

ER 630 (17-4 PH)

CATEGORY	GMAW-GTAW Solid wires																																									
TYPE	Precipitation hardening stainless steel filler metal used for welding materials of similar chemical composition such as 17-4 and 17-7.																																									
APPLICATIONS	To be used in the as welded condition or in the heat treated condition to obtain higher strength. Mechanical properties of this alloy are greatly influenced by the heat treatment.																																									
PROPERTIES	* Mechanical properties listed below reflect utilization of a post-weld heat treatment between 1875°F and 1925°F for one hour, followed by precipitation hardening between 1135°F																																									
CLASSIFICATION	AWS	A 5.9: ER 630 UNS S17480																																								
	EN ISO	14343-A:																																								
	DIN: W.Nr.	1.4542																																								
	DIN	8556:																																								
SUITABLE FOR	Suitable for precipitation hardening stainless steel used for welding materials of similar chemical composition such as 17-4 (PH) and 17-7 as applied for valves, fasteners, gears, propeller shafts, and roller chain pins. W.Nr: 1.4542																																									
WELDING POSITIONS:																																										
WELD DEPOSIT ANALYSIS	<table border="1"> <thead> <tr> <th>C</th> <th>Mn</th> <th>Si</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Nb</th> <th>Cu</th> </tr> </thead> <tbody> <tr> <td><0.03</td> <td>0.55</td> <td>0.45</td> <td>16.7</td> <td>4.7</td> <td>0.2</td> <td>0.24</td> <td>3.5</td> </tr> </tbody> </table>							C	Mn	Si	Cr	Ni	Mo	Nb	Cu	<0.03	0.55	0.45	16.7	4.7	0.2	0.24	3.5																			
C	Mn	Si	Cr	Ni	Mo	Nb	Cu																																			
<0.03	0.55	0.45	16.7	4.7	0.2	0.24	3.5																																			
MECHANICAL PROPERTIES	<table border="1"> <thead> <tr> <th rowspan="2">Heat Treatment</th> <th rowspan="2">R_{p0,2} (N/mm²)</th> <th rowspan="2">R_m (N/mm²)</th> <th rowspan="2">A₅ (%)</th> <th colspan="3">Impact Energy (J) ISO-V</th> <th rowspan="2">Hardness HRc / HV</th> </tr> <tr> <th>+20°C</th> <th>-40°C</th> <th>-196°C</th> </tr> </thead> <tbody> <tr> <td>* Heat treated</td> <td>920</td> <td>1020</td> <td>11</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							Heat Treatment	R _{p0,2} (N/mm ²)	R _m (N/mm ²)	A ₅ (%)	Impact Energy (J) ISO-V			Hardness HRc / HV	+20°C	-40°C	-196°C	* Heat treated	920	1020	11																				
Heat Treatment	R _{p0,2} (N/mm ²)	R _m (N/mm ²)	A ₅ (%)	Impact Energy (J) ISO-V			Hardness HRc / HV																																			
				+20°C	-40°C	-196°C																																				
* Heat treated	920	1020	11																																							
WELDING PARAMETERS / PACKING	<table border="1"> <thead> <tr> <th colspan="4">Welding Parameters</th> <th colspan="3">Packing</th> </tr> <tr> <th>D (mm)</th> <th>Voltage (V)</th> <th colspan="2">Current (A) DC+</th> <th>spool type</th> <th colspan="2">lbs / spool</th> </tr> </thead> <tbody> <tr> <td>0.9</td> <td>26-29</td> <td colspan="2">160-210</td> <td>S-300</td> <td colspan="2">33</td> </tr> <tr> <td>1.14</td> <td>28-32</td> <td colspan="2">180-250</td> <td>S-300</td> <td colspan="2">33</td> </tr> <tr> <td>1.6</td> <td>29-33</td> <td colspan="2">200-280</td> <td>S-300</td> <td colspan="2">33</td> </tr> </tbody> </table>							Welding Parameters				Packing			D (mm)	Voltage (V)	Current (A) DC+		spool type	lbs / spool		0.9	26-29	160-210		S-300	33		1.14	28-32	180-250		S-300	33		1.6	29-33	200-280		S-300	33	
Welding Parameters				Packing																																						
D (mm)	Voltage (V)	Current (A) DC+		spool type	lbs / spool																																					
0.9	26-29	160-210		S-300	33																																					
1.14	28-32	180-250		S-300	33																																					
1.6	29-33	200-280		S-300	33																																					
REDRYING TEMPERATURE	not required																																									
GAS ACC. EN ISO 14175:	M11, M12, M13																																									