

## PTA Laser Powder

Deloro Stellite powders are gas atomised powders. PTA and laser hardfacing powders are available in these standard size ranges:

- WM 180/53µm
- WE 180/63µm
- W 150/45µm
- E 150/63µm (150/53µm can also be supplied)
- G 125/38µm
- HD 250/45µm

Please see the table below for details of our PTA & Laser powders. Note – the hardness of the weld deposit may vary from that provided depending upon the process parameters and extent of dilution.

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>1</sup>									Othe rs	UNS	Hardne ss (HRC) <sup>2</sup>
	C o	Cr	W	C	Ni	M o	F e	S i				
<b>COBALT BASE ALLOY GAS ATOMIZED POWDERS</b>												
Stellite 1	B al .	30	1 3	2.5	<2. 0	< 1. 0	< 2 .0	< 2 .0	<1.0	R30 001	51-60	
Stelite 4	B al .	30	1 3. 5	0.7	<2. 5	< 1. 0	< 2 .5	< 1 .0	<1.0	R30 404	40-50	
Stellite 6	B al .	28. 5	4. 6	1.2	<2. 0	< 1. 0	< 2 .0	< 2 .0	<1.0	R30 106	40-46	
Stellite 6LC	B al .	29	4. 5	1.1 1	<2. 0	< 1. 0	< 2 .0	< 2 .0	<1.0	-	38-44	
Stellite 6HC	B al .	28. 5	4. 6	1.3 5	<2. 0	< 1. 0	< 2 .0	< 2 .0	<1.0	-	43-53	

<sup>1</sup> Nominal analysis is a guideline only for standard product, does not include all incidental elements and may differ depending on the exact specification/standard used when ordering.

<sup>2</sup> Undiluted weld metal

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>1</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>2</sup>
	C o	Cr	W	C	Ni	M o	F e	S i			
							0	0			
Stellite 156	B al .	28	4	1.7	<2. 0	< 1. 0	< 0 .5	< 2 .0	<1.0	-	46-54
Stellite 12	B al .	30	8. 5	1.4 5	<2. 0	< 1. 0	< 2 .0	< 2 .0	<1.0	R30 012	43-53
Stellite 20	B al .	32. 5	1 7. 5	2.5 5	<2. 0	< 1. 0	< 2 .0	< 1 .0	<1.0	-	52-62
Stellite 21	B al .	27. 5	-	0.2 5	2.6	5. 4	< 2 .0	< 2 .0	<1.0	R30 021	27-40 *
Stellite 22	B al .	28	-	0.3 0	1.5	1 2	< 3 .0	< 2 .0	<0.5	-	41-49 *
Stellite 25	B al .	20	1 5	0.1	10	< 1. 0	2	< 1 .0	1.9 %M n	-	20-45 *
Stellite 31	B al .	26	7. 5	0.5	10. 5	< 1. 0	< 2 .0	< 1 .0	<0.5	R30 031	20-35 *
Stellite F <sup>3</sup>	B al .	26	1 2. 5	1.8	22	< 1. 0	< 2 .0	1 .1	<0.5	R30 002	40-45
Stellite 190	B al .	26	1 4	3.4	<2. 0	< 1. 0	< 2 .0	< 1 .0	<1.0	R30 014	55-60
Stellite	B	28	<	0.1	<1.	<	2	<	<1.0	-	20-28

<sup>3</sup> Usually made to customer specification

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>1</sup>								Othe rs	UNS	Hardne ss (HRC) <sup>2</sup>
	C o	Cr	W	C	Ni	M o	F e	S i			
250	al .		1. 0		0	1. 0	0	1 .5			
Stellite 306	B al .	25	3	0.5 5	6	-	< 2 .5	< 2 .0	7%N b	-	34-41
Stellite 694	B al .	28. 5	1 9. 5	0.9	5	-	< 3 .0	< 1 .0	1% V	-	46-52
Stellite 706	B al .	29	-	1.2 5	<2. 0	4. 5	< 2 .0	< 1 .0	<1.0	-	39-44
Stellite 712	B al .	29	-	2.0	<2. 0	8. 5	< 2 .0	< 1 .0	<1.0	-	46-53
ULTIME T	B al .	26	2	0.0 7	9.4	5	3	< 1 .0	<1.0	R31 233	20-45 *

COBALT BASE TRIBALLOY® ALLOYS (GAS ATOMIZED POWDERS)

T-400	B al .	8.5	-	<0. 08	<1. 5	2 9	< 1 .5	2 .8	<1.0	R30 400	51-57
T-400C	B al .	14	-	< 0.0 8	<1. 5	2 7	< 1 .5	2 .6	<1.0	-	51-57
T-401	B al .	17	-	0.2	<1. 5	2 2	< 1 .5	1 .3	<1.0	-	45-50
T-800	B al .	17	-	< 0.0 8	< 1.5	2 9	< 1 .5	3 .7	<1.0	-	53-61

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>1</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>2</sup>
	C o	Cr	W	C	Ni	M o	F e	S i			
T-900	B al .	18	-	< 0.0 8	16	2 3	< 1 .5	2 .8	<1.0	-	48-55

\* depending on the degree of work hardening

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>4</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>5</sup>
	C o	Cr	W	C	Ni	M o	F e	S i			

NICKEL BASE SUPERALLOYS (GAS ATOMIZED POWDERS)

Nistelle "Super C"	-	23	-	0.1	Bal .	1 8	< 1 .0	< 1 .0	-	-	15-25 *
Nistelle C	-	17	4. 5	0.1	Bal .	1 7	6	< 1 .0	0.3 % V	-	17-27 *
Nistelle C4C	-	16	-	-	Bal .	1 6	< 1 .0	< 1 .0	-	N06 455	
Nistelle C22	< 2. 0	21. 5	3	-	Bal .	1 3. 5	4	-	0.15 % V	-	
Nistelle C276	-	15. 5	3. 7	-	Bal .	1 6	5 .5	< 1 .0	0.15 % V	-	
Nistelle X	1. 5	22	< 1. 0	0.1 5	Bal .	9. 1	1 8 .5	< 1 .0	<1.0 %	N06 002	

<sup>4</sup> Nominal analysis is a guideline only for standard product, does not include all incidental elements and may differ depending on the exact specification/standard used when ordering.

