

STEELS

INOX

SUPERNOX

CHIPSPLITTERS

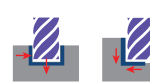
Aluminiums

ROCKSTARS

MICRO MILLS

UNIVERSAL

DRILLS



Technical Info. Page No. **148**

| Steels<br><45 HRC |                | Stainless Steels<br><900 N/mm² |                | Cast Irons<br><300 HB |       | Hardened Steels<br>- |                | Titaniums<br><900 N/mm² |                | Super Alloys<br><900 N/mm² |  | Aluminiums<br>- |  |
|-------------------|----------------|--------------------------------|----------------|-----------------------|-------|----------------------|----------------|-------------------------|----------------|----------------------------|--|-----------------|--|
| d <sub>1</sub>    | d <sub>1</sub> | d <sub>2</sub>                 | l <sub>2</sub> | l <sub>1</sub>        | Point | z                    | EDP No. HA     |                         | EDP No. HB     |                            |  |                 |  |
|                   | tol.           | h6                             | ±0,50          | ±0,80                 |       |                      | AlCrN          |                         | AlCrN          |                            |  |                 |  |
| 3.0               | -0.025         | 3                              | -              | 38                    | 60°   | 4                    | EMDA 0602 0300 |                         |                |                            |  |                 |  |
| 4.0               | -0.025         | 4                              | -              | 54                    | 60°   | 4                    | EMDA 0602 0400 |                         |                |                            |  |                 |  |
| 6.0               | -0.025         | 6                              | -              | 57                    | 60°   | 4                    | EMDA 0602 0600 |                         | EMDA 0612 0600 |                            |  |                 |  |
| 8.0               | -0.025         | 8                              | -              | 63                    | 60°   | 4                    | EMDA 0602 0800 |                         | EMDA 0612 0800 |                            |  |                 |  |
| 10.0              | -0.035         | 10                             | -              | 72                    | 60°   | 4                    | EMDA 0602 1000 |                         | EMDA 0612 1000 |                            |  |                 |  |
| 12.0              | -0.035         | 12                             | -              | 83                    | 60°   | 4                    | EMDA 0602 1200 |                         | EMDA 0612 1200 |                            |  |                 |  |
| 16.0              | -0.035         | 16                             | -              | 92                    | 60°   | 4                    | EMDA 0602 1600 |                         | EMDA 0612 1600 |                            |  |                 |  |
| 20.0              | -0.035         | 20                             | -              | 104                   | 60°   | 4                    | EMDA 0602 2000 |                         | EMDA 0612 2000 |                            |  |                 |  |
|                   |                |                                |                |                       |       |                      |                |                         |                |                            |  |                 |  |
| 1.0               | -0.025         | 3                              | -              | 38                    | 90°   | 3                    | EMDA 0902 0100 |                         |                |                            |  |                 |  |
| 2.0               | -0.025         | 3                              | -              | 38                    | 90°   | 3                    | EMDA 0902 0200 |                         |                |                            |  |                 |  |
| 3.0               | -0.025         | 3                              | -              | 38                    | 90°   | 4                    | EMDA 0902 0300 |                         |                |                            |  |                 |  |
| 4.0               | -0.025         | 4                              | -              | 54                    | 90°   | 4                    | EMDA 0902 0400 |                         |                |                            |  |                 |  |
| 6.0               | -0.025         | 6                              | -              | 57                    | 90°   | 4                    | EMDA 0902 0600 |                         | EMDA 0912 0600 |                            |  |                 |  |
| 8.0               | -0.025         | 8                              | -              | 63                    | 90°   | 4                    | EMDA 0902 0800 |                         | EMDA 0912 0800 |                            |  |                 |  |
| 10.0              | -0.035         | 10                             | -              | 72                    | 90°   | 4                    | EMDA 0902 1000 |                         | EMDA 0912 1000 |                            |  |                 |  |
| 12.0              | -0.035         | 12                             | -              | 83                    | 90°   | 4                    | EMDA 0902 1200 |                         | EMDA 0912 1200 |                            |  |                 |  |
| 16.0              | -0.035         | 16                             | -              | 92                    | 90°   | 4                    | EMDA 0902 1600 |                         | EMDA 0912 1600 |                            |  |                 |  |
| 20.0              | -0.035         | 20                             | -              | 104                   | 90°   | 4                    | EMDA 0902 2000 |                         | EMDA 0912 2000 |                            |  |                 |  |
|                   |                |                                |                |                       |       |                      |                |                         |                |                            |  |                 |  |
| 3.0               | -0.025         | 3                              | -              | 38                    | 120°  | 4                    | EMDA 1202 0300 |                         |                |                            |  |                 |  |
| 4.0               | -0.025         | 4                              | -              | 54                    | 120°  | 4                    | EMDA 1202 0400 |                         |                |                            |  |                 |  |
| 6.0               | -0.025         | 6                              | -              | 57                    | 120°  | 4                    | EMDA 1202 0600 |                         | EMDA 1212 0600 |                            |  |                 |  |
| 8.0               | -0.025         | 8                              | -              | 63                    | 120°  | 4                    | EMDA 1202 0800 |                         | EMDA 1212 0800 |                            |  |                 |  |
| 10.0              | -0.035         | 10                             | -              | 72                    | 120°  | 4                    | EMDA 1202 1000 |                         | EMDA 1212 1000 |                            |  |                 |  |
| 12.0              | -0.035         | 12                             | -              | 83                    | 120°  | 4                    | EMDA 1202 1200 |                         | EMDA 1212 1200 |                            |  |                 |  |
| 16.0              | -0.035         | 16                             | -              | 92                    | 120°  | 4                    | EMDA 1202 1600 |                         | EMDA 1212 1600 |                            |  |                 |  |
| 20.0              | -0.035         | 20                             | -              | 104                   | 120°  | 4                    | EMDA 1202 2000 |                         | EMDA 1212 2000 |                            |  |                 |  |

