


IR offers the broadest selection of air winches in the world, including utility and personnel lifting winches. Here's how IR air winches are rated:

■ **Utility rated air winches**

- Used for lifting, pulling or tensioning of materials, up to the rated capacity of the winch.
- Meet ANSI / ASME B30.7
- Rated with a 5:1 design factor for lifting and lowering loads and a 3.5:1 design factor for pulling loads
- Versions available to meet the European Machinery Directives
- Clutches for free spooling wire rope are allowed in the U.S.A. for both lifting and pulling; in Europe, they are allowed for pulling applications only .
- Applications include construction, mining, offshore oil, heavy industrial, refineries, utilities, shipbuilding, petrochemical
- Not to be used for lifting people

■ **Offshore Man Rider™**

- Offshore Man Riders have Type Approval and can be certified by one or more of the following independent third party organizations for the offshore oil and drilling industry:
 - Det Norske Veritas (DNV)
 - American Bureau of Shipping (ABS)
 - Lloyd’s Register of Shipping (LRS)
- Offshore Man Riders have been designed according to the regulations of one or more of the following regulatory bodies:
 - Norwegian Petroleum Directorate (NPD)
 - Norwegian Maritime Directorate (NMD)
 - UK HSE
- Type Approved for lifting and lowering of people with 8:1 design factor
- Force 5 models are dual rated for utility lifting at 5:1 design factor
- Dual brakes: one automatic and one manual or dual automatic

 **-E = Compliance with the European Machinery Directive. Includes as standard on utility rated winches:**

- 1 Main air supply shutoff located at the winch for throttle control models and on the pendant for remote control models.
- 2 Overload device for lift rated winches
- 3 Drum guard
- 4 Muffler
- 5 CE documentation

■ **“Gulf” Man Rider™**

The Gulf Man Rider was specifically designed to meet the requirements for a personnel lifting winch for use on offshore rigs in the Gulf of Mexico. Additionally, the design has been type approved by DNV. The Gulf Man Rider is backed by IR’s experience and comes with a Det Norske Veritas (DNV) witness to our load test.

■ **Onshore Man Rider™**

- Onshore Man Riders have been designed to meet the requirements of ANSI / ASME A10.22-1990 for “Rope Guided and Nonguided Worker’s Hoists - Safety Requirements”.
 - Addresses OSHA requirements where applicable
 - Typical applications include tower and chimney construction and maintenance, dams, mines, building construction

- Upper/lower limit switches, speed indicator, battery pack and dual brakes—one automatic and one manual—are standard
- Dual rated for personnel and material lifting—8:1 design factor for personnel; 5:1 design factor for materials
 - Line pulls are rated at top layer and line speeds at mid layer.
 - Third party Type Approved by ABS

Man Rider air winch series quick selection guide

Man Rider series	Rated line capacity/ lifting at top layer				Rated line speed/ lifting at top layer			
	personnel 8:1 DF		utility 5:1 DF		personnel 8:1 DF		utility 5:1 DF	
	lbs	kg	lbs	kg	fpm	m/min	fpm	m/min

Meets Offshore requirements for one or more of the following: ABS, DNV, LRS, NMD, NPD and UK HSE

FA150KGMR (-E)	330	150	n/a	n/a	95	29	n/a	n/a
LS150RLP (-E)	330	150	–	–	98	30	–	–
LS500RLP (-E)	1100	500	–	–	85	26	–	–
LS1000RLP (-E)	2200	1000	–	–	85	26	–	–
FA2BMR ⁽¹⁾	2500	1136	4000	1818	168	51	118	36
FA2MR (-E)	3180	1445	4400	2000	64	20	55	17
FA2.5AMR (-E) ⁽¹⁾	3125	1420	5000	2273	173	53	135	41
FA2.5MR (-E)	3180	1445	5000	2273	118	36	140	43
FA5AMR (-E) ⁽¹⁾	6250	2841	10000	4545	102	31	62	19
FA5MR (-E)	6875	3125	11000	5000	77	23	65	20

Meets onshore requirements of ANSI / ASME A10.22-1990

FA2MRA	2200	1000	3520	1600	91	28	66	20
FA2.5MRA	2200	1000	3520	1600	195	59	157	48
FA5MRA	4400	2000	7040	3200	87	26	74	22

(1) Rated at mid layer

■ **Piston motor or gear motor?**

IR air winches have a worldwide reputation for being rugged, durable and dependable in a vast array of applications. To meet the various needs of our customers, we offer two powerful yet different motors to power the winch.

