

## CERTIFICADO DE CALIDAD

**APS 3732**

|  |                |  |                       |
|--|----------------|--|-----------------------|
| DIRECCIÓN DE DESCARGA  |                | CLIENTE  |                       |
| PLESA ANAHUAC, S.A.DE C.V.<br>AV VALLE DE LAS ALAMEDAS NR.66<br>COL.SAN FRANCISCO CHILPAN<br>54940,TULTITLAN EDO.DE MEXICO |                | PLESA ANAHUAC, S.A.DE C.V.<br>AV VALLE DE LAS ALAMEDAS NR.66<br>COL.SAN FRANCISCO CHILPAN<br>54940,TULTITLAN EDO.DE MEXICO |                       |
| MATERIAL EXPEDIDO Y CERTIFICADO POR  |                | CARTA DE CREDITO   | PUERTO DE CARGA       |
| ACERALIA PERFILES BERGARA, S.A.<br>C/IBARRA, 6<br>20570 BERGARA (Guipúzcoa)<br>TELEF. (943) 76.19.40 - FAX (943) 76.52.43  |                |  | <b>PASAJES, SPAIN</b> |
|  |                | PUERTO DE DESCARGA   | BARCO                 |
|  |                | <b>VERACRUZ (MEXICO)</b>   | <b>ATLANTIS PRIDE</b> |
| N / REFERENCIA   | Nº DE CONTRATO | Nº DE PEDIDO   | FECHA                 |
| <b>MERCHE</b>  | <b>E-10424</b> | <b>3º TRIM 04</b>  | <b>31/08/04</b>       |

Material: WF Vigas, calidad DUAL ASTM A-36/A 572 Gr. 50

El exportador de los productos incluidos en el presente documento,  
Autorización aduanera no.

|                                  |               |
|----------------------------------|---------------|
| ACERALIA PERFILES MADRID, S.L.   | ES/28/0047/03 |
| ACERALIA PERFILES BERGARA, S.A.  | ES/48/0021/03 |
| ACERALIA PERFILES OLABERRIA S.L. | ES/20/0040/03 |

Declara que, salvo indicación en sentido contrario, estos  
productos gozan de un origen preferencial ESPAÑA

| MATERIAL      | LARGO | PAQUETE | BARRAS<br>PAQUETE | TOTAL<br>BARRAS | PESO<br>PAQUETE | PESO TOTAL | COLADAS     |
|---------------|-------|---------|-------------------|-----------------|-----------------|------------|-------------|
| / AMARILLO    |       |         |                   |                 |                 |            |             |
| WF BEAMS 6x12 | 40'   | 11      | 18                | 198             | 3919            | 43.109     | 43568,43569 |

TOTAL PAQUETES      11                      TOTAL PESO      43.109 Kg.

| A02 EN 10204/3.1.B        |                | <b>ASTM A36 - A572 G50/A6</b>                       |      |      |      |      |      |      |      |      |      |      |      |      |            | (B01/B02/B03) A03                              |             |                 |  |
|---------------------------|----------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------------|--|-------------|-----------------|--|
| C70 E<br>MATERIAL<br>SIZE | COLADA<br>HEAT | COMPOSICION QUIMICA (%)<br>CHEMICAL COMPOSITION (%) |      |      |      |      |      |      |      |      |      |      |      |      |            | PROPIEDADES MECANICAS<br>MECHANICAL PROPERTIES |             |                 |  |
|                           |                | C   | Mn   | Si   | P    | S    | N    | V    | Cr   | Ni   | Mo   | Cu   | Nb   | Sn   | ReH<br>MPa | Rm<br>MPa                                      | A%<br>L0=2" | Doblad.<br>180° |  |
|                           |                | C71   | C72  | C73  | C74  | C75  | C76  |      |      |      |      |      |      |      | C77        | C78  | C79         | C80             |  |
| W-6x12                    | 43568          | .126  | .665 | .168 | .026 | .024 | .009 | .024 | .102 | .127 | .020 | .617 | .003 | .027 | 375        | 522  | 35.         |                 |  |
| W-6x12                    | 43569          | .126  | .684 | .151 | .030 | .011 | .011 | .020 | .122 | .118 | .017 | .562 | .002 | .024 | 366        | 526  | 34.6        |                 |  |

**2 analisis**

DR1 Inspection - We hereby certify that the above steels have been satisfactorily tested in accordance with the specification.