|     | MATERIAL                               |                | Hardness | ap max |         | ae max  |       | Vc    |       | fz (mm/z) Ø |       |       |       |       |       |       |       |       |    |  |
|-------------------------------------------------------------------------------------|----------------------------------------|----------------|----------|--------|---------|---------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|----|--|
|                                                                                     | SLOTING                                |                |          | xD     | xD      | (m/min) | 1     | 2     | 3     | 4           | 5     | 6     | 8     | 10    | 12    | 14    | 16    | 18    | 20 |  |
|    | Steels, Alloy Steels and Tool Steels   | <850 N/mm²     | 0.5      | 1      | 80-100  | 0.004   | 0.008 | 0.012 | 0.016 | 0.020       | 0.025 | 0.032 | 0.038 | 0.045 | 0.052 | 0.060 | 0.070 | 0.080 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | 850-1200 N/mm² | 0.5      | 1      | 50-70   | 0.003   | 0.007 | 0.010 | 0.014 | 0.017       | 0.021 | 0.027 | 0.032 | 0.038 | 0.044 | 0.051 | 0.060 | 0.068 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | <1400 N/mm²    | 0.5      | 1      | 30-50   | 0.003   | 0.006 | 0.009 | 0.012 | 0.015       | 0.019 | 0.024 | 0.029 | 0.034 | 0.039 | 0.045 | 0.053 | 0.060 |    |  |
|    | Stainless Steel : Easy To Machine      | <750 N/mm²     | 0.5      | 1      | 50-70   | 0.003   | 0.007 | 0.010 | 0.014 | 0.017       | 0.021 | 0.027 | 0.032 | 0.038 | 0.044 | 0.051 | 0.060 | 0.068 |    |  |
|                                                                                     | Stainless Steel : Difficult To Machine | <950 N/mm²     | 0.5      | 1      | 30-50   | 0.003   | 0.006 | 0.009 | 0.012 | 0.015       | 0.019 | 0.024 | 0.029 | 0.034 | 0.039 | 0.045 | 0.053 | 0.060 |    |  |
|    | Cast Irons, Grey, Spher., Melleable    | <300 HB        | 0.5      | 1      | 50-70   | 0.003   | 0.007 | 0.010 | 0.014 | 0.017       | 0.021 | 0.027 | 0.032 | 0.038 | 0.044 | 0.051 | 0.060 | 0.068 |    |  |
|    | Aluminiums, Aluminiums Alloys          | <6% Si         | 0.5      | 1      | 100-120 | 0.005   | 0.010 | 0.016 | 0.021 | 0.026       | 0.033 | 0.042 | 0.049 | 0.059 | 0.068 | 0.079 | 0.091 | 0.104 |    |  |
|    | Titanium , Titanium Alloys             | <1100N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|    | HRSA (Nickel Alloys, Co. Alloys)       | <1300N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|     | SIDE MILLING                           |                |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|    | Steels, Alloy Steels and Tool Steels   | <850 N/mm²     | 1.5      | 0.5    | 80-100  | 0.005   | 0.010 | 0.014 | 0.019 | 0.024       | 0.030 | 0.038 | 0.046 | 0.054 | 0.063 | 0.072 | 0.084 | 0.096 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | 850-1200 N/mm² | 1.5      | 0.5    | 50-70   | 0.004   | 0.008 | 0.012 | 0.016 | 0.020       | 0.026 | 0.033 | 0.039 | 0.046 | 0.053 | 0.061 | 0.071 | 0.082 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | <1400 N/mm²    | 1.5      | 0.5    | 30-50   | 0.004   | 0.007 | 0.011 | 0.014 | 0.019       | 0.023 | 0.029 | 0.034 | 0.041 | 0.047 | 0.054 | 0.063 | 0.072 |    |  |
|    | Stainless Steel : Easy To Machine      | <750 N/mm²     | 1.5      | 0.5    | 50-70   | 0.004   | 0.008 | 0.012 | 0.016 | 0.020       | 0.026 | 0.033 | 0.039 | 0.046 | 0.053 | 0.061 | 0.071 | 0.082 |    |  |
|                                                                                     | Stainless Steel : Difficult To Machine | <950 N/mm²     | 1.5      | 0.5    | 30-50   | 0.004   | 0.007 | 0.011 | 0.014 | 0.019       | 0.023 | 0.029 | 0.034 | 0.041 | 0.047 | 0.054 | 0.063 | 0.072 |    |  |
|    | Cast Irons, Grey, Spher., Melleable    | <300 HB        | 1.5      | 0.5    | 50-70   | 0.004   | 0.008 | 0.012 | 0.016 | 0.020       | 0.026 | 0.033 | 0.039 | 0.046 | 0.053 | 0.061 | 0.071 | 0.082 |    |  |
|    | Aluminiums, Aluminiums Alloys          | <6% Si         | 1.5      | 0.5    | 100-120 | 0.006   | 0.012 | 0.019 | 0.025 | 0.031       | 0.039 | 0.050 | 0.059 | 0.070 | 0.081 | 0.094 | 0.109 | 0.125 |    |  |