- **Piston motors**—used in the Third Generation Force 5 Series, original Force 5 Series and IR Classics. Piston motors have great lugging characteristics—that is, they allow an operator to slowly move a load at an inching crawl for excellent spotting. Relatively high speeds are attained for moving loads long distances. Piston motors have internal “splash” lubrication and are fairly tolerant of “dirty” air. The new MP150 used on the FA2B air winch is lube-free!
- **Gear motors**—used exclusively in the Pullstar™ (PS) and Liftstar™ (LS) Series. Gear motors have only two moving parts, which reduces the complexity of motor maintenance, and are “lube-free”. The high torque feature provides outstanding steady slow speed characteristics. High speeds are not obtained with this type of motor. Gear motors will tolerate the wet and dirty air supply typically found in mines, foundries, steel mills, etc.

Air Winch Selection Guide

330 to 22000 lb (150 to 10000 kg) capacity



Utility air winch quick selection guide

(See specific series for complete technical information)

LIFTING: ANSI/ASME B30.16 allowable rated line pulls (5:1 design factor)


Utility models	First layer				Mid Layer				Top Layer				Average flow required	
	Capacity		Speed		Capacity		Speed		Capacity		Speed		cfm	m ³ /min.
	lbs	kg	fpm	m/min	lbs	kg	fpm	m/min	lbs	kg	fpm	m/min		
LS150R	455	207	103	31	380	173	115	35	330	150	138	42	78	2.2
LS300R	840	382	56	17	740	336	63	19	660	300	69	21	78	2.2
BU7A	1200	545	36	11	1000	454	43	13	1000	454	39	12	50	1.4
LS600R	1680	764	26	8	1480	673	30	9	1325	600	34	10	78	2.2
EU, EUL	2100	955	62	19	2000	909	68	21	2000	909	64	20	100	2.8
LS1500R ⁽¹⁾	4000	1818	19	6	3600	1636	21	6	3300	1500	23	7	125	3.5
FA2B	5000	2273	79	24	4000	1818	96	29	3200	1455	122	37	350	9.9
FA2.5A	5000	2273	119	36	5000	2273	114	35	4100	1864	141	43	700	19.8
HU40A	5000	2273	44	14	4000	1818	57	18	3200	1455	70	22	291	8.2
LS2000R	6200	2818	47	14	5150	2341	56	17	4400	2000	66	20	354	10.0
FA2	6600	3000	31	9	5200	2364	40	12	4400	2000	47	14	280	7.9
FA2.5	7000	3182	97	30	5800	2636	117	36	5000	2273	132	40	700	19.8
FA5A	11400	5182	40	12	10000	4545	50	15	8000	3636	62	19	700	19.8
FA5T	12500	5682	47	14	11300	5136	52	16	8400	3818	70	21	700	19.8
FA5	12500	5682	47	14	12500	5682	48	15	11000	5000	54	16	700	19.8
LS5000R	15600	7091	23	7	12900	5864	28	9	11000	5000	33	10	354	10.0
FA7T	18800	8545	32	10	16700	7591	37	11	12600	5727	48	15	750	21.2
FA7	18800	8545	32	10	18800	8545	33	10	15400	7000	40	12	750	21.2
FA10	27200	12364	28	9	27100	12319	19	6	22000	10000	23	7	800	22.7

PULLING: ANSI/ASME B30.7 allowable rated line pulls (3.5:1 design factor)

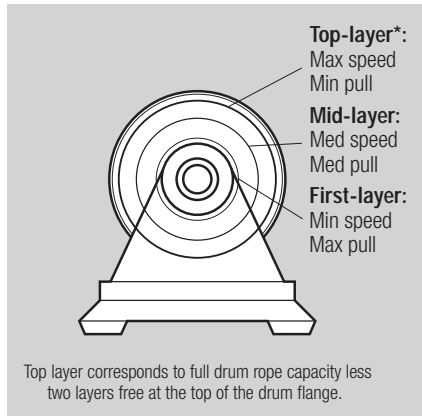
Utility models	First layer				Mid Layer				Top Layer				Average flow required	
	Capacity		Speed		Capacity		Speed		Capacity		Speed		cfm	m ³ /min.
	lbs	kg	fpm	m/min	lbs	kg	fpm	m/min	lbs	kg	fpm	m/min		
BU7A	1500	682	26	8	1200	545	34	10	1000	454	39	12	50	1.4
PS1000R	2200	1000	15	5	1950	886	17	5	1740	791	19	6	78	2.2
EU, EUL	3000	1364	45	14	2600	1182	49	15	2000	909	64	20	100	2.8
FA2B	5100	2318	76	23	4000	1818	96	29	3200	1455	122	37	350	9.9
PS2400R ⁽¹⁾	5280	2400	12	4	4800	2182	13	4	4370	1986	14	4	125	3.5
FA2	6800	3091	29	9	5400	2455	37	11	4500	2045	44	13	280	7.9
FA2.5A	7100	3227	67	20	6400	2909	42	13	5400	2455	45	14	700	19.8
FA2.5	8000	3636	79	24	6600	3000	42	13	5300	2409	119	36	700	19.8
HU40A	5100	2318	42	13	4000	1818	54	17	3200	1455	68	21	291	8.2
PS4000R	8800	4000	13	4	7300	3318	16	5	6200	2818	18	5	354	10.0
FA5A	13100	5955	26/8	8	10000	4545	50	15	8000	3636	62	19	700	19.8
FA5T	18000	8182	32	10	11600	5273	50	15	8600	3909	67	20	700	19.8
FA5	18000	8182	32	10	14100	6409	41	12	11600	5273	50	15	700	19.8
PS10000R	22000	10000	8	2	18300	8318	10	3	15600	7091	11	3	354	10.0
FA7T	27000	12273	23	7	18100	8227	32	10	13600	6182	46	14	750	21.2
FA7	27000	12273	23	7	18100	8227	32	10	13600	6182	46	14	750	21.2
FA10	34000	15455	17	5	27100	12319	19	6	22000	10000	23	7	800	22.7