B06 Marca APB

Miguel Centagoya



**ACERALIA PERFILES**  
Grupo Arcelor

CARRETERA TOLEDO, KM. 9  
28021 MADRID  
TELEF. (91) 797.23.00 - FAX (91) 505.02.57

**AENOR**  
**ER**  
Empresa Registrada  
ER-0036/1992  
ER-0152/1993  
ER-0262/1994

## CERTIFICADO DE CALIDAD

**APS 3732**

|  |                |  |                       |
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| DIRECCIÓN DE DESCARGA  |                | CLIENTE  |                       |
| PLESA ANAHUAC, S.A.DE C.V.<br>AV VALLE DE LAS ALAMEDAS NR.66<br>COL.SAN FRANCISCO CHILPAN<br>54940,TULTITLAN EDO.DE MEXICO                         |                | PLESA ANAHUAC, S.A.DE C.V.<br>AV VALLE DE LAS ALAMEDAS NR.66<br>COL.SAN FRANCISCO CHILPAN<br>54940,TULTITLAN EDO.DE MEXICO |                       |
| MATERIAL EXPEDIDO Y CERTIFICADO POR  |                | CARTA DE CREDITO   | PUERTO DE CARGA       |
| ACERALIA PERFILES OLABERRIA, S.L.<br>CARRETERA MADRID - IRUN, KM. 419<br>20212 OLABERRIA (Gulpúzcoa)<br>TELEF. (943) 80.50.00 - FAX (943) 88.04.04 |                |  | <b>PASAJES, SPAIN</b> |
|  |                | PUERTO DE DESCARGA   | BARCO                 |
|  |                | <b>VERACRUZ (MEXICO)</b>   | <b>ATLANTIS PRIDE</b> |
| N / REFERENCIA   | Nº DE CONTRATO | Nº DE PEDIDO   | FECHA                 |
| MERCHE   | E-10424        | 3º TRIM 04   | 31/08/2004            |

Material: WF Vigas, calidad DUAL ASTM A-36/A 572 Gr. 50

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Autorización aduanera no.

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Declara que, salvo indicación en sentido contrario, estos  
productos gozan de un origen preferencial ESPAÑA

| MATERIAL       | LARGO | PAQUETE | BARRAS<br>PAQUETE | TOTAL<br>BARRAS | PESO<br>PAQUETE | PESO TOTAL | COLADAS   |
|----------------|-------|---------|-------------------|-----------------|-----------------|------------|---|
| / AMARILLO     |       |         |                   |                 |                 |            |   |
| WF BEAMS 8x10  | 40'   | 20      | 27                | 540             | 4898            | 97.960     | 44783,44784,44785,44787,4<br>4788                             |
| WF BEAMS 10x22 | 40'   | 13      | 12                | 156             | 4790            | 62.270     | 44870,44882   |
| WF BEAMS 12x14 | 40'   | 13      | 18                | 234             | 4571            | 59.423     | 44898,44902,44903,44904                                       |
| WF BEAMS 12x22 | 40'   | 21      | 12                | 252             | 4790            | 100.590    | 44886,44891,44892,44897                                       |
| WF BEAMS 12x26 | 40'   | 21      | 10                | 210             | 4717            | 99.057     | 44819,44821,44822,44829,4<br>4830,44831,44833                 |
| WF BEAMS 12x30 | 40'   | 14      | 8                 | 112             | 4355            | 60.970     | 44814,44815,44816   |
| WF BEAMS 12x35 | 40'   | 12      | 8                 | 96              | 5081            | 60.972     | 44810,44812,44813   |
| WF BEAMS 16x50 | 40'   | 22      | 5                 | 110             | 4536            | 99.792     | 44863,44864,44865   |
| WF BEAMS 18x71 | 40'   | 19      | 4                 | 76              | 5153            | 97.907     | 44811,44812,44813,44814,4<br>4815,44816                       |
| WF BEAMS 18x50 | 40'   | 28      | 4                 | 112             | 3629            | 101.612    | 44789,44790,44791,44792,4<br>4794,44795,44796,44797,44<br>798 |
| WF BEAMS 18x86 | 40'   | 1       | 2                 | 2               | 3121            | 3.121      | 21133   |

TOTAL PAQUETES 184

TOTAL PESO 843.674 Kg.



