

# KVT-Coating matrix

Developed to meet the most exacting demands



## HVOF High-velocity oxygen fuel spraying

Coating group	Carbides			Special alloyT- 800
Coating	KVT 176	KVT 231	KVT 251	KVT 168
Description	Tungsten carbide	Chromium carbide	Tungsten-/Chromium-carbide/Nickel	Cobalt-Molybdenum-Chromium
Coating thickness	0,2 mm	0,2 mm	0,2 mm	0,2 mm
Hardness	1100-1400 HV0,3	900-1100 HV0,3	1000-1200 HV0,3	550-750 HV0,3
Heat-resistance	max. 450°C	max. 700° C	max. 600°C	max. 800°C
Porosity	less than 0,5%	less than 1,0%	less than 1,0 %	less than 1,0 %
Impermeability 6 bar leakage rate 0	limited suitability	limited suitability	limited suitability	limited suitability
Impermeability 6 bar leakage rate 2 (B)	very well suited	very well suited	very well suited	very well suited
Suitability for high-pressure applications with strict impermeability requirements	bedingt geeignet	bedingt geeignet	bedingt geeignet	bedingt geeignet
Abrasion-resistance	sehr hohe Standzeit	sehr hohe Standzeit	sehr hohe Standzeit	gute Standzeit
Chemical resistance to acids and caustic solutions	good	good	good	very good
Subsurface corrosion-resistance	good	good	good	good
Flaking-resistance	good	good	good	good
Adhesion to base material	good	good	good	good
Dry running properties	very good	very good	very good	unknown
Suitability for ball sealing systems	yes	yes	yes	yes
Friction coefficient*	0,2- 0,4	0,2- 0,4	0,2- 0,4	0,2- 0,4

## Flame spraying / thermal compacting

Coating group	Nickel hard alloys		Stellite		Top Coat
Coating	KVT 404	KVT 433	KVT 461	KVT 463	Spray & Fuse + DLC
Description	Nickel hard alloy	Nickel hard alloy with tungsten carbide	Cobalt hard alloy SF6	Cobalt hard alloy SF20	Multi-layer system with friction-reducing DLC top layer.
Coating thickness	0,5- 0,8 mm	0,5-0,8 mm	0,5-0,8 mm	0,5- 0,8 mm	
Hardness	650-800 HV0,3	850- 1000 HV0,3	500-650 HV0,3	680-780 HV0,3	DLC:
Heat-resistance	max. 500°C	max. 450°C	max. 700°C	max. 700°C	Diamond-like carbon coatings
Porosity	non-porous	non-porous	non-porous	non-porous	High-performance system enables:
Impermeability 6 bar leakage rate 0	very well suited	very well suited	limited suitability	very well suited	<ul style="list-style-type: none"> <li>Low friction coefficients</li> <li>High wear protection, especially against abrasion and adhesion</li> <li>high corrosion protection</li> </ul>
Impermeability 6 bar leakage rate 2 (B)	very well suited	very well suited	very well suited	very well suited	
Suitability for high-pressure applications with strict impermeability requirements		very well suited	limited suitability	very well suited	
Abrasion-resistance	long service life	very long service life	good service life	long service life	
Chemical resistance to acids and caustic solutions	good	good	very good	very good	
Subsurface corrosion-resistance	very good	very good	very good	very good	
Flaking-resistance	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding	
Adhesion to base material	very good	very good	very good	very good	
Dry running properties	good	good	unsuitable	very good	
Suitability for ball sealing systems	yes	yes	yes	yes	
Friction coefficient*	0,2- 0,4	0,2- 0,4	0,2- 0,4	0,2- 0,4	

\*Specification is based on contact between balls and sealing rings in lapped condition.

## Laser cladding

Coating group	Inconel 625	Nickelhardalloys		Stellite		
Coating	KVT 401	KVT 433	KVT 403	KVT 462	KVT 461	KVT 465
Description	Nickel alloy	Nickel hard alloy with tungsten carbide	Nickel hard alloy	Cobalt hard alloy SF1	Cobal hard allox SF6	Cobalt hard alloy SF21
Coating thickness	0,5-3,0 mm	0,5-3,0 mm	0,5-3,0 mm	0,5-3,0 mm	0,5-3 mm	0,5-3,0 mm
Hardness	240-280 HV0,3	850- 1100 HV0,3	650- 750 HV0,3	600-700HV0,3	500-650 HV0,3	600-700HV0,3
Heat-resistance	max. 1000°C	max. 450°C	max. 500°C	max. 700°C	max. 700°C	max. 700°C
Porosity	non-porous	less than 0,5%	almost non-porous	non-porous	non-porous	non-porous
Impermeability 6 bar leakage rate 0	n.a.	n.a.	n.a.	limited suitability	limited suitability	limited suitability
Impermeability 6 bar leakage rate 2 (B)	n.a.	n.a.	n.a.	very well suited	very well suited	very well suited
Suitability for high-pressure applications with strict impermeability requirements	n.a.	n.a.	n.a.	limited suitability	limited suitability	very well suited
Abrasion-resistance	low	very long service life	very long service life	good servie life	good servie life	high servie life
Chemical resistance to acids and caustic solutions	very good to excellent	good	good	very good	very good	very good
Subsurface corrosion-resistance	very good	unsuitable	unsuitable	very good	very good	very good
Flaking-resistance	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding	excellent due to metallurgical bonding
Adhesion to base material	very good	very good	very good	very good	very good	very good
Dry running properties	unsuitable	good	good	unsuitable	unsuitable	very good
Suitability for ball sealing systems	no	no	no	no	yes	yes
Friction coefficient*	0,2- 0,4	0,2- 0,4	0,2- 0,4	0,2- 0,4	0,2- 0,4	0,2- 0,4

## Coating on Demand

No suitable coating found?  
We develop the right coating for you!

## We support the entire development process:

Requirement profile	Material design	Process engineering	Qualification process
Press	Review of existing systems	Targeted development	Bond strength
Pressing	Development of new systems	Reduced porosity	Bond strength
Relative velocities	Minimizing wear	Crack-free	Corrosion resistance
Corrosion	Friction-reducing	Microhardness	Wear resistance
low torque	Medium-adapted materials	Advice on design for coatings	Leakage test
Cavitation	barrier coatings		
Erosion			
long dervie life			
Operating temperatures			
Leakage-free			

## OUR TARGET INDUSTRIES



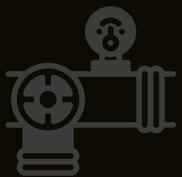
VALVE INDUSTRY



DRILLING INDUSTRY



MECHANICAL ENGINEERING



KVT HIGH-PRESSURE VALVES

### KVT Kurlbaum GmbH

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