DESCRIPTION:
The WELDWELL PH56S is a basic coated C/Mn electrode providing excellent mechanical properties. Due to the thin coating and concentrated arc this electrode ensures fully penetrated root passes even under adverse conditions, such as small gaps and narrow joints. The strong protective gas stream is a further advantage.
Low moisture content of the coating and high resistance to moisture re-absorption is a major benefit long recognised by the offshore and general structural steel industries, where avoidance of hydrogen induced cracking is of crucial importance.

Applications:
PH56S is widely adopted for offshore fabrication to ensure consistent results, with the assurance of high impact values in the as-welded condition and further improved by stress relieving. COD testing confirms excellent fracture toughness after stress relieving. Many years of successful use in offshore work provides an immense range of approved procedures; also a workforce fully familiar with the PH56S and well able to exploit the full potential of this electrode for nodes and other primary structural joints.

Pipework PH56S assures the full penetration demanded by the oil and gas industry for offshore and onshore process piping. Welders prefer the better manipulation of this thin coated electrode for handling root passes, particularly when variations in gap width occur due to field fit-up conditions.

Root layers for submerged arc filling is another major application area of PH56S, confirmed by well established procedures in offshore yards.

Combinations with other Weldwell "offshore" electrodes. PH56S can be used advantageously with the following, for joints of primary structural importance.

- As root pass electrode followed by filling with Weldwell PH77 (E7018-1) for extra productivity due to the 120% recovery of the latter. Most yards tend to avoid use of two electrodes due to the extra supervision involved, but the practice remains sound and is often adopted for tank welding and other general structural work.
- For even more demanding requirements down to -60°C, the Weldwell PH75 should substitute the Weldwell PH56S. For further information see Weldwell PH75 data sheet.

General steel structure. PH56S is widely adopted where assurance of high as-welded impact values are necessary for all-position welds.

Electrode performance. PH56S gives 100% recovery, it can be used equally well for AC or DC + operation; DC - is often preferred for root passes.
The electrode is easily welded in thin layers, to gain maximum grain refining from the heat of subsequent runs, and so obtain high toughness properties.
X-ray properties of the weld metal are highly regarded by inspectors working to stringent requirements.

Welding Techniques
It is important that this electrode is welded with a short arc under all conditions. The rate of travel must be slow; weaving, if carried out, must also be slow using no greater movement than three electrode widths each way. To avoid start porosity, strike each fresh electrode on the crater of the preceding run while it is still hot, or by restarting half inch back on previous run and chipping off the thin bead formed there.

Recommended Amperages

Dia. mm	Length mm	Amperes	Deposition Rate kg/hr *
2.5	305	60-100	
3.2	380	85-140	1.14
4.0	380	100-180	1.62
5.0	455	180-230	2.52

* Deposition rate at maximum Amps.
AC 7O OCV DC+ or DC- for root passes if preferred

Typical Mechanical Properties of Weld Metal

Tensile Strength	589 MPa
Yield Value	497 MPa
Elongation(1 = 5d)	28%
Impact Value Charpy V Notch at -40°C Average	107 J

AWS A5.1:2004 : E7016 H8
AS/NZS 4855B:2007 : E4916AU H5

WELDWELL

56S

LOW HYDROGEN ELECTRODES FOR WELDING MILD AND MEDIUM STEELS

TIP COLOUR Red
FLUX MARKING PH56S 7016 4916A

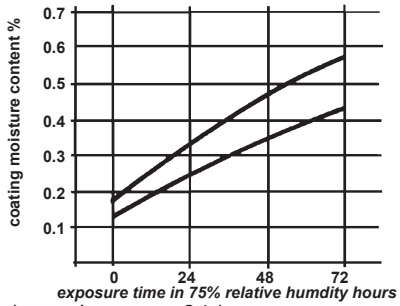
Approvals:
American Bureau of Shipping
Lloyds Register of Shipping
Bureau Veritas

Welding Positions:
F, H, V, OH

Typical Chemical Analysis

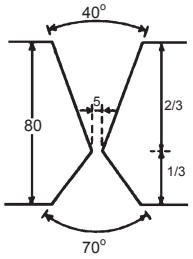
C	0.05%
Mn	1.11%
Si	0.34%

Moisture reabsorbsion characteristics of Weldwell 56S.



Storage (see also page 84.)
Once the packet has been opened, these electrodes should be stored in a heated cabinet at a temperature of 20°C minimum and/or at least 10°C above ambient. Good ventilation should be allowed.
For highest weld quality, these electrodes should be baked before use at 350°C for 1 hour to achieve a maximum weld metal hydrogen level of 10ml/100g or 400°C for 1 hour to achieve maximum weld metal hydrogen of 5ml/100g. Do not re-dry more than five times. These temperatures should also be used to recondition damp electrodes. Use from a hot box during welding.

Typical COD test results
Type of joint and material thickness



Parameters

Position:	: 3G
Preheat temp:	100°C
Interpass temp:	max 140° C
Electrode size:	2.5 mm
	3.2 mm
	4.0 mm
Heat treatment:	3h, 580-620°C
Steel quality:	50D