used for the rolling of common wire and hard wire on the last stands of high-speed wire rod finishing mill
TR08	It possesses better wear-resistance and moderate impact-resistance with the hardness second to TR06 among all the varieties, thus used at the last two stands of high-speed wire rod finishing mill.
TR10	It possesses the moderate wear-resistance and impact-resistance and good versatility, thus used at the third-fourth stands from the bottom of high-speed wire rod finishing mill or all the stands.

TR12	Because of the best versatility, it is used at the front stands of finishing mill and rear stands of common rolling mill.
TR14	It is usually used at the first or second of finishing mill, and also applies to the stands of rolling machine with low speed and accuracy and varied technology.
YGH20	With high hardness.it is used for the rolling of common wire and hard wire at the last two stands of finishing mill.
YGH25	With good wear-resistance and moderate impact-resistance, it is used at the last two stands of finishing mill.
YGH30	With moderate wear-resistance and impact-resistance and good versatility, it is used at the last four stands of finishing mill or all the stands.
YGH40	With the best versatility, it is used at the front stands of finishing mill and rear stands of common rolling mill.
YGH45	It is used at first two stands of finishing mill as well as the stands of pre-finishing mill, and also applied to the stands of rolling machine with low speed and accuracy and varied technology.
YGH55	Because of fine toughness and hot crack resistance, it is used for the stands of pre-finishing mill and hot rolled steel collar.
YGR20	High wear resistance and corrosion resistance. Used in the last 1-2 stands of finishing mills.
YGR25	High wear resistance and corrosion resistance. Used in the last 1-3 stands of finishing mills.
YGR30	Good toughness, wear resistance, corrosion resistance and thermal crack resistance. Used in the middle and rear stands of finishing mill.

YGR40	Good toughness and thermal crack resistance, good for general purposes .Used in most stands of the finishing mill and in the rear stands of common mill.
YGR45	Good toughness and thermal crack resistance. Used in the front stands of finishing mills.
YGR55	Good impact resistance. Used in the stands of pre-finishing rolling mills for hot rolling ribbed steel bars and they can be machined with turning and milling
YGR60	Good impact resistance. Used for hot rolling ribbed steel bars and in the first and second stands of pre-finishing rolling mills

Recommend grades for use in different stands

Grade series	Stands of pre finish rolling mills				Stands of finish rolling mills										Stands for reducing diameter			
	1	2	3	4	1	2	3	4	5	6	7	8	9	10	1	2	3	4
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
YGR20 YGH20																	○	○
YGR25 YGH25													○	○			●	●
YGR30 YGH30									○	○	○	○	●	●	○	○		
YGR40 YGR40					●	●	○	○	●	●	●	●	○					
YGR45 YGH45					○	○	●	●										

YGR50 YGH50	●	●	○	○										▲				
YGR60	○	○	●	●										▲				
TR06														○	○	○	○	○
TR08													○	●				
TR10										○	○	○	●					
TR12							○	○	○	●	●	●						
TR14					○	○	●	●	●									

○ First ● Second ▲ Hot-rolled deformed steel bars

Note：For YGH series medium or weak alkali water of PH≥7.2

For YGR、TR series or PH≥7.2 weak acid water of PH≤7.2