

## HATE

*The HATE Hydraulic Adhesion Tester measures with ease and precision the adhesion bond strength of applied coatings. One of the most accurate and versatile adhesion testers currently available.*



The adhesion is measured by the tensile pull on a Dolly glued to the coating surface. The force is applied through the centre of the Dolly by a hydraulically loaded pin. This ensures an exactly central point loading of the force.

Adhesion values are recorded by a pressure gauge giving a 1:1 pressure reading. This is made possible as the net surface area of the Dolly is equal to the surface area of the hydraulic piston bore. Pressure reacted by the Dolly is the same as the pressure in the bore and is transmitted directly to the pressure gauge. The maximum value achieved at pull-off is recorded by a reset needle that is easily read on the large scale of the pressure gauge.

Connection to the stainless steel Dolly is easily made with a snap-on connector. The pressure gauge is swivel-mounted allowing testing in any position. This is significant as coating breakdown invariably starts at positions that were difficult to reach during surface preparation and application.

Can test both external and internal surfaces of pipes. Because the load is reacted internally within the Dolly, curved surfaces of pipes can be easily tested. To obtain a uniform tensile load, curved Dollies machined to match the diameter under test need to be used. External diameters as small as 25mm (1") and internal diameters as small as 150mm (6") can be tested.

Effective quality control with a non-destructive capability. To allow the specification minimum to be proven, the Dolly can be removed using the heated Dolly remover supplied. If necessary, the Dolly can be left in place for testing during service as part of a planned maintenance programme.

Supplied with 5 Flat Dollies, Adhesive, Dolly Remover and Carrying Case.

### Complies with International Standards

ISO 16276-1	ASTM D 4541
ISO 4624	NF T30-606

### HATE Specifications

Part No	Head Type	Operating Range PSI	Operating Range MPa	Accuracy	Cal Cert Part No
X1003	Standard	0-2600	0-18	±1%	NX001
X1004	Right Angle	0-2600	0-18	±1%	NX001

HATE Accessories

Part No	Product	Pipe Size Metric	Pipe Size Imperial	Use with HATE Model	Information
XA201	Concave Dolly	51mm	2"	X1003 / X1004	For external pipe testing.
XA202	Concave Dolly	76mm	3"	X1003 / X1004	
XA203	Concave Dolly	102mm	4"	X1003 / X1004	
XA204	Concave Dolly	152mm	6"	X1003 / X1004	
XA205	Concave Dolly	203mm	8"	X1003 / X1004	
XA206	Concave Dolly	254mm	10"	X1003 / X1004	
XA207	Concave Dolly	305mm	12"	X1003 / X1004	
XA208	Concave Dolly	356mm	14"	X1003 / X1004	
XA209	Concave Dolly	406mm	16"	X1003 / X1004	
XA210	Concave Dolly	457mm	18"	X1003 / X1004	
XA211	Concave Dolly	508mm	20"	X1003 / X1004	
XA212	Concave Dolly	610mm	24"	X1003 / X1004	
XA213	Concave Dolly	762mm	30"	X1003 / X1004	
XA214	Concave Dolly	914mm	36"	X1003 / X1004	
XA215	Convex Dolly	152mm	6"	X1004	For internal pipe testing.
XA216	Convex Dolly	203mm	8"	X1004	
XA217	Convex Dolly	254mm	10"	X1004	
XA218	Convex Dolly	305mm	12"	X1003 / X1004	
XA219	Convex Dolly	356mm	14"	X1003 / X1004	
XA220	Convex Dolly	406mm	16"	X1003 / X1004	
XA221	Convex Dolly	457mm	18"	X1003 / X1004	
XA222	Convex Dolly	508mm	20"	X1003 / X1004	
XA223	Convex Dolly	610mm	24"	X1003 / X1004	
XA224	Convex Dolly	762mm	30"	X1003 / X1004	
XA225	Convex Dolly	914mm	36"	X1003 / X1004	
XA101	Flat Dolly			X1003 / X1004	For flat substrate testing.