

Technical specification for immersion transducers and terms and conditions**A. Technical Specification for immersion transducers- Item 1, 2,3 &4**

A.1 Technical Specification for Immersion Transducers-Item 1		
Sr.	Description	Required Parameters
1	Probe/Transducer Type	Immersion
2	Focal Length	25-26mm (Spherical Focus)
3	Wave Mode	Longitudinal
4	Peak Frequency	10MHz (within +/-10%)
5	Centre Frequency	Equal to Peak Frequency (within +/-10%)
6	Frequency Response (-6dB)	Broad band (>50%)
7	Damping	High
8	Crystal Diameter	10mm
9	Casing Length	20-60mm
10	Casing Material	SS
11	Matching layer for water	Yes
12	Connection End (Probe side)	Potted (Waterproof)
13	Connection End (Other side)	BNC (Male)
14	Cable Length	5m
15	Cable Type	Coaxial Cable
16	Cable Impedance	50 Ohm
17	Temperature	10-50 deg. C
18	Quantity	4Nos.
19	Warranty	1Year

A.2 Technical Specification for Immersion Transducers-Item 2

Sr.	Description	Required Parameters
1	Probe/transducer Type	Immersion
2	Focal Length	25-26mm (Cylindrical Focus)
3	Wave Mode	Longitudinal
4	Peak Frequency	10MHz (within +/-10%)
5	Centre Frequency	Equal to Peak Frequency (within +/-10%)
6	Frequency Response (-6dB)	Broad band (>50%)
7	Damping	High
8	Crystal Diameter	10mm
9	Casing Length	20-60mm
10	Casing Material	SS
11	Matching layer for water	Yes
12	Connection End (Probe side)	Potted (Waterproof)
13	Connection End (Other side)	BNC (Male)
14	Cable Length	5m
15	Cable Type	Coaxial Cable
16	Cable Impedance	50 Ohm
17	Temperature	10-50 deg. C
18	Quantity	2Nos.
19	Warranty	1Year

A.3 Technical Specification for Immersion Transducers-Item 3		
Sr.	Description	Required Parameters
1	Probe/Transducer Type	Immersion
2	Focal Length	Plain Focus
3	Wave Mode	Longitudinal
4	Peak Frequency	10MHz (within +/-10%)
5	Centre Frequency	Equal to Peak Frequency (within +/-10%)
6	Frequency Response (-6dB)	Broad band (>50%)
7	Damping	High
8	Crystal Diameter	10mm
9	Casing Length	20-60mm
10	Casing Material	SS
11	Matching layer for water	Yes
12	Connection End (Probe side)	Potted (Waterproof)
13	Connection End (Other side)	BNC (Male)
14	Cable Length	5m
15	Cable Type	Coaxial Cable
16	Cable Impedance	50 Ohm
17	Temperature	10-50 deg. C
18	Quantity	6Nos.
19	Warranty	1Year

A.4 Technical Specification for Immersion Transducers-Item 4		
Sr.	Description	Required Parameters
1	Probe/Transducer Type	Immersion
2	Focal Length	50-55mm (Spherical Focus)
3	Wave Mode	Longitudinal
4	Peak Frequency	10MHz (within +/-10%)
5	Centre Frequency	Equal to Peak Frequency (within +/-10%)
6	Frequency Response (-6dB)	Broad band (>50%)
7	Damping	High
8	Crystal Diameter	10mm
9	Casing Length	20-60mm
10	Casing Material	SS
11	Matching layer for water	Yes
12	Connection End (Probe side)	Potted (Waterproof)
13	Connection End (Other side)	BNC (Male)
14	Cable Length	5m
15	Cable Type	Coaxial Cable
16	Cable Impedance	50 Ohm
17	Temperature	10-50 deg. C
18	Quantity	2Nos.
19	Warranty	1Year

B. Terms and conditions

1.	General Requirements, Spares and Accessories	<ul style="list-style-type: none"> • Bidder should quote for all the items as per this Annexure and submit compliance statement on their letter head, otherwise their offer will not be considered. Purchase order will be placed on the basis of technically suitable overall lowest bid (L1) for all items. • Bidder shall furnish complete technical specifications. • Transducer shall be provided in properly encapsulated packaging with plastic box.
2	Test certificate	<p>Test certificates for each probe/transducer shall be supplied. Test certificate prepared by testing in water as per procedures mentioned in ASTM E1065 for each transducer is mandatory and must contain following information-</p> <p>1) Probe detail- Type, wave mode, crystal diameter, casing material and length, probe construction drawing (assembly) with dimension and</p>

		<p>material of construction (i.e., casing, Piezo electric crystal, matching layer, damping material etc.) , recommended temperature range.</p> <p>2) Test parameters-Pulser energy, damping used, receiver gain & attenuation setting, target detail (i.e, material, shape & size), target distance from the probe in water, Temperature of water, cable detail (i.e, type, length, end connector detail, impedance etc.) .</p> <p>3) Measurements -Point/Flat target focal length, waveform width (in microseconds at-14dB,-20dB and-40dB), center frequency, peak frequency and bandwidth (in percentage) with -6dB using “(upper frequency-lower frequency)/center frequency”.</p>
3.	Pre-Despatch Inspection (PDI)	PDI will be done at supplier’s works in India or through video conferencing mode, depending upon situation.
4.	Acceptance Criterion	<p>a) Values in test certificate shall meet with technical requirement in this annexure and same shall be demonstrated by supplier during PDI.</p> <p>b) Probe/Transducer shall be again tested at purchaser’s place in their instruments to verify technical test certificates and accepted only if values obtained will be in accordance with technical specification mentioned in this annexure.</p> <p>c) All the probes will be tested with $\Phi 0.8\text{mm}$ FBH (flat bottom hole) at 10mm metal path in SS grade material and accepted only if signal from FBH can be picked up successfully.</p> <p>d) Photograph of test set-up to be used during PDI and name and address of lab/workshop where PDI to be conducted shall be submitted along with the offer.</p>
5.	After Sales Service	Supplier should be capable of providing after sales service at Mumbai for which details shall be given.
6.	Warranty	The equipment shall be covered by warranty, at least for one year from the date of final acceptance.
7.	Post Supply Inspection	Post Supply Inspection in respect of supplies made is not permitted. Any offer containing the condition of post supply inspection will be out-rightly rejected. It is therefore mandatory for bidders while quoting, to indicate in clear terms the requirements of post supply inspection by any outside agency.
8.	Mandatory documents	<ul style="list-style-type: none"> • Photograph of test set-up to be used during PDI • Name & address of lab/workshop where PDI to be conducted