|    | Titanium , Titanium Alloys             | <1100N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|    | HRSA (Nickel Alloys, Co. Alloys)       | <1300N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|     | COPYING MILLING [ EMB 230 , EMB 430 ]  |                |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|    | Steels, Alloy Steels and Tool Steels   | <850 N/mm²     | 0.1      | 0.1    | 80-100  | 0.030   | 0.040 | 0.050 | 0.060 | 0.070       | 0.080 | 0.090 | 0.105 | 0.120 | 0.126 | 0.150 | 0.162 | 0.018 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | 850-1200 N/mm² | 0.1      | 0.1    | 60-80   | 0.023   | 0.030 | 0.038 | 0.045 | 0.053       | 0.060 | 0.068 | 0.079 | 0.090 | 0.098 | 0.113 | 0.126 | 0.135 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | <1400 N/mm²    | 0.1      | 0.1    | 40-60   | 0.021   | 0.028 | 0.035 | 0.042 | 0.049       | 0.056 | 0.063 | 0.074 | 0.084 | 0.084 | 0.106 | 0.108 | 0.126 |    |  |
|    | Stainless Steel : Easy To Machine      | <750 N/mm²     | 0.1      | 0.1    | 60-80   | 0.023   | 0.030 | 0.038 | 0.045 | 0.053       | 0.060 | 0.068 | 0.079 | 0.090 | 0.098 | 0.113 | 0.126 | 0.135 |    |  |
|                                                                                     | Stainless Steel : Difficult To Machine | <950 N/mm²     | 0.1      | 0.1    | 40-60   | 0.021   | 0.028 | 0.035 | 0.042 | 0.049       | 0.056 | 0.063 | 0.074 | 0.084 | 0.084 | 0.106 | 0.108 | 0.126 |    |  |
|    | Cast Irons, Grey, Spher., Melleable    | <300 HB        | 0.1      | 0.1    | 60-80   | 0.023   | 0.030 | 0.038 | 0.045 | 0.053       | 0.060 | 0.068 | 0.079 | 0.090 | 0.098 | 0.113 | 0.126 | 0.135 |    |  |
|   | Aluminiums, Aluminiums Alloys          | <6% Si         | 0.1      | 0.1    | 110-130 | 0.036   | 0.048 | 0.060 | 0.072 | 0.084       | 0.096 | 0.108 | 0.124 | 0.144 | 0.154 | 0.180 | 0.198 | 0.216 |    |  |
|  | Titanium , Titanium Alloys             | <1100N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|  | HRSA (Nickel Alloys, Co. Alloys)       | <1300N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|   | DRILLING [ONLY 2FL, EMS 230]           |                |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|  | Steels, Alloy Steels and Tool Steels   | <850 N/mm²     | 1        | 1      | 70-90   | 0.002   | 0.005 | 0.007 | 0.010 | 0.012       | 0.016 | 0.019 | 0.023 | 0.027 | 0.031 | 0.036 | 0.042 | 0.048 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | 850-1200 N/mm² | 1        | 1      | 40-60   | 0.002   | 0.004 | 0.006 | 0.008 | 0.010       | 0.013 | 0.016 | 0.019 | 0.023 | 0.027 | 0.031 | 0.036 | 0.041 |    |  |
|                                                                                     | Steels, Alloy Steels and Tool Steels   | <1400 N/mm²    | 0.5      | 1      | 25-35   | 0.002   | 0.004 | 0.005 | 0.007 | 0.009       | 0.011 | 0.014 | 0.017 | 0.020 | 0.023 | 0.027 | 0.032 | 0.036 |    |  |
|  | Stainless Steel : Easy To Machine      | <750 N/mm²     | 1        | 1      | 40-60   | 0.002   | 0.004 | 0.006 | 0.008 | 0.010       | 0.013 | 0.016 | 0.019 | 0.023 | 0.027 | 0.031 | 0.036 | 0.041 |    |  |
|                                                                                     | Stainless Steel : Difficult To Machine | <950 N/mm²     | 0.5      | 1      | 25-35   | 0.002   | 0.004 | 0.005 | 0.007 | 0.009       | 0.011 | 0.014 | 0.017 | 0.020 | 0.023 | 0.027 | 0.032 | 0.036 |    |  |
|  | Cast Irons, Grey, Spher., Melleable    | <300 HB        | 1        | 1      | 40-60   | 0.002   | 0.004 | 0.006 | 0.008 | 0.010       | 0.013 | 0.016 | 0.019 | 0.023 | 0.027 | 0.031 | 0.036 | 0.041 |    |  |
|  | Aluminiums, Aluminiums Alloys          | <6% Si         | 1        | 1      | 80-100  | 0.003   | 0.006 | 0.009 | 0.012 | 0.016       | 0.020 | 0.025 | 0.030 | 0.035 | 0.041 | 0.047 | 0.055 | 0.062 |    |  |
|  | Titanium , Titanium Alloys             | <1100N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |
|  | HRSA (Nickel Alloys, Co. Alloys)       | <1300N/mm²     |          |        |         |         |       |       |       |             |       |       |       |       |       |       |       |       |    |  |