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ER-0036/1992  
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ER-0262/1994

## CERTIFICADO DE CALIDAD

**APS 3732**

| C70.E   | MATERIAL SIZE | COLADA HEAT | COMPOSICION QUIMICA (%)<br>CHEMICAL COMPOSITION (%) |      |     |      |      |      |      |      |      |      |      |      |      |      | Cev |     |
|---------|---------------|-------------|---|------|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
|         |               |             | C   | Mn   | Si  | P    | S    | N    | V    | Cr   | Ni   | Mo   | Cu   | Nb   | Al   | Ti   |     |     |
| B11     | B08           |             | C71   | C72  | C73 | C74  | C75  | C76  | C77  | C78  |      |      |      |      |      |      |     |     |
| W-10x22 | 44870         |             | ,11   | 1,25 | ,21 | ,020 | ,024 | ,011 | ,002 | ,141 | ,116 | ,025 | ,579 | ,018 | ,001 | ,003 |     | ,40 |
| W-10x22 | 44882         |             | ,10   | 1,13 | ,18 | ,020 | ,025 | ,011 | ,002 | ,136 | ,138 | ,024 | ,547 | ,018 | ,001 | ,003 |     | ,36 |
| W-12x14 | 44898         |             | ,09   | 1,14 | ,21 | ,024 | ,028 | ,010 | ,002 | ,120 | ,128 | ,024 | ,578 | ,018 | ,002 | ,003 |     | ,36 |
| W-12x14 | 44902         |             | ,10   | 1,10 | ,20 | ,022 | ,027 | ,010 | ,002 | ,133 | ,119 | ,023 | ,568 | ,017 | ,001 | ,003 |     | ,36 |
| W-12x14 | 44903         |             | ,09   | 1,11 | ,19 | ,025 | ,033 | ,011 | ,002 | ,124 | ,123 | ,024 | ,578 | ,018 | ,001 | ,003 |     | ,35 |
| W-12x14 | 44904         |             | ,09   | 1,11 | ,19 | ,021 | ,030 | ,011 | ,002 | ,128 | ,124 | ,023 | ,569 | ,018 | ,001 | ,003 |     | ,35 |
| W-12x22 | 44886         |             | ,11   | 1,02 | ,20 | ,023 | ,032 | ,010 | ,002 | ,145 | ,120 | ,023 | ,574 | ,011 | ,002 | ,003 |     | ,36 |
| W-12x22 | 44891         |             | ,09   | 1,12 | ,20 | ,023 | ,031 | ,010 | ,002 | ,131 | ,119 | ,023 | ,570 | ,019 | ,001 | ,003 |     | ,35 |
| W-12x22 | 44892         |             | ,09   | 1,11 | ,20 | ,023 | ,028 | ,010 | ,002 | ,132 | ,122 | ,023 | ,580 | ,019 | ,001 | ,003 |     | ,35 |
| W-12x22 | 44897         |             | ,09   | 1,12 | ,20 | ,023 | ,031 | ,010 | ,002 | ,133 | ,121 | ,023 | ,570 | ,019 | ,001 | ,003 |     | ,35 |
| W-12x26 | 44819         |             | ,08   | 1,18 | ,19 | ,030 | ,026 | ,009 | ,002 | ,184 | ,146 | ,025 | ,576 | ,017 | ,002 | ,003 |     | ,37 |
| W-12x26 | 44821         |             | ,09   | 1,30 | ,20 | ,019 | ,029 | ,009 | ,002 | ,139 | ,183 | ,028 | ,579 | ,023 | ,001 | ,003 |     | ,39 |
