

# 2738

Suitable for plastic molds with a thickness greater than 400mm , such as bumper、 car panel, which can be polished and textured.

# 2738H

Excellent hardenability of pre hardened steel, with better texturing and polishing performance than 2738, and good machining performance, suitable for bumpers and automotive interiors, suitable for medium and large molds.

# 2738HH

Compared with 1.2738, it has high purity and good polishing and shading performance, suitable for large molds,

✘ If there are requirements for fine-texturing or high polish on the surface, must select XPM。

|                          |                                                                         |                           |         |                      |                        |                    |      |
|--------------------------|-------------------------------------------------------------------------|---------------------------|---------|----------------------|------------------------|--------------------|------|
| material characteristics | material number / grade                                                 | SWG 2738 / 2738H / 2738HH |         |                      |                        |                    |      |
|                          | DIN standard                                                            | 40CrMnNiMo8-6-4           |         |                      |                        |                    |      |
|                          | comparable grade                                                        | AISI P20+Ni               |         |                      |                        |                    |      |
|                          | chemical composition - reference analysis [%]                           | C                         | Si      | Mn                   | Cr                     | Mo                 | Ni   |
|                          |                                                                         | 0.36                      | 0.25    | 1.50                 | 1.80                   | 0.20               | 1.10 |
|                          | production technology                                                   | EAF/LF/VD, forging, Q+T   |         |                      |                        |                    |      |
|                          | service hardness / strength converted acc. to DIN EN ISO 18265 table B2 |                           | HB      | HRC                  | N/mm <sup>2</sup>      | core hardness      |      |
|                          |                                                                         |                           | 293-359 | 30-38                | 931-1140               |                    |      |
|                          | delivery condition Q+T                                                  | thickness <600mm          | 293-323 | 30-34                | 931-1025               | min. 271HB (27HRC) |      |
|                          |                                                                         | thickness ≥600mm          | 293-323 | 30-34                | 931-1025               | min. 265HB (26HRC) |      |
| thickness <600mm         |                                                                         | 308-341                   | 32-36   | 978-1085             | min. 278HB (28HRC)     |                    |      |
| thickness ≥600mm         |                                                                         | 308-341                   | 32-36   | 978-1085             | min. 271HB (27HRC)     |                    |      |
| thickness <600mm         |                                                                         | 324-359                   | 34-38   | 1029-1140            | min. 300HB (31HRC)     |                    |      |
| thickness ≥600mm         |                                                                         | 324-359                   | 34-38   | 1029-1140            | min. 293HB (30HRC)     |                    |      |
| maximum dimension        | diameter                                                                | thickness                 |         |                      | variation upon request |                    |      |
|                          | ≤ 1300 mm                                                               | ≤ 1200 mm                 |         |                      |                        |                    |      |
| US-specification         | EN 10228-3                                                              |                           |         | SEP 1921             |                        |                    |      |
|                          | table 3 - type 1 - qual. class 3                                        |                           |         | group 3 - class D,d  |                        |                    |      |
| cleanliness              | DIN 50602                                                               |                           |         | ASTM E45 method A    |                        |                    |      |
|                          | K4 ≤ 20                                                                 |                           |         | A ≤ 1,5; B, C, D ≤ 2 |                        |                    |      |

|                          |                               |   |   |   |   |   |   |                                              |
|--------------------------|-------------------------------|---|---|---|---|---|---|----------------------------------------------|
| technological properties |                               | 0 | 1 | 2 | 3 | 4 | 5 | comment                                      |
|                          | toughness                     |   | ■ | ■ | ■ |   |   | in relation to service hardness              |
|                          | hot strength at working temp. |   | ■ | ■ | ■ |   |   |                                              |
|                          | wear resistance               |   | ■ | ■ |   |   |   |                                              |
|                          | corrosion resistance          | ■ |   |   |   |   |   |                                              |
|                          | machinability                 |   | ■ | ■ | ■ |   |   | Q+T                                          |
|                          | polishability                 |   | ■ | ■ |   |   |   | ISO/SPI: N3/A-3; for higher: 738HH or XPM    |
|                          | weldability                   |   | ■ | ■ | ■ |   |   | CET = 0.68 % acc. DIN EN 1011-2              |
|                          | texturability                 |   | ■ | ■ |   |   |   | for high texturing reliability: 738HH or XPM |
|                          | nitridability                 |   | ■ | ■ | ■ |   |   | nitriding hardness 700 - 850 HV1             |
| chrome-platability       |                               | ■ | ■ | ■ |   |   |   |                                              |

rating properties: 0 = not suitable; 1 = low; 2 = middle; 3 = good; 4 = very good; 5 = perfectly suitable

|                                       |                                                                                              |        |        |        |        |
|---------------------------------------|----------------------------------------------------------------------------------------------|--------|--------|--------|--------|
| physical properties                   | thermal conductivity [W · m <sup>-1</sup> · K <sup>-1</sup> ]                                | 20 °C  | 200 °C | 300 °C | 500 °C |
|                                       |                                                                                              | 34.2   | 35.4   | 34.7   | 32.5   |
|                                       | coefficient of thermal expansion between 20 °C and ... [10 <sup>-6</sup> · K <sup>-1</sup> ] | 100 °C | 200 °C | 300 °C | 500 °C |
|                                       |                                                                                              | 11.8   | 12.9   | 13.4   | 14.2   |
| elastic modulus [kN/mm <sup>2</sup> ] | 20 °C                                                                                        | 200 °C | 300 °C | 500 °C |        |
|                                       |                                                                                              | 212    | 207    | 192    | 175    |