## CHAMFER MILLS

EMDA 60/90/120

|  | MATERIAL                               | Hardness       | ap max | ae max | Vc<br>(m/min) | fz (mm/z) Ø |       |       |       |       |       |       |       |       |
|------------------------------------------------------------------------------------|----------------------------------------|----------------|--------|--------|---------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                                    | SIDE MILLING                           |                | xD     | xD     |               | 3           | 4     | 5     | 6     | 8     | 10    | 12    | 16    | 20    |
| P                                                                                  | Steels, Alloy Steels and Tool Steels   | <850 N/mm²     | 1      | <0.3   | 130-180       | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
|                                                                                    | Steels, Alloy Steels and Tool Steels   | 850-1200 N/mm² | 1      | <0.3   | 130-180       | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
|                                                                                    | Steels, Alloy Steels and Tool Steels   | <1400 N/mm²    | 1      | <0.3   | 90-100        | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
| M                                                                                  | Stainless Steel : Easy To Machine      | <750 N/mm²     | 1      | <0.3   | 60-80         | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
|                                                                                    | Stainless Steel : Difficult To Machine | <950 N/mm²     | 1      | <0.3   | 60-80         | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
| K                                                                                  | Cast Irons, Grey, Spher., Melleable    | <300 HB        | 1      | <0.3   | 110-160       | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
| N                                                                                  | Aluminiums, Aluminiums Alloys          | <6% Si         |        |        |               |             |       |       |       |       |       |       |       |       |
| S                                                                                  | Titanium , Titanium Alloys             | <1100N/mm²     | 1      | <0.3   | 60-80         | 0.015       | 0.020 | 0.024 | 0.030 | 0.040 | 0.045 | 0.065 | 0.080 | 0.100 |
| S                                                                                  | HRSA (Nickel Alloys, Co. Alloys)       | <1300N/mm²     |        |        |               |             |       |       |       |       |       |       |       |       |

Technical Data provided should be considered advisory only as variations may be necessary depending on the particular application