| W-12x26 | 44822         |             | ,11   | 1,20 | ,19 | ,019 | ,024 | ,010 | ,002 | ,130 | ,138 | ,024 | ,547 | ,024 | ,001 | ,003 |     | ,38 |
| W-12x26 | 44829         |             | ,09   | 1,07 | ,18 | ,024 | ,024 | ,010 | ,038 | ,160 | ,135 | ,024 | ,580 | ,003 | ,002 | ,013 |     | ,36 |
| W-12x26 | 44830         |             | ,09   | 1,10 | ,19 | ,023 | ,022 | ,011 | ,039 | ,158 | ,131 | ,024 | ,578 | ,003 | ,002 | ,014 |     | ,36 |
| W-12x26 | 44831         |             | ,09   | 1,08 | ,19 | ,023 | ,023 | ,011 | ,039 | ,157 | ,132 | ,024 | ,575 | ,003 | ,002 | ,016 |     | ,36 |
| W-12x26 | 44833         |             | ,09   | 1,15 | ,20 | ,026 | ,019 | ,011 | ,046 | ,174 | ,127 | ,024 | ,545 | ,003 | ,002 | ,014 |     | ,38 |
| W-12x30 | 44814         |             | ,09   | 1,21 | ,20 | ,017 | ,031 | ,011 | ,002 | ,126 | ,152 | ,023 | ,578 | ,027 | ,001 | ,003 |     | ,37 |
| W-12x30 | 44815         |             | ,08   | 1,23 | ,20 | ,016 | ,029 | ,011 | ,002 | ,124 | ,163 | ,024 | ,577 | ,028 | ,001 | ,003 |     | ,37 |
| W-12x30 | 44816         |             | ,10   | 1,18 | ,19 | ,017 | ,029 | ,010 | ,002 | ,100 | ,118 | ,020 | ,535 | ,022 | ,001 | ,003 |     | ,36 |
| W-12x35 | 44810         |             | ,09   | 1,15 | ,17 | ,017 | ,024 | ,011 | ,002 | ,132 | ,128 | ,020 | ,578 | ,021 | ,002 | ,003 |     | ,36 |
| W-12x35 | 44812         |             | ,09   | 1,17 | ,19 | ,017 | ,026 | ,011 | ,002 | ,108 | ,133 | ,020 | ,543 | ,024 | ,002 | ,003 |     | ,36 |
| W-12x35 | 44813         |             | ,09   | 1,16 | ,18 | ,016 | ,025 | ,010 | ,002 | ,107 | ,131 | ,020 | ,540 | ,024 | ,002 | ,003 |     | ,36 |
| W-16x50 | 44863         |             | ,09   | 1,12 | ,19 | ,023 | ,032 | ,010 | ,002 | ,128 | ,121 | ,023 | ,573 | ,018 | ,002 | ,003 |     | ,35 |
| W-16x50 | 44864         |             | ,09   | 1,15 | ,20 | ,023 | ,030 | ,010 | ,002 | ,128 | ,122 | ,023 | ,572 | ,019 | ,002 | ,003 |     | ,36 |
| W-16x50 | 44865         |             | ,09   | 1,16 | ,20 | ,026 | ,035 | ,010 | ,002 | ,148 | ,137 | ,026 | ,577 | ,018 | ,002 | ,003 |     | ,36 |
| W-18x50 | 44789         |             | ,09   | 1,13 | ,19 | ,019 | ,034 | ,010 | ,002 | ,118 | ,126 | ,022 | ,511 | ,020 | ,001 | ,002 |     | ,35 |
| W-18x50 | 44790         |             | ,09   | 1,10 | ,19 | ,017 | ,024 | ,010 | ,002 | ,112 | ,123 | ,021 | ,492 | ,017 | ,001 | ,003 |     | ,34 |
| W-18x50 | 44791         |             | ,10   | 1,20 | ,21 | ,021 | ,022 | ,009 | ,002 | ,164 | ,137 | ,024 | ,540 | ,019 | ,002 | ,003 |     | ,39 |