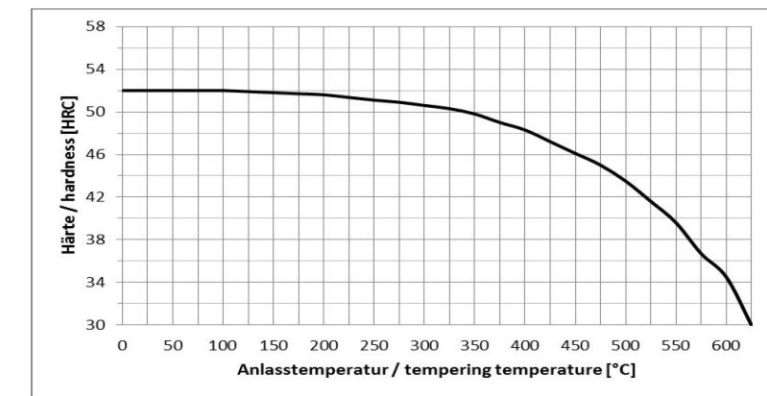
|             |                     |                                                                                                                       |
|-------------|---------------------|-----------------------------------------------------------------------------------------------------------------------|
| application | technology          | mold making, injection molding                                                                                        |
|             | tools               | plastic molds, large mold frames, die-holder                                                                          |
|             | process temperature | < 250 °C                                                                                                              |
|             | tool size           | medium- and large-sized molds                                                                                         |
|             | final products      | standard plastic parts                                                                                                |
|             | features            | quenched and tempered, can be used as replacement for 2311, for high surface requirements use XPM and XPM VICTORY ESR |

|                             |                    |
|-----------------------------|--------------------|
| SWG processing instructions | welding, texturing |
|-----------------------------|--------------------|

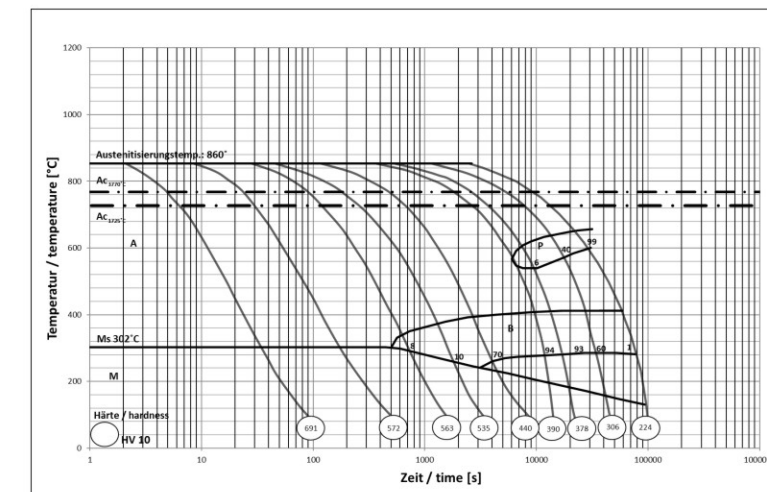
|                |                            |            |            |                                  |
|----------------|----------------------------|------------|------------|----------------------------------|
| heat treatment |                            | T min [°C] | T max [°C] | medium / comment                 |
|                | annealing                  | 710        | 740        | air                              |
|                | hardening                  | 850        | 880        | oil, polymer                     |
|                | tempering                  | 520        | 640        | air                              |
|                | stress relieving           | 490        | 550        | min. 30 °C below tempering temp. |
|                | pre-heating before welding | 320        | 350        |                                  |
|                | nitriding                  | 400        | 550        | min. 30 °C below tempering temp. |
| PVD-treating   | 400                        | 550        |            |                                  |

|                    |                          |                 |
|--------------------|--------------------------|-----------------|
| diagrams/structure | CCT-diagram              | yes             |
|                    | tempering diagram        | yes             |
|                    | advice on heat treatment | pre-hardened    |
|                    | microstructure           | mainly bainitic |

Tempering diagram: Average values on samples dia 25 mm x length 50 mm; hardened at 880 °C in oil



CCT-diagram



PLEASE NOTE: The information contained in this data sheet is unbinding. It merely serves the first orientation of the user. Therefore, we do not assume any liability for the correctness, completeness or up-to-dateness of such data. In case of an order, the properties of the product are exclusively subject to the provisions of the respective contract.  
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### 德标钢种 Din Grades

