



For more information, visit www.jefra.com.ph



Standard Power Take-Offs

Twin Disc Power Take-Offs are suitable for application to all internal combustion engines with standard SAE flywheel housing dimensions from No. 6 through No. 00. The PTO's contain clutches ranging in size from one plate 6 1/2" to one plate 14"; in two plate size from 11 1/2" to 18"; and three plate size from 14" to 21". Suitable power take-offs are available for use with engines in industrial installations up to 1667 horsepower in Duty Class II applications.

A Power Take-Off consists of a complete clutch assembly with shaft and bearings mounted in a cast iron housing that provides for easy engine installation.

PTO's are used as a standard method for transmitting the power of engines in a great variety of industrial applications such as: air compressors, agricultural machinery, pump drives, crushers, road building machinery, cranes and shovels, oil field service, etc.

Twin Disc offers power take-offs

for all industrial engines. The IBF line is designed especially for today's high-speed, high-horsepower industrial engines, and presently is offered in two and three clutch plate construction. This multiple-plate, ventilated design assures ample cooling area to withstand heat, and with solid plates these PTO's can effectively handle the stress of higher engine speeds. The IBF units feature oil lubricated tapered roller bearings that extend lubrication intervals.

Available on most size PTO's are sealed pilot ball or roller bearings as optional equipment. These bearings eliminate the lubrication requirement and shaft rife-drilling normally encountered with standard pilot bearings. Also available, as optional components, are ball bearing throw-out collars and finger springs.

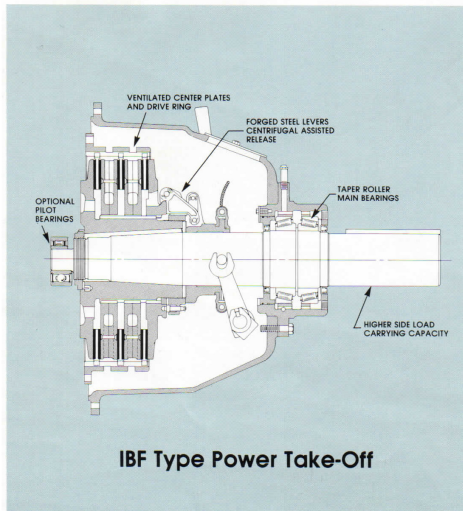
Horsepower and torque capacities listed can be increased by the use of sintered-iron clutch plates which are available as optional

equipment in the 8" through 21" sizes.

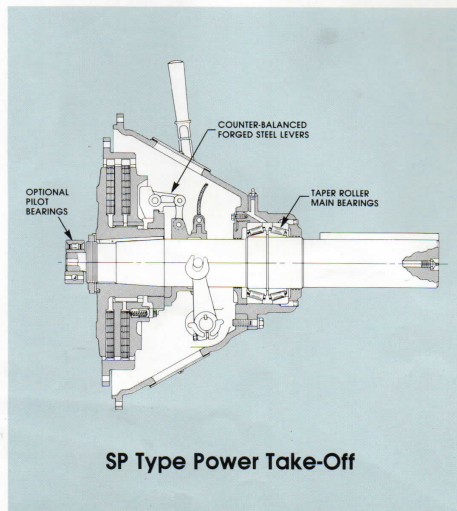
All bearings, shafts and other parts are designed with liberal safety factors to maximize life under normal operating conditions. To avoid overloading the shaft and bearings, use the allowable side-pull load data in this bulletin, and calculate the side load. The resultant value should be less than the corresponding maximum value listed for each power take-off. In questionable cases, consult the General Products Application Department, Twin Disc, Incorporated, Racine, Wisconsin.

Actual design torque capacity of the clutches used in power take-offs is in excess of the horsepower rating listed. This permits Twin Disc Power Take-Offs in proper adjustment, to withstand temporary torque overloads. Rated torque can be transmitted while moderately slipping during short periods without permanent damage.

NOTE: All dimensions given in inches unless noted.



