

## RAEX® 300, RAEX® 400, RAEX® 450 AND RAEX® 500 ABRASION-RESISTANT STEELS

### RELIABLE QUALITY

Trouble free production.  
Cost efficiency.  
Performance in all typical wear applications.

### AVAILABILITY

Good availability.  
Short delivery times.  
Less capital in stocks/WIP.

### COMPLETE PRODUCT RANGE

One source for all wear demands.  
Optimal product for different abrasive needs.

### SAFETY AT WORK

The safety instruction must be adhered to in detail in all workshop processing of wear resistant steels.

### MECHANICAL PROPERTIES

Product	Available thickness (mm)	Hardness HBW	Typical yield strength MPa	Typical tensile strength MPa	Typical elongation %	Typical impact strength in -40°C, J
Raex 300	2-8	270-390	900	1000	11	30
Raex 400	2-80	360-440	1100	1250	10	30
Raex 450	2.5-80	420-500	1200	1450	9	30
Raex 500	3-80	470-540	1300	1600	8	30

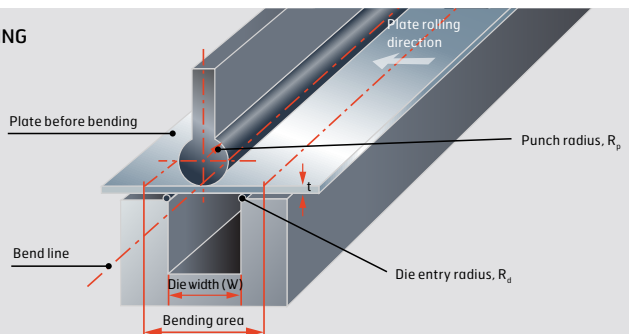
### BENDING. MINIMUM BEND RADIUS R, BEND ANGLE ≤90°, THICKNESS t ≤20 mm

Raex grade	Product form	R/t minimum transverse	R/t minimum longitudinal	Die opening width W/t minimum
Raex 300	Sheet	3	3	12
Raex 400	Sheet	3	4	12
	Plate	3	4	14
Raex 450	Sheet	3	4	12
	Plate	4	5	14
Raex 500	Sheet	3.5	4	14
	Plate	5	6	14

### ESTIMATION OF BENDING FORCE IN FLANGING

$$P = \frac{b \cdot t^2 \cdot R_m}{(W - R_d - R_p) \cdot 9800}$$

P = Bend force, metric tons  
t = Plate thickness, mm  
W = Die width, mm  
b = Bend length, mm  
R<sub>m</sub> = Tensile strength, MPa  
R<sub>d</sub> = Die entry radius, mm  
R<sub>p</sub> = Punch radius, mm



## UNDERMATCHING (Re~500 MPa) FERRITIC CONSUMABLES, HD≤5 ml/100 g

Welding method	AWS Classification	EN Classification
MAG, solid wire	AWS A5.18 ER70X-X AWS A5.28 ER80X-X	EN ISO 14341-A- G 38xxxxxx EN ISO 14341-A- G 42xxxxxx
MAG, metal-cored wire	AWS A5.18 E7XC-X AWS A5.28 E8XC-X	EN ISO 17632-A- T 42xxxxH5 EN ISO 17632-A- T 46xxxxH5
MAG, flux-cored wire	AWS A5.29 E7XT-X AWS A5.29 E8XT-X AWS A5.20 E7XT-X	EN ISO 17632 -A- T 42xxxxH5 EN ISO 17632 -A- T 46xxxxH5
MMA, stick electrode	AWS A5.5 E70X AWS A5.5 E80X AWS A5.1 E70X	EN ISO 2560-A- E 42xxxxxH5 EN ISO 2560-A- E 46xxxxxH5

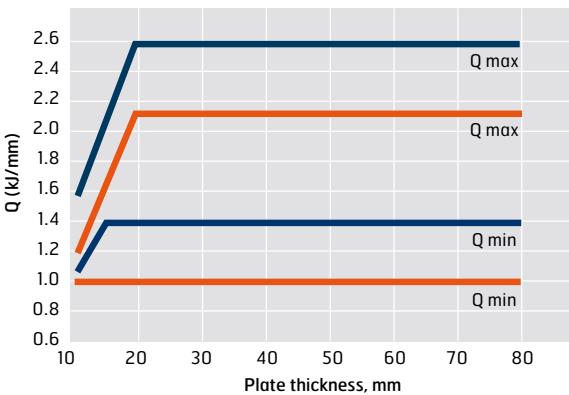
Note: the letter "X" stands for one or more characters.

## WELDING. RECOMMENDED WORKING TEMPERATURE, °C

Steel grade	Plate thickness, mm							
	10	20	30	40	50	60	70	80
Raex 400	+20		+75	+100	+125	+150	+175	
Raex 450	+20	+75	+100	+125	+150	+175		+200
Raex 500	+20	+100	+125	+150	+175	+200		

NOTE: Working temperature or interpass temperature higher than +220°C may not be used.

## HEAT INPUT (Q) RECOMMENDATION, ARC WELDING



- Butt weld
- Fillet weld in T joint

$$Q = \frac{k \times 60 \times U \times I}{1000 \times v}$$

Q = Heat input (kJ/mm)  
 k = Thermal efficiency  
 k = 0.8 for MAG, FCAW and MMA  
 k = 1.0 for SAW  
 U = Voltage (V), I = Current (A)  
 v = Welding speed (mm/min)

## FLAME CUTTING. RECOMMENDED WORKING TEMPERATURE, °C

Steel grade	Plate thickness, mm							
	10	20	30	40	50	60	70	80
Raex 400	+20		+75	+100	+125	+150	+175	
Raex 450	+20	+75	+100	+125	+150	+175		
Raex 500	+20	+100	+125	+150	+175			

NOTE: Preheating can be avoided by reducing the cutting speed and by choosing nozzles and other cutting equipment correspondingly.