| 应用<br>Application                 | 交付状态<br>Delivery Condition     | 钢种<br>Grade           | 化学成分 %<br>Typical SWG analysis in w% |       |      |       |      |               | 硬度(表面)<br>Service hardness (surface) |
|-----------------------------------|--------------------------------|-----------------------|--------------------------------------|-------|------|-------|------|---------------|--------------------------------------|
|                                   |                                |                       | C                                    | Cr    | Mo   | Ni    | V    | 其它<br>Others  |                                      |
| 塑胶钢<br>Plastic Mold Steels        | 预硬<br>Q+T                      | 2311                  | 0.40                                 | 2.00  | 0.20 | -     | -    | -             | 28-34 HRC                            |
|                                   |                                | 2312                  | 0.40                                 | 1.90  | 0.20 | -     | -    | S-0.05        | 28-34 HRC                            |
|                                   |                                | 2738 / 2738H / 2738HH | 0.36                                 | 1.80  | 0.20 | 1.10  | -    | -             | 30-38 HRC                            |
|                                   |                                | 2711mod               | 0.55                                 | 1.10  | 0.80 | 2.00  | 0.10 | -             | 36-42 HRC                            |
|                                   |                                | 2714                  | 0.55                                 | 1.10  | 0.50 | 1.70  | 0.10 | -             | 38-44 HRC                            |
|                                   | 退火annealed                     | 2767                  | 0.45                                 | 1.25  | 0.20 | 3.90  | -    | -             | 49-53 HRC                            |
| 不锈钢<br>Corrosion Resistant Steels | 预硬<br>Q+T                      | 2085                  | 0.33                                 | 16.00 | -    | <1.00 | -    | S-0.08        | 28-34 HRC                            |
|                                   |                                | 2316                  | 0.35                                 | 15.50 | 1.00 | 0.50  | -    | -             | 28-34 HRC                            |
|                                   |                                | 2316 VICTORY ESR      | 0.35                                 | 15.50 | 1.00 | 0.50  | -    | -             | 28-34 HRC                            |
|                                   |                                | 2316mod VICTORY ESR   | 0.26                                 | 15.00 | 1.00 | 0.70  | -    | -             | 28-34 HRC                            |
|                                   | 预硬<br>Q+T<br>退火<br>annealed    | 2083                  | 0.40                                 | 13.00 | -    | -     | -    | -             | 32-52 HRC                            |
|                                   |                                | 2083 VICTORY ESR      | 0.40                                 | 13.00 | -    | -     | -    | -             | 32-52 HRC                            |
|                                   |                                | 2083mod VICTORY ESR   | 0.38                                 | 13.00 | -    | -     | 0.25 | 添加<br>alloyed | 29-52 HRC                            |
|                                   |                                | 2343 / EX3            | 0.36                                 | 5.00  | 1.20 | -     | 0.40 | -             | 36-52 HRC                            |
| 热作钢<br>Hot Work Steels            | 超精细化<br>退火<br>EFS-<br>annealed | 2343 VICTORY ESR      | 0.36                                 | 5.00  | 1.20 | -     | 0.40 | -             | 36-52 HRC                            |
|                                   |                                | 2344 / EX4            | 0.40                                 | 5.20  | 1.30 | -     | 1.00 | -             | 36-52 HRC                            |
|                                   |                                | 2344 VICTORY ESR      | 0.40                                 | 5.20  | 1.30 | -     | 1.00 | -             | 36-52 HRC                            |
|                                   |                                | 2367 VICTORY ESR      | 0.36                                 | 5.10  | 2.80 | -     | 0.55 | -             | 35-52 HRC                            |
|                                   |                                | 2357                  | 0.50                                 | 3.30  | 1.50 | -     | 0.25 | -             | 52-56 HRC                            |
| 冷作钢<br>Cold Work Steels           | 退火<br>annealed                 | 2379                  | 1.55                                 | 12.00 | 0.90 | -     | 0.90 | -             | 58-62 HRC                            |

### 葛利兹钢种 SWG Grades

| 交付状态<br>Delivery Condition | 钢种<br>Grade          | 化学成分 %<br>Typical SWG analysis in w% |       |               |       |               |               | 硬度(表面)<br>Service hardness (surface) |
|----------------------------|----------------------|--------------------------------------|-------|---------------|-------|---------------|---------------|--------------------------------------|
|                            |                      | C                                    | Cr    | Mo            | Ni    | V             | 其它<br>Others  |                                      |
| 预硬<br>Q+T                  | 738HH                | 0.27                                 | 1.35  | 添加<br>alloyed | 1.00  | -             | 添加<br>alloyed | 32-38 HRC                            |
|                            | XPM                  | 0.27                                 | 1.35  | 0.50          | 1.00  | -             | 添加<br>alloyed | 38-42 HRC                            |
|                            | XPM VICTORY ESR      | 0.30                                 | 1.35  | 0.70          | 1.00  | -             | 添加<br>alloyed | 38-42 HRC                            |
|                            | CPM40 VICTORY ESR    | 0.15                                 | 4.00  | 1.10          | 3.00  | -             | 添加<br>alloyed | 38-42 HRC                            |
|                            | GEST80 VICTORY ESR   | 0.14                                 | 0.30  | 0.30          | 2.80  | -             | Cu, Al        | 38-42 HRC                            |
|                            | 退火annealed           | GPM58 VICTORY ESR                    | 0.50  | 5.00          | 2.20  | 添加<br>alloyed | 0.70          | -                                    |
| 预硬 Q+T                     | CPM50 VICTORY ESR    | 0.28                                 | 14.00 | -             | 0.60  | -             | N             | 38-42 HRC                            |
| 退火<br>annealed             | CRMHP VICTORY ESR    | 0.25                                 | 14.00 | -             | 0.60  | -             | N             | 50-52 HRC                            |
|                            | OPTI N+ PESR         | 0.15                                 | 14.00 | -             | 0.60  | -             | N             | 50-57 HRC                            |
|                            | HNS28 PESR           | 0.25                                 | 14.00 | -             | 0.60  | -             | N             | 57-59 HRC                            |
|                            | HNS40HC PESR         | 0.40                                 | 15.00 | 2.00          | <0.50 | <1.50         | N             | 58-60 HRC                            |
|                            | Cronidur®30 PESR     | 0.30                                 | 15.00 | 1.00          | 0.50  | -             | N             | 58-60 HRC                            |
|                            | 退火<br>annealed       | EX1 VICTORY ESR                      | 0.35  | 5.00          | 2.20  | -             | 0.55          | -                                    |
| 退火<br>annealed             | 2343PLUS VICTORY ESR | 0.38                                 | 5.00  | 1.80          | -     | 0.55          | -             | 40-52 HRC                            |
|                            | EX55 VICTORY ESR     | 定制产品 Customized Steel                |       |               |       |               |               | 40-52 HRC                            |
|                            | EX6 VICTORY ESR      | 0.43                                 | 6.40  | 1.30          | -     | 0.90          | -             | 52-56 HRC                            |