| W-18x50 | 44792         |             | ,11   | 1,15 | ,20 | ,023 | ,021 | ,010 | ,002 | ,176 | ,123 | ,023 | ,525 | ,014 | ,002 | ,003 |     | ,38 |
| W-18x50 | 44794         |             | ,10   | 1,15 | ,18 | ,021 | ,020 | ,010 | ,002 | ,177 | ,127 | ,022 | ,556 | ,017 | ,001 | ,003 |     | ,38 |
| W-18x50 | 44795         |             | ,10   | 1,15 | ,20 | ,016 | ,023 | ,010 | ,002 | ,123 | ,138 | ,022 | ,539 | ,018 | ,002 | ,003 |     | ,37 |
| W-18x50 | 44796         |             | ,12   | 1,23 | ,19 | ,022 | ,011 | ,012 | ,002 | ,179 | ,121 | ,019 | ,540 | ,026 | ,003 | ,004 |     | ,41 |
| W-18x50 | 44797         |             | ,13   | 1,25 | ,19 | ,022 | ,016 | ,009 | ,002 | ,184 | ,127 | ,019 | ,563 | ,025 | ,002 | ,003 |     | ,42 |
| W-18x50 | 44798         |             | ,10   | 1,19 | ,21 | ,018 | ,030 | ,011 | ,002 | ,145 | ,144 | ,020 | ,567 | ,022 | ,001 | ,003 |     | ,38 |
| W-18x71 | 44811         |             | ,10   | 1,13 | ,17 | ,022 | ,029 | ,010 | ,002 | ,122 | ,124 | ,026 | ,573 | ,023 | ,002 | ,003 |     | ,36 |
| W-18x71 | 44812         |             | ,09   | 1,10 | ,18 | ,024 | ,024 | ,011 | ,002 | ,150 | ,118 | ,022 | ,569 | ,015 | ,001 | ,003 |     | ,35 |
| W-18x71 | 44813         |             | ,10   | 1,13 | ,17 | ,022 | ,029 | ,010 | ,002 | ,126 | ,124 | ,025 | ,578 | ,023 | ,001 | ,003 |     | ,36 |
| W-18x71 | 44814         |             | ,12   | 1,13 | ,18 | ,020 | ,027 | ,010 | ,002 | ,097 | ,120 | ,022 | ,525 | ,018 | ,002 | ,003 |     | ,38 |
| W-18x71 | 44815         |             | ,12   | 1,14 | ,18 | ,021 | ,027 | ,010 | ,002 | ,098 | ,121 | ,023 | ,529 | ,019 | ,001 | ,003 |     | ,38 |
| W-18x71 | 44816         |             | ,12   | 1,14 | ,18 | ,021 | ,028 | ,010 | ,002 | ,098 | ,121 | ,023 | ,528 | ,020 | ,002 | ,003 |     | ,37 |
| W-18x86 | 21133         |             | ,10   | 1,02 | ,17 | ,017 | ,020 | ,011 | ,026 | ,131 | ,182 | ,034 | ,533 | ,003 | ,002 | ,002 |     | ,36 |
| W-8x10  | 44783         |             | ,11   | 1,20 | ,18 | ,017 | ,027 | ,011 | ,002 | ,129 | ,143 | ,021 | ,558 | ,022 | ,001 | ,003 |     | ,39 |
| W-8x10  | 44784         |             | ,11   | 1,23 | ,22 | ,017 | ,027 | ,009 | ,002 | ,126 | ,142 | ,021 | ,561 | ,022 | ,001 | ,003 |     | ,39 |
| W-8x10  | 44785         |             | ,11   | 1,18 | ,20 | ,018 | ,025 | ,011 | ,002 | ,122 | ,131 | ,020 | ,535 | ,020 | ,001 | ,003 |     | ,38 |
| W-8x10  | 44787         |             | ,10   | 1,13 | ,19 | ,019 | ,026 | ,009 | ,002 | ,125 | ,127 | ,020 | ,513 | ,019 | ,001 | ,003 |     | ,36 |



