

MEETING UNIQUE DESIGN AND MANUFACTURING CHALLENGES

LAPP's turbine components have been expertly designed and field-proven to withstand humidity, condensation, vibration, extreme temperatures, exposure to oil, and electromagnetic interference – any of which could cause unwanted downtime and a negative impact on your bottom line. You'll find our products hard at work in just about every area of the turbine.

1 BLADES

De-icing:	ÖLFLEX® / UNITRONIC®
Lightning counter:	ÖLFLEX® / UNITRONIC®

2 PITCH SYSTEM: HUB BOX

Battery supply/charger:	ÖLFLEX®
Battery heating:	ÖLFLEX®
Hub light:	ÖLFLEX®
Emergency stop:	ÖLFLEX®
Cable glands:	SKINTOP®

3 PITCH DRIVES

Power supply:	ÖLFLEX®
PTC resistor drive 1, 2 & 3:	UNITRONIC®
Resolver drive 1, 2 & 3:	UNITRONIC®
Limit switch 1, 2 & 3:	UNITRONIC®
Cable glands:	SKINTOP®

4 DRIP LOOP

Power supply 230/400/690V:	ÖLFLEX®
Signals:	ÖLFLEX® / UNITRONIC®
Ethernet:	ETHERLINE®
Communication:	HITRONIC®

5 TOWER CABLES

Lightning:	ÖLFLEX®
Sockets:	ÖLFLEX®

6 TOP BOX & BOTTOM BOX

Internal wiring:	ÖLFLEX® single core
Ethernet:	ETHERLINE®
Cable glands:	SKINTOP®
Cable bushing system:	SKINTOP® CUBE
Marking system:	FLEXIMARK®

7 YAW DRIVES

Main power supply:	ÖLFLEX®
Brake:	ÖLFLEX®
Heater:	ÖLFLEX®
Limit switch:	ÖLFLEX® / UNITRONIC®
Sensor yaw bearing:	UNITRONIC®
Cable glands:	SKINTOP®
Plug & play:	EPIC®

8 GEAR BOX

Heating/cooling:	ÖLFLEX®
Cooling fluid pressure gauge:	UNITRONIC®
Sensors PT 100:	UNITRONIC®
Signals (gear box to top box):	UNITRONIC®
Temperature bearings:	UNITRONIC®
Cable glands:	SKINTOP®

9 SLIP RING: HUB BOX CONNECTION

Supply drives/control:	ÖLFLEX®
Battery supply:	ÖLFLEX®
Signals:	ÖLFLEX®
Heating:	ÖLFLEX®
CAN Bus:	UNITRONIC® BUS CAN
Ethernet:	ETHERLINE® 2 pair
Cable glands:	SKINTOP®
Plug & play:	EPIC®

10 GENERATOR: SECOND TERMINAL BOX

Heating/cooling:	ÖLFLEX®
Sensors PT 100:	UNITRONIC®
Signals (generator to top box):	UNITRONIC®
Temperature bearings:	UNITRONIC®
Cable glands:	SKINTOP®

Products for wind energy applications at a glance

		1 Blades		2 Pitch System - Hub Box					3 Pitch Drives					4 Drip Loop				
		De-icing	Lightning Counter	Battery Supply / Charger	Battery Heating	Hub Light	Emergency Stop	Cable Glands	Power Supply	PTC Resistor Drive 1,2 & 3	Resolver Drive 1,2 & 3	Limit Switch 1,2 & 3	Cable Glands	Power Supply 230/400/690V	Signals	Ethernet Communication	Other Communication	
ÖLFLEX®	ÖLFLEX® 191	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® TRAY II	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® CONTROL TM	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® CLASSIC 110 CY	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® HEAT 180 SIF A	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	H07RN-F	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® SF	✓	✓	✓	✓	✓	✓		✓					✓	✓			
	ÖLFLEX® TORSION FRNC													✓	✓			
ETHERLINE®	ETHERLINE® CAT.6A FLEX															✓		
	ETHERLINE® TORSION CAT.5															✓		
	ETHERLINE® TORSION CAT.6A															✓		
	EPIC® DATA RJ45															✓		
	EPIC® DATA M12D															✓		
	ETHERLINE® ACCESS																	
	TOSIBOX																	
UNITRONIC®	UNITRONIC® 300	✓	✓							✓	✓	✓			✓			
	UNITRONIC® BUS	✓	✓							✓	✓	✓			✓			
HITRONIC®	HITRONIC® TORSION																✓	
ÖLFLEX® CONNECT	ÖLFLEX® CONNECT CABLE SOLUTION			✓					✓	✓	✓							
	ÖLFLEX® CONNECT SERVO			✓					✓									
EPIC®	EPIC® HB ULTRA housings																	
	EPIC® HA series inserts																	
	EPIC® POWER LS1																	
	EPIC® H-BE series inserts																	
	EPIC® MC series modules																	
	EPIC® SIGNAL M23																	
SKINTOP®	SKINTOP® metallic glands							✓					✓					
	SKINTOP® MS-SC							✓					✓					
	SKINTOP® non-metallic glands							✓					✓					
	SKINTOP® CUBE							✓					✓					
SILVYN®	SILVYN® conduit																	
FLEXIMARK®	Plastic & stainless steel marking			✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	