# 葛利兹钢材特性-应用参考表

## Gröditz Steel Characteristic- Application Reference

特性比例(Characteristic ratio): 0=不适合(NA) / 1=低度(Low) / 2=中度(Medium) / 3=好(Good) / 4=很好(Very good) / 5=非常好(Excellent)

| Grade<br>钢种   | Chemical Composition (%)化学成分-範圍值 |      |      |      |      |      |                  | Machin-Ability<br>机加性能 |   |   |   |   | Polish-Ability<br>抛光性能 |   |   |   |   | Grain-Ability<br>蚀纹性能 |   |   |   |   | Wear-Ability<br>耐磨性能 |   |   |   |   | Weld-Ability<br>焊接性能 |   |   |   |   |   |   |   |   |   |
|---------------|----------------------------------|------|------|------|------|------|------------------|------------------------|---|---|---|---|------------------------|---|---|---|---|-----------------------|---|---|---|---|----------------------|---|---|---|---|----------------------|---|---|---|---|---|---|---|---|---|
|               | C                                | Si   | Mn   | Cr   | Mo   | Ni   | Others           | 0                      | 1 | 2 | 3 | 4 | 5                      | 0 | 1 | 2 | 3 | 4                     | 5 | 0 | 1 | 2 | 3                    | 4 | 5 | 0 | 1 | 2                    | 3 | 4 | 5 | 0 | 1 | 2 | 3 | 4 | 5 |
|               | 2311                             | 0.40 | 0.30 | 1.50 | 2.00 | 0.20 |                  |                        |   | ■ | ■ | ■ |                        |   |   | ■ |   |                       |   |   |   | ■ | ■                    |   |   |   |   |                      | ■ | ■ | ■ |   |   |   |   |   |   |
| 2312          | 0.40                             | 0.30 | 1.50 | 1.90 | 0.20 |      | S:0.05           |                        | ■ | ■ | ■ | ■ | ■                      | ■ | ■ |   |   |                       |   |   | ■ |   |                      |   |   |   |   | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| 2738          | 0.36                             | 0.25 | 1.50 | 1.80 | 0.20 | 1.10 |                  |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ |   |                       |   |   | ■ | ■ |                      |   |   |   | ■ | ■                    | ■ |   |   |   |   |   |   |   |   |
| 738HH         | 0.27                             | 0.30 | 1.35 | 1.35 | add  | 1.00 | add              |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■                    |   |   |   | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| XPM           | 0.27                             | 0.30 | 1.55 | 1.35 | 0.50 | 1.0  | add              |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■                    | ■ |   |   | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| XPM ESR       | 0.30                             | 0.30 | 1.55 | 1.35 | 0.70 | 1.00 | add              |                        | ■ | ■ | ■ | ■ | ■                      |   |   | ■ | ■ | ■                     | ■ | ■ |   |   |                      |   |   | ■ | ■ | ■                    | ■ |   |   |   |   |   |   |   |   |
| 2711          | 0.55                             | 0.25 | 0.70 | 0.70 | 0.30 | 1.70 | V:0.1            |                        | ■ | ■ |   |   |                        |   | ■ | ■ |   |                       |   |   | ■ | ■ |                      |   |   | ■ | ■ | ■                    | ■ |   |   |   |   |   |   |   |   |
| 2714          | 0.55                             | 0.25 | 0.70 | 1.10 | 0.50 | 1.70 | V:0.1            |                        | ■ | ■ |   |   |                        |   | ■ | ■ |   |                       |   |   | ■ | ■ |                      |   |   | ■ | ■ | ■                    | ■ |   |   |   |   |   |   |   |   |
| GEST 80 ESR   | 0.14                             |      | 1.40 | 0.30 | 0.30 | 2.80 | Cu:0.9<br>Al:0.3 |                        | ■ | ■ | ■ |   |                        |   | ■ | ■ | ■ | ■                     |   |   |   | ■ | ■                    | ■ | ■ |   |   | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| CPM 40        | 0.15                             | 0.30 | 0.50 | 4.00 | 1.10 | 3.00 | add              |                        | ■ | ■ |   |   |                        |   | ■ | ■ | ■ | ■                     |   |   |   | ■ | ■                    | ■ | ■ |   |   | ■                    | ■ |   |   |   |   |   |   |   |   |
| 2343(EX3)     | 0.36                             | 1.00 | 0.35 | 5.00 | 1.20 |      | V:0.4            |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■                    | ■ |   |   | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| 2343(EX3) ESR | 0.36                             | 1.00 | 0.35 | 5.00 | 1.20 |      | V:0.4            |                        | ■ | ■ | ■ | ■ | ■                      |   |   | ■ | ■ | ■                     | ■ | ■ |   |   |                      |   |   | ■ | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| 2344(EX4)     | 0.4                              | 1.00 | 0.40 | 5.20 | 1.30 |      | V:1.0            |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■                    | ■ |   |   | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| 2344(EX4) ESR | 0.4                              | 1.00 | 0.40 | 5.20 | 1.30 |      | V:1.0            |                        | ■ | ■ | ■ | ■ | ■                      |   |   | ■ | ■ | ■                     | ■ | ■ |   |   |                      |   |   | ■ | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| 2767          | 0.45                             | 0.25 | 0.35 | 1.25 | 0.20 | 3.90 |                  |                        | ■ | ■ | ■ | ■ |                        |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■                    | ■ |   |   | ■ | ■                    | ■ | ■ |   |   |   |   |   |   |   |
| GPM 58 ESR    | 0.5                              | ≤0.5 | 0.50 | 5.00 | 2.20 |      | V:0.7<br>Ni+     |                        | ■ | ■ |   |   |                        |   | ■ | ■ | ■ | ■                     |   |   |   | ■ | ■                    | ■ | ■ |   |   | ■                    | ■ | ■ | ■ |   |   |   |   |   |   |

交货状态 Delivery Status : (字段颜色 field color)---■ : 预硬模具钢料(Pre-hardened steel) / ■ : 退火模具钢料(Anneal steel)

※ The information provided in this table is based on our level of knowledge and is intended to provide general recommendations for the use of our products. This is not considered a guarantee of product quality characteristics, and every user of Gliese steel should make their own judgment on the suitability of choosing Groetiz steel products.