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## CERTIFICADO DE CALIDAD

**APS 3732**

| C70E<br>MATERIAL SIZE | COLADA HEAT | COMPOSICION QUIMICA (%)<br>CHEMICAL COMPOSITION (%) |      |     |      |      |      |      |      |      |      |      |      |      |      | Cev |  |     |
|-----------------------|-------------|---|------|-----|------|------|------|------|------|------|------|------|------|------|------|-----|--|-----|
|                       |             | C   | Mn   | Si  | P    | S    | N    | V    | Cr   | Ni   | Mo   | Cu   | Nb   | Al   | Ti   |     |  |     |
| B11                   | B08         | C71   | C72  | C73 | C74  | C75  | C76  | C77  | C78  |      |      |      |      |      |      |     |  |     |
| W-8x10                | 44788       | ,08   | 1,16 | ,20 | ,024 | ,026 | ,010 | ,002 | ,137 | ,124 | ,021 | ,577 | ,017 | ,002 | ,003 |     |  | ,36 |

| MATERIAL SIZE | COLADA HEAT | PROPIEDADES MECANICAS<br>MECHANICAL PROPERTIES |        |                  |                 | FLEXIÓN POR CHOQUE<br>IMPACT TEST |        |       |       |       |          |
|---------------|-------------|--|--------|------------------|-----------------|-----------------------------------|--------|-------|-------|-------|----------|
|               |             | ReH MPa  | Rm MPa | A%<br>LO=5.65VSo | Doblado<br>180° | °C                                | KV300  | V1 J. | V2 J. | V3 J. | Media J. |
| B11           | B08         | C11  | C12    | C13              | C20             | C03                               | C40/41 | C42   |       |       | C43      |
| W-10x22       | 44870       | 383  | 547    | 27,4             |                 | +20°                              | 5      | 36    | 40    | 35    | 37       |
| W-10x22       | 44882       | 359  | 539    | 31,2             |                 | +20°                              | 5      | 44    | 41    | 37    | 41       |
| W-12x14       | 44898       | 374  | 538    | 30,4             |                 | +20°                              | 4      | 71    | 58    | 55    | 61       |
| W-12x14       | 44902       | 377  | 545    | 30,4             |                 | +20°                              | 4      | 50    | 43    | 43    | 45       |
| W-12x14       | 44903       | 377  | 540    | 30,              |                 | +20°                              | 4      | 57    | 43    | 55    | 52       |
| W-12x14       | 44904       | 376  | 545    | 30,3             |                 | +20°                              | 4      | 66    | 48    | 60    | 58       |
| W-12x22       | 44886       | 391  | 547    | 31,9             |                 | +20°                              | 5      | 41    | 41    | 36    | 39       |
| W-12x22       | 44891       | 409  | 538    | 34,              |                 | +20°                              | 5      | 40    | 38    | 37    | 38       |
| W-12x22       | 44892       | 395  | 539    | 33,7             |                 | +20°                              | 5      | 37    | 40    | 37    | 38       |
| W-12x22       | 44897       | 382  | 542    | 32,2             |                 | +20°                              | 5      | 43    | 38    | 38    | 40       |
| W-12x26       | 44819       | 359  | 544    | 26,8             |                 | +20°                              | 5      | 44    | 38    | 37    | 40       |
| W-12x26       | 44821       | 357  | 542    | 26,4             |                 | +20°                              | 5      | 44    | 37    | 36    | 39       |
| W-12x26       | 44822       | 394  | 541    | 23,3             |                 | +20°                              | 5      | 43    | 37    | 36    | 39       |
| W-12x26       | 44829       | 415  | 537    | 30,8             |                 | +20°                              | 5      | 150   | 128   | 147   | 142      |
| W-12x26       | 44830       | 415  | 539    | 31,4             |                 | +20°                              | 5      | 177   | 164   | 187   | 176      |
| W-12x26       | 44831       | 405  | 530    | 30,4             |                 | +20°                              | 5      | 74    | 59    | 72    | 68       |
| W-12x26       | 44833       | 432  | 540    | 29,3             |                 | +20°                              | 5      | 188   | 159   | 158   | 168      |
| W-12x30       | 44814       | 380  | 546    | 26,4             |                 | +20°                              | 5      | 50    | 41    | 40    | 44       |
| W-12x30       | 44815       | 368  | 547    | 26,8             |                 | +20°                              | 5      | 46    | 38    | 35    | 40       |
| W-12x30       | 44816       | 397  | 541    | 27,3             |                 | +20°                              | 5      | 37    | 36    | 36    | 36       |
| W-12x35       | 44810       | 388  | 546    | 26,4             |                 | +20°                              | 5      | 42    | 38    | 42    | 41       |
| W-12x35       | 44812       | 404  | 541    | 25,9             |                 | +20°                              | 5      | 38    | 38    | 38    | 38       |
| W-12x35       | 44813       | 402  | 540    | 27,6             |                 | +20°                              | 5      | 40    | 37    | 35    | 37       |
| W-16x50       | 44863       | 393  | 538    | 31,2             |                 | +20°                              | 7,5    | 37    | 37    | 41    | 38       |
| W-16x50       | 44864       | 379  | 549    | 27,6             |                 | +20°                              | 7,5    | 39    | 41    | 39    | 40       |
| W-16x50       | 44865       | 368  | 545    | 27,3             |                 | +20°                              | 7,5    | 46    | 36    | 40    | 41       |
| W-18x50       | 44789       | 404  | 546    | 27,2             |                 | +20°                              | 10     | 63    | 50    | 52    | 55       |
| W-18x50       | 44790       | 405  | 539    | 30,4             |                 | +20°                              | 10     | 86    | 66    | 77    | 76       |
| W-18x50       | 44791       | 384  | 548    | 27,              |                 | +20°                              | 10     | 52    | 40    | 46    | 46       |
| W-18x50       | 44792       | 387  | 540    | 27,4             |                 | +20°                              | 10     | 60    | 56    | 62    | 59       |
| W-18x50       | 44794       | 415  | 542    | 28,6             |                 | +20°                              | 10     | 91    | 77    | 87    | 85       |
| W-18x50       | 44795       | 424  | 544    | 28,6             |                 | +20°                              | 10     | 94    | 84    | 100   | 93       |
| W-18x50       | 44796       | 412  | 545    | 27,3             |                 | +20°                              | 10     | 78    | 61    | 80    | 73       |
| W-18x50       | 44797       | 408  | 543    | 27,5             |                 | +20°                              | 10     | 46    | 40    | 35    | 40       |
| W-18x50       | 44798       | 434  | 548    | 30,3             |                 | +20°                              | 10     | 117   | 94    | 91    | 101      |
| W-18x71       | 44811       | 400  | 546    | 27,6             |                 | +20°                              | 10     | 51    | 44    | 49    | 48       |
| W-18x71       | 44812       | 381  | 536    | 30,5             |                 | +20°                              | 10     | 68    | 61    | 60    | 63       |
| W-18x71       | 44813       | 403  | 546    | 27,8             |                 | +20°                              | 10     | 54    | 42    | 51    | 49       |
| W-18x71       | 44814       | 403  | 547    | 28,3             |                 | +20°                              | 10     | 50    | 47    | 47    | 48       |