LAPP Asia Pacific

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Products for wind energy applications at a glance

		5 Tower Cables				6 Top Box & Bottom Box					7 Yaw Drives						
		Lighting	Sockets	Ethernet Communication	Other Communication	Internal Wiring	Ethernet Communication	Cable Glands	Cable Bushing System	Marking System	Main Power Supply	Heater	Brake	Limit Switch	Sensor Yaw Bearing	Cable Glands	Plug & Play
ÖLFLEX®	ÖLFLEX® 191	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® TRAY II	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® CONTROL TM	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® CLASSIC 110 CY	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® HEAT 180 SIF A	✓	✓								✓	✓	✓	✓			
	H07RN-F	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® SF	✓	✓								✓	✓	✓	✓			
	ÖLFLEX® TORSION FRNC																
ETHERLINE®	ETHERLINE® CAT.6A FLEX						✓										
	ETHERLINE® TORSION CAT.5			✓			✓										
	ETHERLINE® TORSION CAT.6A			✓			✓										
	EPIC® DATA RJ45			✓			✓										
	EPIC® DATA M12D						✓										
	ETHERLINE® ACCESS						✓										
	TOSIBOX						✓										
UNITRONIC®	UNITRONIC® 300													✓	✓		
	UNITRONIC® BUS													✓	✓		
HITRONIC®	HITRONIC® TORSION				✓												
ÖLFLEX® CONNECT	ÖLFLEX® CONNECT CABLE SOLUTION					✓					✓						
	ÖLFLEX® CONNECT SERVO										✓						
EPIC®	EPIC® HB ULTRA housings																✓
	EPIC® HA series inserts																✓
	EPIC® POWER LS1																✓
	EPIC® H-BE series inserts																✓
	EPIC® MC series modules																✓
	EPIC® SIGNAL M23																✓
	SKINTOP® metallic glands							✓								✓	
SKINTOP®	SKINTOP® MS-SC							✓								✓	
	SKINTOP® non-metallic glands							✓								✓	
	SKINTOP® CUBE							✓	✓							✓	
SILVYN®	SILVYN® conduit																✓
FLEXIMARK®	Plastic & stainless steel marking	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		✓

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Products for wind energy applications at a glance

		8 Gear Box						9 Slip Ring - Hub Box Connection							10 Generator - Second Terminal Box					
		Heating / Cooling	Cooling Fluid Pressure Gauge	Sensors PT 100	Signals (Gear Box to Top Box)	Temperature Bearings	Cable Glands	Supply Drive / Control	Battery Supply	Signals	Heating	CAN Bus	Ethernet Communication	Cable Glands	Plug & Play	Heating / Cooling	Sensors PT 100	Signals (Generator to Top Box)	Temperature Bearings	Cable Glands
ÖLFLEX®	ÖLFLEX® 191	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® TRAY II	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® CONTROL TM	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® CLASSIC 110 CY	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® HEAT 180 SIF A	✓						✓	✓	✓	✓					✓				
	H07RN-F	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® SF	✓						✓	✓	✓	✓					✓				
	ÖLFLEX® TORSION FRNC																			
ETHERLINE®	ETHERLINE® CAT.6A FLEX												✓							
	ETHERLINE® TORSION CAT.5												✓							
	ETHERLINE® TORSION CAT.6A												✓							
	EPIC® DATA RJ45																			
	EPIC® DATA M12D																			
	ETHERLINE® ACCESS																			
	TOSIBOX																			
UNITRONIC®	UNITRONIC® 300		✓	✓	✓	✓											✓	✓	✓	
	UNITRONIC® BUS		✓	✓	✓	✓						✓					✓	✓	✓	
HITRONIC®	HITRONIC® TORSION																			
ÖLFLEX® CONNECT	ÖLFLEX® CONNECT CABLE SOLUTION	✓			✓											✓		✓		
	ÖLFLEX® CONNECT SERVO																			
EPIC®	EPIC® HB ULTRA housings														✓					
	EPIC® HA series inserts														✓					
	EPIC® POWER LS1														✓					
	EPIC® H-BE series inserts														✓					
	EPIC® MC series modules														✓					
	EPIC® SIGNAL M23														✓					
SKINTOP®	SKINTOP® metallic glands						✓							✓						✓
	SKINTOP® MS-SC						✓							✓						✓
	SKINTOP® non-metallic glands						✓							✓						✓
	SKINTOP® CUBE						✓							✓						✓
SILVYN®	SILVYN® conduit				✓									✓						
FLEXIMARK®	Plastic & stainless steel marking	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	

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