# 葛利兹钢材特性-应用参考表

## Gröditz Steel Characteristic- Application Reference

特性比例(Characteristic ratio) : 0=不适合(NA) / 1=低度(LOW) / 2=中度(Medium) / 3=好(Good) / 4=很好(Very good) / 5=非常好(Excellent)

| Grade<br>钢种   | Chemical Composition (%)化学成分-範圍值 |      |      |      |      |      |                  | Corrosion resistance<br>耐腐蚀能力 |   |   |   |   | Toughness<br>韧性 |   |   |   |   | Chrome platability<br>镀铬性能 |   |   |   |   | Nitridability<br>氮化性能 |   |   |   |   |   |   |   |   |  |  |  |  |  |  |
|---------------|----------------------------------|------|------|------|------|------|------------------|-------------------------------|---|---|---|---|-----------------|---|---|---|---|----------------------------|---|---|---|---|-----------------------|---|---|---|---|---|---|---|---|--|--|--|--|--|--|
|               | C                                | Si   | Mn   | Cr   | Mo   | Ni   | Others           |                               |   |   |   |   |                 |   |   |   |   |                            |   |   |   |   |                       |   |   |   |   |   |   |   |   |  |  |  |  |  |  |
|               |                                  |      |      |      |      |      |                  | 0                             | 1 | 2 | 3 | 4 | 5               | 0 | 1 | 2 | 3 | 4                          | 5 | 0 | 1 | 2 | 3                     | 4 | 5 | 0 | 1 | 2 | 3 | 4 | 5 |  |  |  |  |  |  |
| 2311          | 0.40                             | 0.30 | 1.50 | 2.00 | 0.20 |      |                  | ■                             |   |   |   |   |                 | ■ | ■ |   |   |                            |   | ■ | ■ |   |                       |   |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| 2312          | 0.40                             | 0.30 | 1.50 | 1.90 | 0.20 |      | S:0.05           | ■                             |   |   |   |   |                 | ■ |   |   |   |                            |   | ■ |   |   |                       |   |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| 2738          | 0.36                             | 0.25 | 1.50 | 1.80 | 0.20 | 1.10 |                  | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| 738HH         | 0.27                             | 0.30 | 1.35 | 1.35 | add  | 1.00 | add              | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ |                       |   |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| XPM           | 0.27                             | 0.30 | 1.55 | 1.35 | 0.50 | 1.0  | add              | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ | ■                     |   |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| XPM ESR       | 0.30                             | 0.30 | 1.55 | 1.35 | 0.70 | 1.00 | add              | ■                             |   |   |   |   |                 | ■ | ■ | ■ | ■ |                            |   | ■ | ■ | ■ | ■                     | ■ |   | ■ | ■ | ■ |   |   |   |  |  |  |  |  |  |
| 2711          | 0.55                             | 0.25 | 0.70 | 0.70 | 0.30 | 1.70 | V:0.1            | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ |   |                       |   |   | ■ | ■ |   |   |   |   |  |  |  |  |  |  |
| 2714          | 0.55                             | 0.25 | 0.70 | 1.10 | 0.50 | 1.70 | V:0.1            | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ |   |                       |   |   | ■ | ■ |   |   |   |   |  |  |  |  |  |  |
| GEST 80 ESR   | 0.14                             |      | 1.40 | 0.30 | 0.30 | 2.80 | Cu:0.9<br>Al:0.3 | ■                             |   |   |   |   |                 | ■ | ■ |   |   |                            |   | ■ | ■ | ■ | ■                     |   |   | ■ | ■ | ■ | ■ |   |   |  |  |  |  |  |  |
| CPM 40        | 0.15                             | 0.30 | 0.50 | 4.00 | 1.10 | 3.00 | add              | ■                             |   |   |   |   |                 | ■ |   |   |   |                            |   | ■ | ■ | ■ | ■                     |   |   | ■ | ■ | ■ | ■ | ■ | ■ |  |  |  |  |  |  |
| 2343(EX3)     | 0.36                             | 1.00 | 0.35 | 5.00 | 1.20 |      | V:0.4            | ■                             |   |   |   |   |                 | ■ | ■ |   |   |                            |   | ■ | ■ |   |                       |   |   | ■ | ■ | ■ | ■ |   |   |  |  |  |  |  |  |
| 2343(EX3) ESR | 0.36                             | 1.00 | 0.35 | 5.00 | 1.20 |      | V:0.4            | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ | ■                     | ■ |   | ■ | ■ | ■ | ■ | ■ | ■ |  |  |  |  |  |  |
| 2344(EX4)     | 0.4                              | 1.00 | 0.40 | 5.20 | 1.30 |      | V:1.0            | ■                             |   |   |   |   |                 | ■ | ■ |   |   |                            |   | ■ | ■ |   |                       |   |   | ■ | ■ | ■ | ■ | ■ | ■ |  |  |  |  |  |  |
| 2344(EX4) ESR | 0.4                              | 1.00 | 0.40 | 5.20 | 1.30 |      | V:1.0            | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ | ■                     | ■ |   | ■ | ■ | ■ | ■ | ■ | ■ |  |  |  |  |  |  |
| 2767          | 0.45                             | 0.25 | 0.35 | 1.25 | 0.20 | 3.90 |                  | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ |                       |   |   | ■ | ■ |   |   |   |   |  |  |  |  |  |  |
| GPM 58 ESR    | 0.5                              | ≤0.5 | 0.50 | 5.00 | 2.20 |      | V:0.7<br>Ni +    | ■                             |   |   |   |   |                 | ■ | ■ | ■ |   |                            |   | ■ | ■ | ■ | ■                     | ■ |   | ■ | ■ | ■ | ■ | ■ | ■ |  |  |  |  |  |  |