**ACERALIA PERFILES**  
Grupo Arcelor

CARRETERA TOLEDO, KM. 9  
28021 MADRID  
TELEF. (91) 797.23.00 - FAX (91) 505.02.57

**AENOR**  
**ER**  
Empresa Registrada  
ER-0036/1992  
ER-0152/1993  
ER-0262/1994

## CERTIFICADO DE CALIDAD

APS 3732

| MATERIAL SIZE | COLADA HEAT | PROPIEDADES MECANICAS MECHANICAL PROPERTIES |        |                           |      | Doblado 180° | °C | FLEXIÓN POR CHOQUE IMPACT TEST |       |       |       |          | Media J. |
|---------------|-------------|---|--------|---------------------------|------|--------------|----|--------------------------------|-------|-------|-------|----------|----------|
|               |             | ReH MPa                                     | Rm MPa | A% LO=5.65V <sub>50</sub> | °C   |              |    | KV300                          | V1 J. | V2 J. | V3 J. | Media J. |          |
| W-18x71       | 44816       | 412   | 543    | 26,5                      | +20° | 10           | 61 | 47                             | 59    | 56    |       |          |          |
| W-18x86       | 21133       | 365   | 508    | 38,1                      | +20° | 10           | 78 | 68                             | 69    | 72    |       |          |          |
| W-8x10        | 44783       | 364   | 550    | 28,5                      | +20° | 3            | 52 | 46                             | 53    | 50    |       |          |          |
| W-8x10        | 44784       | 374   | 544    | 32,                       | +20° | 3            | 59 | 55                             | 58    | 57    |       |          |          |
| W-8x10        | 44785       | 362   | 548    | 33,1                      | +20° | 3            | 76 | 64                             | 71    | 70    |       |          |          |
| W-8x10        | 44787       | 365   | 549    | 30,2                      | +20° | 3            | 79 | 59                             | 64    | 67    |       |          |          |
| W-8x10        | 44788       | 364   | 539    | 29,6                      | +20° | 3            | 63 | 57                             | 62    | 61    |       |          |          |

### 47 análisis

D01: Certificamos que los aceros arriba indicados han sido satisfactoriamente probados de acuerdo con la especificación.  
B06: Marca APO

Luis Maria Lakunza