IBF Type Power Take-Off



SP Type Power Take-Off

Specifications

PTO Model Number	Drawing Assembly Number	Available Hsg. Sizes SAE	Max. Input Torque* Lb. Ft.	Application Duty Classification				Maximum Safe Operating Speed ¹				Approx. Net Weight Lbs.
				Clutch Maximum HP Rating (See note 2)				Solid Plates		Split Plates		
				Class I	Class II	Class III	Class IV	Cast Dr. Ring	Nodular Dr. Ring	Cast Dr. Ring	Nodular Dr. Ring	
C-106SP	X8317	6, 5, 4	159	40	27	20	3500	NA	3500	NA	53	
C-107SP	X8317	6, 5, 4	175	54	36	27	3200	NA	3200	NA	55	
C-108HP	X8419A	5, 4, 3	230	61	41	31	3100	3100	3050	3100	72	
C-110HP	X8249	4, 3, 2, 1	328	96	64	48	3100	3930	2650	3500	115	
C-111HP	X8249	4, 3, 2, 1	387	124	82	62	2850	3600	2200	3200	120	
SP-111P	X9619	3, 2, 1									129	
SP-111HP	X9582	3, 2, 1	455	124	82	62	2850	3600	2200	3200	141	
SP-111OP	X9818	3, 2, 1									145	
SP-211HP	X9681	3, 2, 1	909	247	165	124	2850	3500	2200	3160	155	
SP-211OP	X9894B	3, 2, 1					2850	3000	2200	3000	175	
SP-311P	XA7570	2, 3	1620	371	247	186	NA	3000	NA	NA	220	
SP-114P	X9643	1, 0	810	188	125	94	2400	3000	1950	2750	260	
SP-214P	X9803	1, 0	1620	376	251	188	2500	3000	1950	2750	328	
SP-214OP	X9845	1, 0					2400	2400	1950	2400	340	
IBF-214OP	X9745E	1, 0	1620	395	264	197	NR	2400	NA	NA	470	
IBF-214OP	X9745F	1, 0										
SP-314P	X9585	1, 0	2430	564	376	282	2500	3000	1920	2700	408	
SP-314P	X9585A	1, 0										
IBF-314OP	XA7149	1, 0	3040	741 ³	494 ³	371 ³	NR	2400	NA	NR	595	
IBF-314OP	XA7149A											
IBF-314OP	XA7149B											
SP-218OP	XA7190	0, 00	4000	622	415	311	1950	NA	1550	NA	660	
SP-219OP	XA7190A											
SP-318P	X9671	0	6000	933	622	467	2050	2350	1550	2100	700	
IBF-318OP	X9918	0	7500	1224 ⁴	816 ³	612 ³	NA	2200	NA	NR	920	
IBF-318OP	X9918A											
IBF-318OP	X9918B											
SP-321P	X9691A	00	6730	1270	847	635	1800	—	1400	—	1110	
IBF-321OP	X9919	00	8400	1667 ³	1111 ³	834 ³	NA	2200	NA	NR	1210	

NOTES: 1. NA (Not available), NR (Not recommended).
 2. Horsepower and torque ratings may be increased by specifying optional sintered iron type clutch plates. Available 8" through 21" sizes.

3. Sintered iron clutch plates with ventilated type center plates are standard in IBF-314, IBF-318 and IBF-321 PTO units. These plates should not be used in applications where torsional vibrations are prevalent.

Consult Twin Disc General Products Application Department, Racine, WI.
 4. Compound drives and power engaged PTO applications require written factory review for warranty to apply.

Duty Service Classifications

Attention is called to the fact that other application factors must be considered in the selection process in addition to duty service, such as:

- SPEED LIMITS • SIDE LOAD LIMITS • CLUTCH TORQUE LIMITS

The selections are usual dry clutch disconnect type applications where engagements are infrequent and are at low (idle) input speed. Once engaged operation continues for one hour or more, engaging the clutch at higher input speed will reduce component life. Refer to duty classifications and examples which follow. Carefully note clutch slip time so that thermal capabilities are not exceeded.

Duty Class I: The clutch is used for disconnecting the power from the load. When engaging, so little work is done that the clutch shows no temperature increase at the pressure plate outer surface. Use maximum input torque from the Class I Table, disregard horsepower. The mechanism is operated one (1) or more hours before disconnecting.

Examples: Engagement of clutches with the driven equipment having WR² less than that of the clutch and whose torque demand curve is similar to that of a centrifugal pump.

Duty Class II: The clutch is used primarily for disconnect, but does more work during engagement than in Duty Class I. The clutch will engage within two (2) seconds, never heat the pressure plate more

than 50°F (28°C) above ambient, and once engaged is operated for one (1) or more hours before disconnecting. The maximum horsepower which the clutch can absorb is given in Class II Table.

Examples: Power shovel master clutch, generator, line shafts and similar light duty drives.

Duty Class III: The clutch will engage within three (3) seconds, never heat the pressure plate more than 100°F (56°C) above ambient, and once engaged is operated for one (1) or more hours before disconnecting. The maximum horsepower which the clutch can absorb is given in Class III Table.

Examples: Engine PTO starting average loads, and clutches whose starting load is up to 1.4

times the running load. Blowers, fans, screw compressor, conveyors and similar normal duty drives.

Duty Class IV: The clutch will engage within four (4) seconds, never heat the pressure plate more than 150°F (83°C) above ambient, and once engaged is operated for one (1) or more hours before disconnecting. The maximum horsepower which the clutch can absorb is given in Class IV Table.

Examples: Engine PTO starting heavy loads such as rock crushers, mud pumps, and other large inertia machinery and clutches whose starting load is up to 1.8 times the running load typical of heavy duty drives.

Duty Class V: The clutch is used to start large inertia loads which require four (4) seconds to start the largest load, with the longest slip period per engagement not to exceed ten (10) seconds. The clutch must be selected according to its horsepower absorption capability. Clutch applications in this Duty Class or those which require frequent engagements require factory review. Contact General Products Application Department for consultation on the drive.