交货状态 Delivery Status : (字段颜色 field color)---■ : 预硬模具钢料(Pre-hardened steel) / ■ : 退火模具钢料(Anneal steel)

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# 葛利兹不锈钢钢材系列特性-应用参考表

## Gröditz Steel Characteristic- Application Reference

特性比例(Characteristic ratio) : 0=不适合(NA) / 1=低度(Low) / 2=中度(Medium) / 3=好(Good) / 4=很好(Very good) / 5=非常好(Excellent)

| Grade<br>钢种  | Chemical Composition (%)化学成分-范围值 |       |       |       |      |       |        | Machin-Ability<br>机加性能 |   |   |   |   | Polish-Ability<br>抛光性能 |   |   |   |   | Grain-Ability<br>蚀纹性能 |   |   |   |   | Wear-Ability<br>耐磨性能 |   |   |   |   | Weld-Ability<br>焊接性能 |   |   |   |   |   |   |   |   |   |  |  |
|--------------|----------------------------------|-------|-------|-------|------|-------|--------|------------------------|---|---|---|---|------------------------|---|---|---|---|-----------------------|---|---|---|---|----------------------|---|---|---|---|----------------------|---|---|---|---|---|---|---|---|---|--|--|
|              | C                                | Si    | Mn    | Cr    | Mo   | Ni    | Others |                        |   |   |   |   |                        |   |   |   |   |                       |   |   |   |   |                      |   |   |   |   |                      |   |   |   |   |   |   |   |   |   |  |  |
|              |                                  |       |       |       |      |       |        | 0                      | 1 | 2 | 3 | 4 | 5                      | 0 | 1 | 2 | 3 | 4                     | 5 | 0 | 1 | 2 | 3                    | 4 | 5 | 0 | 1 | 2                    | 3 | 4 | 5 | 0 | 1 | 2 | 3 | 4 | 5 |  |  |
| 2316         | 0.35                             | 0.35  | 0.70  | 15.50 | 1.00 | 0.50  |        |                        | ■ | ■ |   |   |                        |   |   | ■ | ■ |                       |   |   |   | ■ |                      |   |   |   |   |                      | ■ | ■ |   |   |   |   | ■ |   |   |  |  |
| 2085         | 0.33                             | ≤1.00 | ≤1.00 | 16.00 |      | ≤1.00 | S:0.08 |                        | ■ | ■ | ■ | ■ | ■                      | ■ | ■ |   |   |                       |   |   |   | ■ |                      |   |   |   |   |                      | ■ | ■ |   |   |   |   | ■ |   |   |  |  |
| CPM50 ESR    | 0.28                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                        | ■ | ■ |   |   |                        |   |   | ■ | ■ | ■                     | ■ |   |   | ■ | ■                    | ■ | ■ |   |   |                      | ■ | ■ | ■ |   |   |   | ■ |   |   |  |  |
| 2083         | 0.40                             | 0.40  | 0.70  | 13.00 |      |       |        |                        | ■ | ■ | ■ |   |                        |   |   | ■ | ■ | ■                     |   |   |   | ■ |                      |   |   |   |   |                      | ■ | ■ | ■ | ■ |   |   | ■ |   |   |  |  |
| 2083 ESR     | 0.40                             | 0.40  | 0.70  | 13.00 |      |       |        |                        | ■ | ■ | ■ | ■ | ■                      | ■ |   | ■ | ■ | ■                     | ■ | ■ |   | ■ | ■                    | ■ | ■ | ■ |   |                      | ■ | ■ | ■ | ■ |   |   | ■ |   |   |  |  |
| 2083 mod ESR | 0.38                             | 1.00  | 0.50  | 13.00 |      |       | V:0.25 |                        | ■ | ■ | ■ |   |                        |   |   | ■ | ■ | ■                     | ■ | ■ |   | ■ | ■                    | ■ | ■ | ■ |   |                      | ■ | ■ | ■ | ■ |   |   | ■ |   |   |  |  |
| CRMHP        | 0.25                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                        | ■ | ■ |   |   |                        |   |   | ■ | ■ | ■                     | ■ | ■ |   | ■ | ■                    | ■ | ■ | ■ |   |                      | ■ | ■ | ■ | ■ |   |   | ■ |   |   |  |  |
| OPTI N+      | 0.15                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                        | ■ |   |   |   |                        |   |   | ■ | ■ | ■                     | ■ | ■ | ■ | ■ | ■                    | ■ | ■ | ■ | ■ |                      | ■ | ■ | ■ | ■ | ■ |   | ■ |   |   |  |  |

