

# ISO 13710:2004-07 (E)

## Petroleum, petrochemical and natural gas industries - Reciprocating positive displacement pumps

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	4
4	General .....	8
4.1	Units of measurement .....	8
4.2	Subvendor control .....	8
5	Statutory requirements .....	8
6	Basic design .....	8
6.1	General .....	8
6.2	Selection of pump type .....	11
6.3	Ratings .....	11
6.4	Pressure-containing and pressure-retaining parts .....	15
6.5	Cylinder connections .....	16
6.6	External forces and moments .....	18
6.7	Liquid-end features .....	18
6.8	Power-end running gear .....	21
6.9	Direct-acting pump .....	22
6.10	Lubrication .....	23
6.11	Materials .....	24
6.12	Nameplates and rotation arrows .....	28
7	Accessories .....	29
7.1	Drivers .....	29
7.2	Couplings and guards .....	30
7.3	Belt drives .....	31
7.4	Mounting plates .....	32
7.5	Controls and instrumentation .....	34
7.6	Auxiliary piping .....	37
7.7	Pulsation and vibration control requirements .....	38
7.8	Special tools .....	39
8	Inspection, testing and preparation for shipment .....	40
8.1	General .....	40
8.2	Inspection .....	40
8.3	Testing .....	41
8.4	Preparation for shipment .....	43
9	Vendor's data .....	45
9.1	General .....	45
9.2	Proposals .....	46
9.3	Contract data .....	47

<b>Annex A (informative) Pump material specifications .....</b>	<b>50</b>
<b>Annex B (normative) Vendor drawing and data requirements (VDDR) form .....</b>	<b>57</b>
<b>Annex C (normative) Pulsation and vibration control techniques .....</b>	<b>60</b>
<b>Annex D (informative) Reciprocating positive-displacement pump data sheets .....</b>	<b>65</b>
<b>Annex E (informative) NPIP and NPSH .....</b>	<b>68</b>
<b>Annex F (informative) Inspector's checklist .....</b>	<b>71</b>
<b>Annex G (normative) Lubrication system .....</b>	<b>72</b>
<b>Bibliography .....</b>	<b>74</b>