

Schematic „family tree“ Celsite (Kobalt Base Alloys)

Increasing Corrosion Resistance

| | | | | | | | |
|--------------------|---|-----|---|-----|-----|------|-----------|
| 4798.12 4798.13 | DEW Celsit 21 Stellite No 21 | | | | | | 31 |
| MP, S | DIN EN 14700: P Co1, R Co1 AWS: A 5.21: CoCr-E | | | | | | RF |
| P, W | | | | | | | Ad, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, +++ |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 0,3 | 28,5 | 5,0 | | 2,8 | 1,5 | Rest | |

| | | | | | | | |
|--------------------|---|----|-----|-----|-----|------|----------|
| 4798.34 4798.35 | DEW Celsit V Stellite No 6 | | | | | | 42 |
| MP, S | DIN EN 14700: P Co2, R Co2 AWS: A 5.21: CoCr-A | | | | | | RF |
| P, W, G | | | | | | | Ad, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, ++ |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 1,1 | 28,0 | | 4,5 | 1,0 | 1,0 | Rest | |

| | | | | | | | |
|--------------------|---|----|-----|-----|-----|------|------------|
| 4798.29 4798.30 | DEW Celsit SN Stellite No 12 | | | | | | 48 |
| MP, S | DIN EN 14700: P Co2, R Co2 AWS: A 5.21: CoCr-B | | | | | | RF |
| P, W, G | | | | | | | Ad, Ab, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, ++ |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 1,4 | 29,0 | | 8,5 | 1,0 | 1,0 | Rest | |

| | | | | | | | |
|--------------------|---|----|------|-----|-----|------|-----------|
| 4798.26 4798.28 | DEW Celsit N Stellite No 1 | | | | | | 54 |
| MP, S | DIN EN 14700: P Co3, R Co3 AWS: A 5.21: CoCr-C | | | | | | BR |
| P, W, G | | | | | | | Ab, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, +++ |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 2,4 | 32,0 | | 13,0 | 1,0 | 1,0 | Rest | |

| | | | | | | | |
|--------------------|---|----|------|-----|-----|------|----------|
| 4798.10 4798.11 | DEW Celsit 20 Stellite No 20 | | | | | | 58 |
| MP, S | DIN EN 14700: P Co3, R Co3 AWS: A 5.21: CoCr-C | | | | | | BR |
| P, W, G | | | | | | | Ad, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, ++ |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 2,4 | 33,0 | | 16,5 | 1,5 | 1,5 | Rest | |

| | | | | | | | |
|--------------------|--|------|------|------|-----|------|------------|
| 4798.22 4798.25 | DEW Celsit F Stellite No F or 32 | | | | | | 46 |
| MP, S | AWS: A 5.21: CoCr-F | | | | | | RF |
| P, W, G | | | | | | | Ad, Ab, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, + |
| | | | | | | | |
| C | Si | Cr | W | Ni | Fe | Co | |
| 1,9 | 1,0 | 28,5 | 12,5 | 22,5 | 1,0 | Rest | |

| | | | | | | | |
|---------|---------------------------------------|----|------|------|-----|------|---------|
| 4798.37 | DEW CN20Co50 Stellite No 25 | | | | | | 22 |
| MP | DIN EN 14700: P Co1 | | | | | | RF |
| P | | | | | | | Ad, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B, + |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| <0,1 | 20,0 | | 15,0 | 10,0 | 2,5 | Rest | |

| | | | | | | | |
|---------|--|----|------|-----|-----|------|--------|
| 4798.09 | DEW Celsit 190-P Stellite No 190 | | | | | | 60 |
| MP | DIN EN 14700: P Co3 AWS: A 5.21: CoCr-G | | | | | | BR |
| P | | | | | | | Ab, KV |
| PS, H | | | | | | | HTW |
| HIP | | | | | | | S, B |
| | | | | | | | |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 3,2 | 27,0 | | 15,0 | 1,5 | 3,5 | Rest | |

Risk of cracking
for B > 0,005 %

B-Limits (Risk of cracking after welding)

Risk of cracking
for B > 0,010 %

Risk of cracking
for B > 0,015 %

- a. DEW material No.
- b. Product form
- c. Welding technique
- d. Thermal spraying
- e. Powder met.

| | | | | | | | |
|-----|-------------------------------|----|-----|-----|-----|------|---|
| a | DEW Brand | | | | | | f |
| b | Stellite Type | | | | | | g |
| c | EN-/ISO-/DIN-Norm AWS-Norm | | | | | | h |
| d | | | | | | | i |
| e | | | | | | | k |
| C | Cr | Mo | W | Ni | Fe | Co | |
| 1,0 | 27,5 | | 4,5 | 1,0 | 1,0 | Rest | |

- f. Hardness
- g. Coating characteristic
- h. Wear type
- i. Thermal resistance/hardness
- k. Corrosion resistance

Explanation:

- b. Product form: MP (metal powder), R (Rod)
- c. Welding technique: P (PTA), T (TIG), G (Gas)
- d. Thermal spraying: FK (Cold), FW (Hot), SW (Spray welding), PS (Plasma spraying), H (HVOF)
- e. Powder met.: HIP (Hot isostatic pressing)
- f. Hardness: HRC
- g. Coating characteristic: RF (Crack free), BR (Conditionally crack free)
- h. Wear type: Ab (Abrasion), Ad (Adhesion), KV (Cavitation)
- i. Thermal resistance/hardness (HTW)
- k. Corrosion resistance: S (Acid), B (Bases), ---/-/-/+ /++ /+++ Ranking

Welding: crack free

Welding: conditionally crack free

Wear resistance:
Adhesion

Wear resistance:
Adhesion + Abrasion

Wear resistance:
Abrasion

+C, +W, -Ni, -Mo

+C, +W, +Cr

+C, +W, +Cr

+C, +W, +Ni

-C, -Cr, +Ni

+W, +Cr

+C, -Cr, +Fe

Schematic „family tree“ Celsite (Kobalt base alloys) and modification

Increasing hardness