| Grade<br>钢种  | Chemical Composition (%)化学成分-范围值 |       |       |       |      |       |        | Corrosion resistance<br>耐蚀能力 |   |   |   |   | Toughness<br>韧性 |   |   |   |   | Chrome platability<br>镀铬性能 |   |   |   |   | Nitridability<br>氮化性能 |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
|--------------|----------------------------------|-------|-------|-------|------|-------|--------|------------------------------|---|---|---|---|-----------------|---|---|---|---|----------------------------|---|---|---|---|-----------------------|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|
|              | C                                | Si    | Mn    | Cr    | Mo   | Ni    | Others |                              |   |   |   |   |                 |   |   |   |   |                            |   |   |   |   |                       |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
|              |                                  |       |       |       |      |       |        | 0                            | 1 | 2 | 3 | 4 | 5               | 0 | 1 | 2 | 3 | 4                          | 5 | 0 | 1 | 2 | 3                     | 4 | 5 | 0 | 1 | 2 | 3 | 4 | 5 |  |  |  |  |  |  |  |
| 2316         | 0.35                             | 0.35  | 0.70  | 15.50 | 1.00 | 0.50  |        |                              | ■ | ■ | ■ | ■ |                 |   | ■ | ■ | ■ |                            |   |   | ■ |   |                       |   |   |   |   | ■ |   |   |   |  |  |  |  |  |  |  |
| 2085         | 0.33                             | ≤1.00 | ≤1.00 | 16.00 |      | ≤1.00 | S:0.08 |                              | ■ | ■ | ■ |   |                 |   | ■ |   |   |                            |   |   | ■ |   |                       |   |   |   |   | ■ |   |   |   |  |  |  |  |  |  |  |
| CPM50 ESR    | 0.28                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                              | ■ | ■ | ■ | ■ | ■               |   | ■ | ■ | ■ | ■                          |   |   | ■ | ■ | ■                     | ■ |   |   |   | ■ |   |   |   |  |  |  |  |  |  |  |
| 2083         | 0.40                             | 0.40  | 0.70  | 13.00 |      |       |        |                              | ■ | ■ | ■ |   |                 |   | ■ |   |   |                            |   |   | ■ |   |                       |   |   |   |   | ■ |   |   |   |  |  |  |  |  |  |  |
| 2083 ESR     | 0.40                             | 0.40  | 0.70  | 13.00 |      |       |        |                              | ■ | ■ | ■ | ■ | ■               |   | ■ | ■ |   |                            |   |   | ■ | ■ | ■                     | ■ | ■ |   |   | ■ |   |   |   |  |  |  |  |  |  |  |
| 2083 mod ESR | 0.38                             | 1.00  | 0.50  | 13.00 |      |       | V:0.25 |                              | ■ | ■ | ■ | ■ | ■               |   | ■ | ■ |   |                            |   |   | ■ | ■ | ■                     | ■ | ■ |   |   | ■ | ■ | ■ | ■ |  |  |  |  |  |  |  |
| CRMHP ESR    | 0.25                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                              | ■ | ■ | ■ | ■ | ■               |   | ■ | ■ | ■ | ■                          | ■ |   | ■ | ■ | ■                     | ■ | ■ | ■ |   | ■ |   |   |   |  |  |  |  |  |  |  |
| OPTI N+      | 0.15                             | 0.30  | 0.40  | 14.00 |      | 0.60  | +N     |                              | ■ | ■ | ■ | ■ | ■               |   | ■ | ■ |   |                            |   |   | ■ | ■ | ■                     | ■ | ■ | ■ |   | ■ |   |   |   |  |  |  |  |  |  |  |

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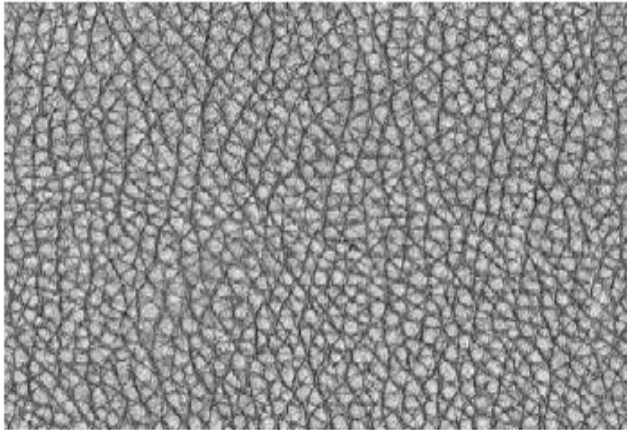
| Plastic<br>塑料              |                                                 | Plastic type<br>胶料种类                                                  | Recommendation 推荐                                                                                         |                                                                      |
|----------------------------|-------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|                            |                                                 |                                                                       | Steel grade 钢种                                                                                            | Hardness 硬度                                                          |
| Normal plastic<br>常用型胶料    | Without corrosion<br>不带腐蚀性                      | PP, ABS, PE ,PS , .....                                               | 2738/2738H<br>738HH<br>XPM/XPMESR<br>2343/2344(EX3/EX4)<br>2343ESR/2344ESR(EX3ESR/EX4ESR)<br>2083/2083ESR | HRC29-38<br>HRC32-38<br>HRC35-42<br>HRC44-52<br>HRC48-52<br>HRC42-52 |
|                            | With corrosion<br>带腐蚀性                          | PVC, POM , PA, SAN,PMMA .....                                         | 2316<br>2083/2083ESR<br>CRMHP<br>OPTI N+                                                                  | HRC28-34<br>HRC42-52<br>HRC50-52<br>HRC54-57                         |
| Special plastic<br>特殊添加型胶料 | + < Plastic +GF% or Talc<br>加玻签或滑石粉....<br>增强塑料 | + < 30% GF(Glass Fiber) or Talc<br>加 30%以下的增强型胶料                      | 2738/2738H<br>738HH<br>XPM/XPMESR<br>GEST80<br>CPM40                                                      | HRC29-38<br>HRC32-38<br>HRC35-42<br>HRC38-42<br>HRC38-42             |
|                            |                                                 | + > 30% GF(Glass Fiber) or Talc<br>加 30%以上的增强型胶料                      | 2343/2344(EX3/EX4)<br>2343ESR/2344ESR(EX3ESR/EX4ESR)<br>2083/2083ESR<br>CRMHP<br>OPTI N+<br>GPM58         | HRC48-52<br>HRC48-52<br>HRC42-52<br>HRC50-52<br>HRC54-57<br>HRC54-58 |
|                            | Plastic + fire retardant<br>阻燃增强胶料              | Added Cl-,Br-,P3- based fire retardant product<br>添加 Cl-,Br,P3-基阻燃剂胶料 | 2316<br>2083/2083ESR<br>CRMHP<br>OPTI N+                                                                  | HRC28-34<br>HRC42-52<br>HRC50-52<br>HRC54-57                         |

