

SURFACING ALLOYS
TECH-HVOF SELECTOR CHART

COLMONOY®
(nickel-based)



WALLCOLMONOY
SURFACING ALLOYS

ALLOY	NOMINAL COMPOSITION (%)									ROCKWELL HARDNESS (C-scale)	SUPPLIED AS	DESCRIPTION AND GENERAL USES
	C	Cr	B	Si	Fe	Ni	Mo	W	Others			
42	0.5	10.0	1.9	3.3	2.3	Bal	-	-	-	35-43	Atomised Powder	Better ductility and toughness than Colmonoy® 52. Less hardness and slightly less abrasion and corrosion resistance. Finished by carbide tools and grinding.
52	0.5	12.0	2.3	3.3	4.5	Bal	-	-	-	45-53	Atomised Powder	Similar to Colmonoy® 62 but has increased ductility with slightly lower abrasion resistance and similar corrosion resistance. Finished by grinding.
62	0.7	16.0	3.0	4.5	4.5	Bal	-	-	-	55-63	Atomised Powder	Hard nickel-chromium-boron alloy containing chromium carbides. Excellent abrasion and corrosion resistance. Recommended for hardfacing parts to resist wear, corrosion, heat and galling. Typical applications: shafts, sleeves, pump plungers, sucker rod couplings, bed knives, camshafts, bushings, mill guides, mixer blades, seal rings, brick manufacturing equipment, and conveyor screws. Finished by carbide tools and grinding.
6H	0.9	17.0	3.4	4.3	4.0	Bal	-	-	-	61-65	Atomised Powder	Similar to Colmonoy® 62/63 series with slightly higher hardness.
69	0.7	14.0	3.2	4.5	4.0	Bal	2.2	-	Cu 2.0	57-63	Atomised Powder	Additions of chromium and molybdenum for better corrosion resistance. Wide plastic range makes overlays easier to fuse without sagging. For marine and petro-chemical applications. Finished by grinding.
88R	0.6	13.8	2.6	3.5	3.5	Bal	-	15.0	-	55-60	Atomised Powder	Tungsten rich hardfacing alloys specifically designed for use in the production of steel bodied plungers for the glass container industry.
88	0.8	17.0	3.0	4.0	4.0	Bal	-	17.0	-	59-64	Atomised Powder	Unique alloy containing chromium and tungsten borides and carbides for maximum abrasion and corrosion resistance. For high-temperature, highly abrasive applications, glass mould plungers, pump plungers and sleeves, valve seats, plastics extrusion screws. Finished by grinding or CBN tools.
Nickel Superalloy												
276	-	15.5	-	0.9	5.5	Bal	16.0	3.8	-	101 HRB (Nominal)	Atomised Powder	Very good resistance to intergranular corrosion, stress crack corrosion and knifecut-crevice corrosion. The alloy shows excellent corrosion resistance to oxidising media such as nitric, phosphoric and sulphuric acid. Typical applications include paper, chemical and fertiliser industry components, hot shear blades, trimming tools, stampers, valve seats, pump components in the chemical industry.
625	-	21.5	-	0.4	2.5	Bal	9.0	-	Nb 3.7	97 HRB (Nominal)	Atomised Powder	Hard surfacing alloy with high fatigue strength and toughness. For use as a buffer layer for non-magnetic down-hole tools, marine, processing, aerospace and nuclear applications.
686	-	21.0	-	0.5	-	Bal	16.0	3.8	Ti 0.05	99 HRB (Nominal)	Atomised Powder	High levels of chromium, molybdenum and tungsten, achieving one of the highest ratings possible for pitting corrosion resistance. Coatings made using this alloy also offer outstanding general and crevice corrosion resistance and have a low coefficient of friction. Successfully used in Marine Engineering, Chemical Processing, Pollution Control equipment, Nuclear Reactors, Automotive, Oil & Gas Industry, Aerospace Engineering and Waste to Energy.

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	C	Cr	B	Si	Fe	Ni	Mo	W	Others			
with Tungsten Carbide												
48W	2.2	8.0	1.8	2.5	2.7	Bal	-	28.0	Co: 4.0	55-65	Composite Powder	Nickel matrix powder blended with 34% (by weight), agglomerated and sintered 88Wc-12Co specifically designed for use in the production of steel bodied plungers for the glass container industry.
49W	2.4	7.0	1.3	2.2	2.1	Bal	-	31.3	Co: 4.8	56-60	Composite Powder	Nickel matrix powder blended with 38% (by weight), agglomerated and sintered 88Wc-12Co specifically designed for use in the production of steel bodied plungers for the glass container industry.
50W	2.5	7.0	1.6	2.3	2.4	Bal	-	33.5	Co: 5.0	55-65	Composite Powder	Nickel matrix powder blended with 41% (by weight), agglomerated and sintered 88Wc-12Co specifically designed for use in the production of steel bodied plungers for the glass container industry.
55W	3.0	6.0	1.4	2.0	2.0	Bal	-	41.0	Co: 6.0	60-70	Composite Powder	Nickel matrix powder blended with 50% (by weight), agglomerated and sintered 88Wc-12Co specifically designed for use in the production of steel bodied plungers for the glass container industry.

WALLEX®
(cobalt-based)

Self-Fluxing												
42	0.9	18.5	1.7	3.0	2.5	13.5	-	8.0	Co: Bal Cu: 0.8	45-50	Atomised Powder	A cobalt-nickel alloy powder that forms deposits similar to those of Wallex® 50, but softer. Finished with carbide tools and grinding. Developed as a lower temperature alternative for many cobalt-6 applications.
50	0.8	19.0	3.6	2.8	2.5	18.0	-	10.0	Co: Bal	56-61	Atomised Powder	Good corrosion resistance and low coefficient-of-friction provides good metal-to-metal wear protection (not involving much impact). For bushings, knives, and cams. Finished by grinding.
5401	2.3	10.8	1.8	1.8	1.5	18.0	-	34.0	Co: Bal	57-62	Composite Powder	Cobalt matrix powder blended with 35% (by weight), agglomerated and sintered 88Wc-12Co specifically designed for use in the production of steel bodied plungers for the glass container industry.
As Sprayed												
6	1.2	29.0	-	1.2	1.5	-	-	4.5	Co: Bal	38-46	Atomised Powder	A cobalt-chromium based alloy powder providing resistance to impact, abrasion, erosion, corrosion and oxidation at high temperatures. Uses include valves and seats, edger rolls, hot shear knives and blades, hot trim dies and swaging mandrels.
12	1.5	29.0	-	1.5	1.5	-	-	8.5	Co: Bal	43-53	Atomised Powder	A cobalt-chromium-tungsten based alloy powder with high heat, abrasion, wear and corrosion resistance. It has a low coefficient of friction and is non-galling. For veneer pressure bars, bushings, control plates, knives and saw teeth.

The information provided herein is given as a guideline to follow. It is the responsibility of the end user to establish the process information most suitable for their specific application(s). Wall Colmonoy assumes no responsibility for failure due to misuse or improper application, or for any incidental damages arising out of the use of this material or process.