<sup>5</sup> Undiluted weld metal

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>4</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>5</sup>
	C o	Cr	W	C	Ni	M o	F e	S i			
Nistelle 305	-	42	-	-	Bal .	-	-	0 .5	<1.0 %	-	
Nistelle 2315	-	20	-	-	Bal .	-	-	< 1 .0	<1.0 %	-	
Nistelle 600	-	15. 5	-	-	Bal .	-	8	< 0 .5	<1.0 %	N06 600	
Nistelle 625	-	21. 5	-	<0. 10	Bal .	9	< 1 .0	< 0 .5	3.5 % Nb	N06 625	
Nistelle 718	< 2. 0	21. 5	3	-	Bal .	1 3. 5	4	-	0.15 % V	N07 718	

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>6</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>7</sup>
	C o	C r	W	C	Ni	M o	F e	S i			

NICKEL BASE HARDFACING ALLOYS (GAS ATOMIZED POWDERS)

Deloro 22	-	-	-	<0. 05	Bal .	-	< 1 .0	2 .5	1.4 %B	-	20-22
Deloro 30	-	9	-	0.2	Bal .	-	2 .3	3 .2	1.2 %B	-	27-31
Deloro 38	-	-	-	0.0 5	Bal .	-	0 .5	3 .0	2.1 %B	-	35-39
Deloro 40	-	7	-	0.3	Bal	-	2	3	1.7	N99	38-42

<sup>6</sup> Nominal analysis is a guideline only for standard product, does not include all incidental elements and may differ depending on the exact specification/standard used when ordering.

<sup>7</sup> Undiluted weld metal

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>6</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>7</sup>
	C o	C r	W	C	Ni	M o	F e	S i			
		. 5			.		. 5	. 5	% B	644	
Deloro 45	-	9	-	0.3 5	Bal .	-	2 .5	3 7	1.9 %B	-	44-47
Deloro 46	-	-	-	0.0 5	Bal .	-	-	3 7	1.9 %B	-	32-40
Deloro 50	-	1 1	-	0.4 5	Bal .	-	3 .3	3 9	2.3 % B	N99 645	48-52
Deloro 55	-	1 2	-	0.6	Bal .	-	4 .0	4 0	2.7 % B	-	52-57
Deloro 60	-	1 5	-	0.7	Bal .	-	4 .0	4 4	3.1 % B	N99 646	57-62
Extrudallo y 50	1 5	2 1	-	1.3	Bal .	6	< 1 .0	3 0	2.3 %B	-	-

#### NICKEL BASE TRIBALLOY<sup>®</sup> ALLOYS (GAS ATOMIZED POWDERS)

T-700	< 1 .5	1 6	-	< 0.0 8	Bal .	3 2	< 1 .5	3 4	<1.0	-	45-52
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\* depending on the degree of work hardening

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>8</sup>								Othe rs	UNS	Hardne SS (HRC) <sup>9</sup>
	F e	Cr	W	C	Ni	M o	C o	S i			

#### IRON BASE HARDFACING ALLOYS (GAS ATOMIZED POWDERS)

Delcrom e 90	B al	27	-	2.9	-	-	-	< 1	0.5 %M	-	Depen ds on
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<sup>8</sup> Nominal analysis is a guideline only for standard product, does not include all incidental elements and may differ depending on the exact specification/standard used when ordering.

<sup>9</sup> Undiluted weld metal

ALLOY	NOMINAL ANALYSIS OF POWDER <sup>8</sup>								Others	UNS	Hardness (HRC) <sup>9</sup>	
	Fe	Cr	W	C	Ni	Mo	Co	Si				
	.								.0	n		heat treatment
Delcrome 92	Bal.	<1.0	-	3.8	<1.0	1.0	<0.5	<1.0	<1% Mn	-		55-63
Deloro 253	Bal.	28	-	1.9	16.5	4.5	<0.5	1.3	0.8% Mn	-		
Delcrome 316	Bal.	17	-	0.05	11	2.6	<0.5	2.5	0.4% Mn	-		<180 DPH
Deloro 316L Deloro 317	Bal.	18	-	<0.03	13	2.6	<0.5	1.8	0.7% Mn	-		<180 DPH
Tristelle TS-3	Bal.	35	-	3.1	10	-	1.2	4.8	0.3% Mn	-		47-51
Delcrome 6272	Bal.	25	-	2.5	14	7	<0.5	1.8	<1.0%	-		

#### CARBIDES IN A CORROSION RESISTANT HARD ALLOY MATRIX

Super Stelcar 9365	WC in an alloy matrix
Super Stelcar 50 plus	WC in a Deloro 50 alloy matrix
Super Stelcar 60 plus	WC in a Deloro 60 alloy matrix