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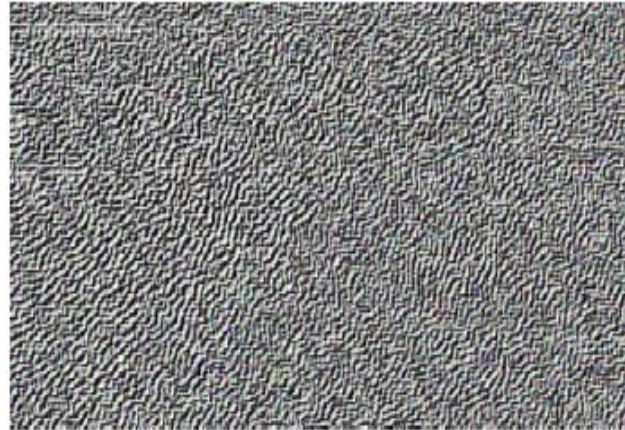


Gröditz Steel Grade Application-Texture level

**Normal Texturing**  
**SWG 738HH**



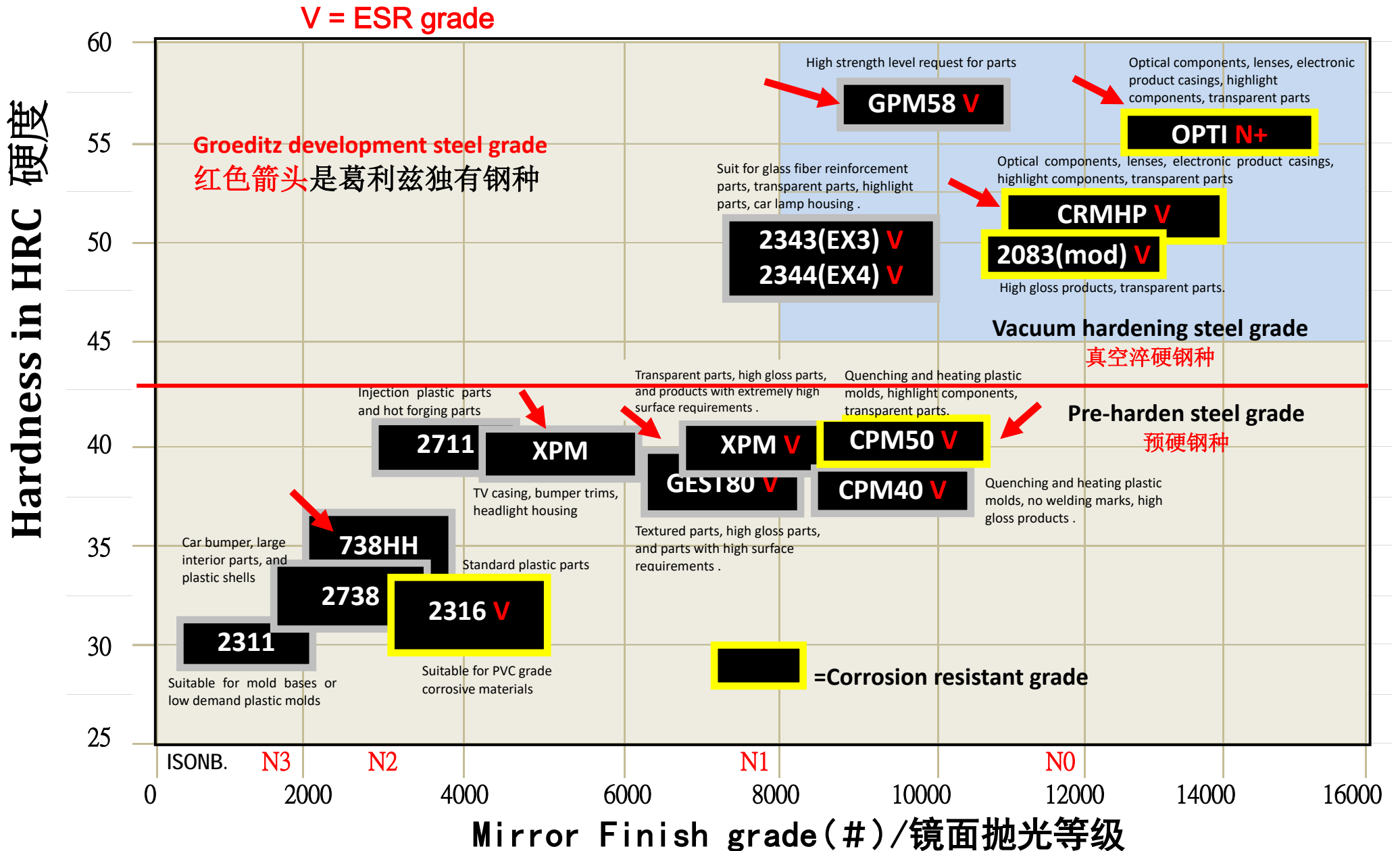
**High Texturing**  
**SWG XPM**



**Fine and Geometric Texturing**  
**SWG 2083ESR, CRMHP ESR, GEST80 ESR**







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Schmiedewerke Gröditz  
**GMH GRUPPE**



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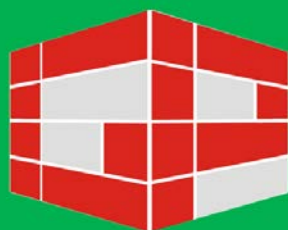
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Exclusive Chain Stores



Gröditz Partner



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