(1) Standard cable is overwound; LS1500R and PS2400R are underwound.

Note: Adding "-E" to model states compliance with European Machinery Directive. See previous page for explanation of compliance.

 **It is the user's responsibility to determine the suitability of these winches for any particular use and to check for compliance with applicable regulations.**

How IR air winches are rated.



■ **Winch capacity:**

Winches can lift or pull the highest loads at the first layer, and can lift/pull the least at the top layer. This is due to the “torque arm” effect of the rope spooling on the winch drum. The closer the load is to the drum, the easier it is for the winch to turn and move the load. The further away the load is from the drum, the harder it is for the winch to turn.

■ **Winch speed:**

Winches generally move the load fastest at the top layer and slowest at the first layer. Think of your old record player. If you put a penny near the center of the record, it would simply spin at the same rate as the record. But if you put it near the outside edge, it would fly off. This is because the outer diameter of the record is travelling faster than the inner diameter. The same is true for a winch drum, and consequently the wire rope.

■ **Follow these guidelines to choose the correct utility winch for your application:**

First, consider these three fundamental questions:

1. How much is to be lifted, pulled, or tensioned?
2. How fast is the load to be moved (if at all)?
3. How much wire rope is needed?

There is a handy checklist at the back of the catalog designed to help you answer these questions and guide you through the selection process. Your IR sales representative, authorized distributor, and factory FAST team are also ready to assist you in finding solutions for all your winch related applications.

Lifting applications are generally defined as those that require the brake to be engaged to prevent the load from falling. Refer to the quick selection guide earlier in this section.

a. Choose a winch with a lifting capacity equal to or greater than your application load.

➤ **Tip: Consider using a pulley to increase capacity, reduce speed, and for better load control.**

b. Make sure the average speed meets your criteria for cycle time.

c. Wire rope selection is based on a 5:1 design factor and an 18:1 D/d ratio. The 18:1 D/d ratio is an ANSI / ASME B30-7 recommendation and is calculated as $D + d / d$ where D = winch barrel diameter and d = wire rope size. The higher the ratio, the longer the wire rope life. As a guideline, this ratio should never go below 15:1. The use of 6 x 37 rope will increase flexibility.

➤ **Tip: Winches with lower gear ratios overhaul better; that is, the load will run them backwards in a controlled descent with the throttle off. By applying the manual band brake, exceptional spotting can be achieved.**

Auto brakes are always recommended with remote control operation.

d. Either manual or automatic brakes are suitable, although automatic brakes are recommended for lifting applications.

e. **Clutches:** In the U.S.A., clutches are permitted on lifting winches. Although we don't usually recommend them, for certain lifting applications they make sense. In Europe, clutches are not allowed on lifting winches. The Liftstar series is for lifting and the Pullstar for pulling. They are the same winches, but with different ratings — and the Pullstar winches have clutches.

Pulling applications: Because of the 3.5:1 design criteria and the first layer rating, the ratings for pulling applications are higher for the same winch. Choose a winch based on capacity, speed and distance to be pulled. Manual band brakes and clutches are popular configurations, but each application has its own specific requirements. Again, consider pulleys to increase pulling capacity.

Air supply and consumption: All IR winches are rated at 90 psig (6.3 kg/m²) inlet pressure when the winch is running. The volume of air required is expressed in cubic feet per minute (cfm) or cubic meters per minute (m³/min). Refer to the charts or power curves for air consumption data for specific models. Compressor output must equal air consumption for continuous operation. Intermittent operation and/or air storage facilities will allow the use of smaller compressors. Hoses and fittings should be sized equal to or preferably one size larger than the winch inlet. Strainers, lubricators, filters and regulators are recommended based on air quality and the application. Mufflers and kits for piping away the exhaust are always suggested for operator safety and comfort.